Concurrent Session I: Organ Specific: Liver, Small Bowel and Pancreas 1

Abstract# 1
LONG-TERM QUANTIFICATION OF ENZYME TRANSFER BY LIVER CELL TRANSPLANTATION (LCT) FOR NEONATAL CARBAMOYLPHOSPHATE SYNTHASE I (CPS1) DEFICIENCY.
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PURPOSE: Since the first use of LCT in inborn errors of metabolism 1997, several children have been treated with promising results. However, quantification of transplant success has been a major problem so far, especially in multifactorial diseases.
METHOD: Orthotopic liver transplantation (OLT) was performed 15 months after clinically successful LCT in a boy with neonatal CPS1 deficiency. A 3D-reconstruction of the liver based on a preoperative MRI was used to plan multiple tissue samples of the explanted organ. During liver explantation, the in- and outflow vessels were preserved as long as possible to achieve a minimal ischemia time. A total of 40 samples (1-1.5 ml) were obtained and immediately frozen. CPS1 activity was determined after thawing by citrulline formation.
RESULTS: Calculated enzyme activity in the explanted liver averaged 5.4% of healthy controls (range 0 - 30.8%). Enzyme activities were irregularly distributed in the liver with lowest figures around the hilus in segment IV. There was no significant difference between central and peripheral tissue samples.
CONCLUSION: We found a mosaic of original hepatocytes with no CPS1 activity and healthy transplanted cells that varied through the liver reflecting the expected irregular pattern of engraftment. The total enzyme activity was 4.3 fold higher than expected from the original number of transplanted cells. Thus, it seems likely that the transplanted liver cells have proliferated, upregulated their cycle activity or both. Since the increase in enzyme activity correlates with clinical improvement, this is the first unequivocal proof of long-term success in human LCT.

Abstract# 2
INTESTINAL TRANSPLANTATION (ITx) IN CHILDREN LESS THAN 10 KG BODY WEIGHT: CHALLENGES AND OUTCOME.
Khalid Sharif, Darius Mirza, Susan V. Beath, Deirdre Kelly, David Mayer, Aliaster Millar, Girish Gupte. Liver Unit, Birmingham Children’s Hospital, Birmingham, United Kingdom.
PURPOSE: Outcomes of small children with complicated intestinal failure referred for ITx has been complicated by lack of size matched donors & co-morbidities. Immunosuppressive surgical techniques including pre-transplant (Pre-Tx) abdominal expanders, reduced en-bloc grafts size formation with staged abdominal closure have improved the chances of successful ITx. Aim: To report the challenges & outcome of ITx in children <10kg.
METHOD: Retrospective review of database between 1993-2008. All the children <10 kg body assessed for intestinal transplantation were analysed. The following variables were analysed demographics, waiting list mortality, types of grafts, various surgical techniques, challenges, complications and outcome.
RESULTS: 169 children <10kg were assessed for ITx, 74 (45%) children were recommended for ITx, 30 (40%) children died on waiting list and 28 (38%) children underwent ITx, median weight 8.4 kg (range 5.4-10), 16 are waiting or were delisted because of deterioration. Median waiting time to ITx was 3.4 months (range 1.2-16.0 months). 3 children underwent isolated bowel, 16 reduced liver bowel & 8 whole liver bowel transplants. Median donor: recipient weight ratio was 2.6:1 (range 0.7-6.7).
CONCLUSION: Evolving surgical strategies made ITx possible in children <10 kg with favourable long-term outcome.

Abstract# 3
HIGH INCIDENCE OF HISTOLOGICAL HEPATITIS AND PORTAL FIBROSIS AT 1 YEAR AFTER PEDIATRIC LIVER TRANSPLANTATION USING A TACROLIMUS BASED IMMUNOSUPPRESSIVE REGIMEN.
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PURPOSE: Recent studies show a high incidence of abnormal histological features during follow up after pediatric liver transplantation (LTx). Previously we described portal fibrosis in 30% of first year biopsies after LTx in pediatric patients treated with cyclosporine (CsA; Transplantation 2000; 70 (11): 1581-7). Aim of this study is to assess development of fibrosis at 1 year after pediatric LTx using a FK based immunosuppressive scheme.
METHOD: We included patients transplanted between 1999 and 2006, who had a 1 year post LTx survival and were treated with a FK based immunosuppressive scheme (n = 74). All biopsies were reviewed by a single pathologist.
RESULTS: 4 major histopathological categories were found in the biopsies: 1. normal (n = 23; 31%), 2. reactive changes (n = 7; 10%), 3. portal fibrosis (n = 25; 34 %), 4. hepatitis (n = 17; 23%). Compared with a CsA-based immunosuppressive regimen, the incidence of fibrosis was similar (CsA 31%, FK 34%; NS). The patients with portal fibrosis did have significant higher liver enzymes (AST 49 ± 28 IU/L, ALT 59 ± 40 IU/L) compared with patients with normal histology (AST 36 ±11 IU/L, ALT 30 ± 13 IU/L). Histological hepatitis was more frequently observed in FK treated patients (23%) compared to the CsA group (n = 0; p < 0.05). This hepatitis was rather lightly moderated (Metavir score “mild” in 13/17, 76%; “moderate” in 4/17, 24%). Histological hepatitis was not associated with elevated liver enzymes. The etiology of the hepatitis could not be identified: Serology for Hepatitis A, B and C was negative. In situ hybridisation for EBV (EBER) was negative in all hepatitis cases. Serum IgG concentrations were similar in the two groups (hepatitis 11.9 ± 4.5, other 10.2 ± 3.3 NS).
CONCLUSION: The incidence of graft fibrosis at 1 year after pediatric LTx is similar after a CsA- or a FK based immunosuppressive regimen (~30%). The FK based regimen is specifically associated with a high incidence of histological mild hepatitis of unknown origin.

Abstract# 4
V61/62-T-CELL-RATIO AS INDICATOR FOR DEVELOPMENT OF OPERATIONAL TOLERANCE AFTER PEDIATRIC LIVER TRANSPLANTATION.
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PURPOSE: Two studies in operational tolerant and immunosuppression-dependent patients after liver transplantation have retrospectively shown differences in the subpopulations of γδ-T-cells with an increase in V61- versus V62-cells associated with operational tolerance. The purpose of this study is to prospectively analyse T-cell subpopulations in patients after liver transplantation with the hope of identifying patients developing immunotolerance.
METHOD: All pediatric patients transplanted in our center or visiting for follow-up after liver transplantation are included in a prospective trial. T-cell-subpopulations are measured by flow-cytometry before and 1, 3, 6 and 12 months after transplantation or at time of yearly follow-up. In patients with repeatedly increased V61/V62-ratio, the regulatory function of the V61-cells is further investigated in vitro.
RESULTS: Among the first 19 patients (20 analyses, 17 after liver transplantation, 1-156 months after transplantation), there is a trend for a reduction of initially risen total γδ-T-cells after transplantation with no discernible tendency in the V61/V62-ratio. 5 patients were identified with an increased V61/V62-ratio at 6, 18, 30, 60 and 66 months after transplantation.
CONCLUSION: Five of 19 patients showed a favourable V61/V62-ratio in the range of terminal operational tolerance. This encouraging result must be confirmed by serial measurements and testing of regulatory function in the concerned patients before immunosuppression can possibly be reduced under close clinical supervision. To improve the understanding of the underlying processes, the development of total γδ-T-cell-count and V61/V62-ratio will be evaluated in a larger cohort of patients.

Abstract# 5
CONVERSION FROM PROGRAF TO ONCE-DAILY TACROLIMUS EXTENDED-RELEASE FORMULATION (ADVAGRAF®) IN PEDIATRIC LIVER TRANSPLANT PATIENTS (PRELIMINARY REPORT OF SINGLE CENTER EXPERIENCE).
PURPOSE: Once-daily tacrolimus is a new oral formulation of the established agent tacrolimus (TAC), which is administrated twice daily. It has been approved in the European Community for prophylaxis of rejection in liver and kidney transplant recipients and it is registered as Advagraf (ADV). The purpose of this study is to evaluate the conversion of TAC to an extended-release formulation (ADV) in pediatric liver transplant recipients.
METHOD: 17 liver transplant children were enrolled in a protocol to convert TAC to ADV. Patients mean age: 14 y (6-18y). Protocol requirements were: at least 2 of posttransplant follow-up, normal liver functions in the last 6 months and the ability to swallow intact capsules. Mean time after transplantation: 6 y (r: 2-16 y). Patients were converted from the twice-daily formulation of TAC to once-daily (morning) ADV on a 1:1(mg: mg) basis for the total daily dose. The therapeutic monitoring of ADV was the same that the employed with TAC. ADV blood levels were performed on day 7, 14, 30 and 60 days, biochemical profiles, liver and renal function, EPIV and CMV PCR were
measured. 4/17 p. (23%) were non-compliance patients. 10/17 (58.8%) pts received adjunctive medications prior to conversion: TAC + MMF or TAC + ST.

RESULTS: ADV had good tolerance in all patients without significant adverse effects. ADV levels at day 7 were lower than TAC levels in 6/17 (35%) of the pts. Patients required increasing 20% ADV dose. However at 14, 30 and 60 days ADV blood levels were into the expected range. No changes in liver function test and the rest of parameters were seen. In a questionnaire all patients preferred ADV once-daily dose. The 4 non-compliance accomplished the new regimen.

CONCLUSION: In a short term follow-up, tacrolimus blood levels didn’t require great dose adjustment after conversion. ADV provides a safe and effective once-daily dosing as monotherapy or with another immunosuppressors. ADV once-daily dose had a good acceptance from patients and parents and it may have a positive impact for long-term adherence.

Abstract# 6

PEDIATRIC LIVER TRANSPLANTATION: THE 100% SURVIVAL PROSPECT? Christophe Bourdeaux,1 Catherine de Magnée,1 Andrea Brunati,1 Magda Janssen,1 Etienne Sokal,1 Raymond Reding.1 Pediatric Liver Transplant Program, Université Catholique de Louvain, St-Luc University Clinics, Brussels, Belgium.

PURPOSE: When compared to post-mortem donors (PMD), pediatric liver transplantation (PLT) with living-related donors (LRD) provides lower pre-transplant mortality and, as recently published, similar patient and graft outcome post-transplantation (Ann J Transplant 2007; 7: 440–447). Despite technical difficulties, LRD could even be associated with a significantly better post-transplant survival than PMD. The technical, immunological and overall outcome of PLT performed at our center since the initiation of the LRD program was analyzed.

METHOD: Between 7/1993 and 1/2008, 376 children received a primary PLT from a LRD (n=163) or a PMD (n=213). Both groups were compared and the putative impact of surgical and immunological variables on post-transplant outcome was studied using a multivariate analysis.

RESULTS: Patient and graft survival in this series are given in the Table for LRD and PMD. Graft and patient survival in LRD and whole PMD transplant were statistically better when compared to transplant using reduced-size or split liver graft. Neither mortality nor significant morbidity was encountered in the 163 living donors. Moreover the learning curve analysis showed a 15% improvement of one year patient survival between 1993-1994 era (one year patient survival : 85%) and 2007-2008 (one year patient survival : 100%).

CONCLUSION: Our results suggest that 100% patient survival might become gold standard in children undergoing liver transplantation at high-turnover centers. The implementation of a LRD program might largely contribute to reach this objective.

Abstract# 7

IS INTESTINAL TRANPLANTATION THE FUTURE FOR CHILDREN WITH TOTAL AND DEFINITIVE INTESTINAL FAILURE? Florence Lacaille,1 Frédérique Sauvat,2 Cécile Talbotté,2 Solène Ganousse,1 Frank Ruemmele,1 Yann Revillon,1 Olivier Goulet,1 Paediatric Hepato-gastroenterology-Nutrition, Necker-Enfants Malades, Paris, France; 2Paediatric Surgery, Necker-Enfants Malades, Paris, France.

PURPOSE: To demonstrate that small bowel transplantation (SBTx) is a valid alternative to long-term parenteral nutrition (PN) for children with intestinal failure. Despite being an effective treatment in experienced hands (Colomb V, et al. JGPN 2007:44:347-53), PN is not devoid of severe complications, and its impact on the quality of life is important.

METHOD: We report here our 14-year experience with SBTx. From 1994 on, 76 children underwent 81 SBTx, in 36 of them combined with the liver, at a median age of 5 years. Indications were: short bowel syndrome (26), motility disorders (23), congenital enteropathies (24), retransplantation (6), no diagnosis (2). The median follow-up is 6 years (2-14 y).

RESULTS: Thirty-six children (44%) are PN-free, one is partly PN-dependent. Systematic endoscopies in 18 children more than 5 years posttransplant did not demonstrate any occult chronic rejection. 25 children died (33%), 21 of early infectious or surgical complications (14 after combined liver-SBTx), 4 of late rejection or lymphoma. Early removal of the graft was necessary in 18 isolated SBTx, mainly for acute rejection; none occurred in the last 5 years. Late graft loss was a rare event (7 cases, from 2 to 9 years posttransplant), due either to acute rejection following a viral infection, or chronic rejection due to non-compliance. Late lymphoma occurred in 2 patients. No severe renal dysfunction (clearance less than 50 ml/min/1.73m2) was observed.

CONCLUSION: SBTx remains a difficult procedure with a high rate of early complications. However the short term results have improved recently, and the long-term evolution is encouraging. It should be included early in the discussion of treatment for children with intestinal failure, in order to minimize the complications due to long-term PN, discuss alternative treatments, and optimize the short- and long-term prognosis of these patients. Systematic studies of the quality of life, as compared to PN, are on their way.

Abstract# 8

A NEW INTESTINAL CARE PROGRAM (ICP) AT CHILDREN’S NATIONAL MEDICAL CENTER: ANOTHER YEAR OF EXPERIENCE. Clarivet Torres,1 Monica Dussan,1 Anthony Sandler,1 Patricia Zavosky,1 Mohan Parvathii.1 Gastroenterology, Childrens National Medical Center, Washington, DC, USA.

PURPOSE: To analyze the outcome of children with intestinal failure from 2007 to 2008.

METHOD: Forty intestinal failure patients, PN dependent, were enrolled in the ICP. Median age 7 months. Thirty five have SBS (87.5 %), 5 have functional intestinal failure (FIF). The majority of the SBS patients have only jejunum with a median intestinal length of 58 cm (11-276 cm). 6 have no colon (15%) and 9 have ileum median 20 cm. The median daily calorie requirement by PN at the time of evaluation was 100% (43-100%). Twenty one of the 40 patients had hyperbilirubinemia, 8 had liver biopsies (4 portal fibrosis, 2 bridging fibrosis, 2 cirrhosis). Height, weight Z score, platelet count, albumin, INR and bilirubin were obtained at the beginning and end of the study.

RESULTS: Of the 40 patients, 23 patients had 28 different surgeries, 8 STEP, 5 Blachi, 11 ostomy takedown, 4 intestinal obstruction repair. Eighteen of the 21 with hyperbilirubinemia normalized the serum bilirubin with treatment. Two patients were listed for transplant; one died of liver failure (FIF) and the other is listed for isolated SB transplant. Twenty-six of the 39 patients (65%) were weaned off PN. Among the 13 still on PN, 9 are in process of weaning, decreasing the median PN requirements to 54%, 4 are dependent of full PN due to FIF. Survival of the IRP patients was 97.5%. All laboratory parameters improved; the mean bilirubin dropped from 5.3 to 1.2 mg/dL, p<0.0005, the mean albumin increased from 2.9 to 3.5 mg/dL, p<0.0003. The mean INR decreased from 1.3 to 1.0 p<0.0001. The mean platelet count increased from 257,000 to 292,000, p=0.14. The mean Weight Z score increased from -1.18 to -0.5, p<0.0006, the mean Height Z score increased from -1.82 to -1.05, p<0.001.

CONCLUSION: With an aggressive medical and surgical approach, the patients in the ICP at CNMC showed improved liver function and nutritional parameters with the ability to discontinue PN while maintaining growth. Early referral of these patients to specialized centers prior to the development of advance liver disease is recommended.

Abstract# 9

10 YEARS SINGLE CENTER EXPERIENCE WITH SPLIT LIVER TRANSPLANTATION IN CHILDREN. V. Corno,1 M.C. Dezza,1 A. Lucianetti,1 D. Pinelli,1 F. Tagliabue,1 M. Guizzetti,1 M. Zambelli,1 A. Aluli,1 D. Codazzi,1 G. Torre,1 M. Colledan.1 Liver and Lung Transplantation Center, Ospedali Riuniti, Bergamo, Italy.

PURPOSE: Split liver transplantation has been adopted as an alternative to expand the organ donor pool. We analyzed the experience at our Center with split liver grafts using left lateral segment (LLS segments II and III), extended right (ER segments IV-VIII) and full left (FL segments I/IV) over a period of 10 years.

METHOD: Between October 1997 and October 2007 we performed a total of 372 liver transplants in 330. Among the 312 children who received a primary isolated liver transplant, 249 were transplanted with a split liver graft. The 63 recipients of a whole size graft were used as a control. Both ideal donors and donors beyond the ideal criteria for splitting have been used as well.

RESULTS: 249 children received a split graft (232 LLS, 12 ERG and 5 FL) and 63 a whole size graft. The donors of a split liver graft were significantly older than those of a whole graft (mean ± sd 27.2 ± 15.9 vs 14.8 ± 19.5 p=0.0001). Biliary complications occurred in 30% of the recipients of a split liver graft and 3% of the recipients of a whole size graft (p = 0.0001). Among the recipients of a split graft and 1 years patient graft survival was 91%/84% and 87%/80% respectively. More in details 1 and 5 years patient and graft survival was 90%/84% and 87%/80% for the recipients of a LLS graft, 92%/83% both at 1 and 5 years for ER grafts and 100%/100% and 67%/67% for the FL grafts. The recipients of a whole size graft had a 1 and 5 years patient / graft survival of 84%/78% and 83%/74%.

CONCLUSION: Incidence of biliary complications is significantly higher using a split graft. A pre-emptive approach in detecting and managing the biliary complications led to excellent results in terms of patient and graft survival among the recipients of a partial liver graft. At a high volume Center, use of split liver grafts achieved even better results than of a whole liver graft in terms of patient and graft survival. Thus, the use of split grafts should be strongly encouraged to expand the donor pool.
Abstract#10
OUTCOME OF KIDNEY TRANSPLANTS IN RECIPIENTS OF YOUNG DONORS – A NAPRTCS ANALYSIS. Asha Moudgil,1 Karen Martz,2 Donald M. Stabilein,2 Dechu Puliyanda,3 Nephrology, Children National Medical Center, Washington, DC, USA; 2Emmes Corporation, Potomac, MD, USA; 3Pediatric Nephrology, Cedars Sinai Medical Center, Los Angeles, CA, USA.

PURPOSE: Pros and cons of accepting kidneys from young donors (YD, <5 yrs of age) have been debated. We analyzed NAPRTCS data to assess patient (PS) and graft survival (GS), and estimated (e)GFR of transplant (TX) recipients from YD compared to TX from ID and OD. The incidence of rejection (REJ), primary non-function (PNF), viral infection (VI), and ratio between transplanted and non-transplanted patients.

RESULTS: The majority of TX from YD occurred prior to 1996: 387/469 (82.5%). GS in recipients of YD was better after 1995 (79.9% vs 59.8% at 3 years p=0.009). The recipients of YD were more likely to be white and ≥13 years of age (p=0.001 and 0.001). Although PS was not different, GS at 3 years was inferior in recipients of YD: 79.9%, vs. 87.2% and 88.6% (YD vs ID and OD; p=0.026). However, the eGFR in the functioning grafts was better in YD (86.5), vs. ID (79.3) and OD (70.4; p<0.0001 each). Primary non-function of graft was more frequently seen in TX from YD compared to ID and OD (3.6 vs 0.35 and 0.51%, p=0.0005 and 0.0005), whereas the incidence of vascular thrombosis was comparable in all donor groups.

CONCLUSION: GS in recipients of YD has improved significantly in the more recent era. GS although lower in YD, resulted in superior graft function in the functioning grafts at 3 years compared to other donor ages. Vascular thrombosis rates are comparable between YD and other donor age groups. With further improvements in TX care, kidneys from YD may present a viable option for transplantation in future.

Abstract#11
PLASMA PhERESIS AND FSGS RECURRENT IN PEDIATRIC RENAL TRANSPLANT: A SINGLE CENTER EXPERIENCE. Elsa Gonzalez,1 Robert Ettinger,1 Pornpimol Rianthavorn,1 Mohammed Mazzekalah,1 Pediatric Nephrology, Mattel’s Children Hospital at UCLA, Los Angeles, CA, USA.

PURPOSE: Recurrence of the nephrotic syndrome (NS) following renal transplantation occurs in 30-50% of patients (pts) with primary FSGS. Such recurrence has been shown to decrease the transplant (Tx) survival of pts. Post Tx plasmapheresis (PP) has been reported to be effective for the treatment of FSGS recurrence. However evidence supporting the beneficial effect of preemptive PP is still limited.

METHOD: We conducted a study examining the influence of PP on the recurrence of NS and Tx outcome in pediatric pts with ESRD secondary to FSGS and transplanted at UCLA from 1996 to 2007. Recurrence was defined as a serum albumin level of <3.0 g/dL in the presence of significant proteinuria; remission was defined as serum albumin >3.0 g/dL and no proteinuria.

RESULTS: A total of 31 pts with a mean age of 13.8±4.4 yrs at the time of Tx were included. 14 pts had a living related renal Tx (LRRT) and 17 had a deceased donor Tx (DDT). 17 patients (54.8%) had recurrence of NS. 18 pts received cyclosporine and 12 pts received tacrolimus. Among the 14 LRRT pts, 12 received preemptive PP (1 to 10 sessions) and 7 pts (50%) had NS recurrence. The number of preemptive PP did not affect the recurrence rate. In the 17 DDT pts, 10 (59%) had recurrence. Of the 17 pts with recurrence, 15 were treated with post Tx PP and the overall remission rate was 53%. The response to post Tx PP therapy was 86% in patients with a LRRT and 25% in patients with CRT (p=0.04). Only 5 pts had Tx loss at 3 years post transplant, 2 from FSGS recurrence and 3 from rejection secondary to non-compliance.

CONCLUSION: These results suggest that the use of preemptive PP doesn’t decrease the rate of recurrence after transplantation. In patients with recurrence of FSGS after transplantation, the response to post Tx PP therapy is significantly higher in LRRT than in CRT. In contrast to previous reports, the occurrence of Tx loss due to recurrence is surprisingly low.

Abstract#12
A MINIMAL, HIGHLY SPECIFIC AND SENSITIVE GENE-SET FOR PERIPHERAL BLOOD-BASED DIAGNOSIS AND PREDICTION OF ACUTE RENAL TRANSPLANT REJECTION. Minnie M. Sarwal,1 Liuhai Ying,1 Tara Sigdel,1 Szu-Chuan Hsieh,1 Oscar Salvatiera,2 Pediatrics, Stanford University School of Medicine, Stanford, CA, USA; 2Surgery, Stanford University School of Medicine, Stanford, CA, USA.

PURPOSE: Assessment of gene expression in peripheral blood can provide a non-invasive screening test for acute allograft rejection (AR) in renal transplantation. Lack of practical tests has restricted use of genome-scale analysis for acute rejection diagnosis, prognosis and monitoring of therapy.

METHOD: 274 blood samples collected from renal protocol were included, 109 were biopsy proven AR and 108 were stable patients (STA). 57 were serially collected AR samples. Significant gene set was identified across 3 microarray platforms. A gene set of 10 was validated by qPCR. A model of 10-gene was used for prediction and diagnosis of AR in dependent sample sets.

RESULTS: 479 genes differentially expressed in AR were identified across 3 microarray platforms, from which a set of 10 genes was verified on array samples, and validated in an independent samples set. A prediction model was generated with confident score of ROC≥97.6%. The model was validated in second independent sample set with a high prediction score (sensitivity=100%, specificity=96.9%). Applying model to serially collected AR samples revealed a 10-gene signature ≥30% higher than that of STA (p=0.001) even before histological diagnosis of AR. Furthermore, signature reached level of AR as early as 3 months before AR. When treatment was intensified at AR, rapid decrease of signature over time suggested 10-gene signature could be treatment response.

CONCLUSION: Cross platform microarray analysis is a powerful tool for AR biomarker. A set of 10 genes in blood can diagnose AR with high confidence levels, regardless of confounding factors. The expression of 10 genes can predict rejection – 3 months prior to histological injury and graft dysfunction. Serial analysis of 10-gene profile after transplantation may avoid frequent protocol biopsies and guide immunosuppression dosing.
CONCLUSION: Our novel steroid-minimization immunosuppression is safe in children after renal tx and associated with a very low risk of rejection and infection. A larger number of pts and longer FUP are required to further confirm the effectiveness and safety of this approach.

Abstract# 16

INFECTIOUS COMPLICATION IN ABO-INCOMPATIBLE KIDNEY TRANSPLANTATION IN CHILDREN. Seichiro Shishido,1 Hiroyuki Sato,1 Masaki Muramatsu,1 Zeniti Matsui.1 Urology and Kidney Transplantation, Tokyo Metropolitan Kiyose Children's Hospital, Kiyose, Tokyo, Japan.

METHOD: Thirty-two pediatric patients underwent ABO-incompatible (ABO-I) KT between July 1989 and October 2007. The mean age at transplantation was 10.9 ± 4.8 years (range 5.8-18.6 years), with 24 males and 8 females. The donor to recipient ABO blood antigen incompatibility was as follows: A1/O (12); B/O (8); A1B/B (6), A1/B (3), and A1B/A, (3). All patients received three sessions of plasmapheresis to remove the anti-A/B antibodies before transplantation. This was followed by splenectomy and a conventional quadruple drug immunosuppressive protocol. To prevent overwhelming posttransplant infection, penicillin prophylaxis as well as pretransplant pneumococcal vaccine was given to all patients.

RESULTS: The patients were followed for 12 to 222 months with a mean follow-up of 98 months. Of 32 patients, 4 patients (13%) had bacterial infection after surgery. Two patients developed bacterial sepsis at 6 weeks and 11 months posttransplant. Upper urinary tract infection was also seen in 1 patient. Cytomegalovirus (CMV) infection was the most frequent infection and occurred in 9 patients (28%). However, no patient had a serious tissue-invasive CMV disease. Herpes zoster infection occurred in 3 patients. One patient lost his graft because of uncontrolled delayed hyperacute rejection, while the actuarial 1-year, 5-year and 10-year graft survival rates are 94%, 90% and 90%, respectively.

CONCLUSION: Infectious complications in ABO-I KT in children are few and, if any, not severe. Pneumococcal vaccine and the use of long-term penicillin prophylaxis may be effective to prevent pneumococcal infection for young recipients with ABO-I kidney allografts.

Abstract# 17

URINE METABOLITE PROFILES ASSOCIATED WITH ACUTE REJECTION IN PEDIATRIC RENAL TRANSPLANTS. Tom D. Blydt-Hansen,1 Ray Somorjai,1 Pediatric Nephrology, University of Manitoba, Winnipeg, Canada; 2Institute for Biodiagnostics, National Research Council of Canada, Winnipeg, Canada.

METHOD: 123 urine samples from 39 patients were obtained at the time of renal biopsy. Patients were <18 at transplant and biopsies include protocol and clinical indications. All available samples were included. NMR spectra (500 MHz) were obtained after correction to pH 7.0. Biopsies were graded according to Banff criteria and classified as no-, borderline- or acute-rejection (NR, BR, AR). Spectra were analyzed using genetic-algorithm-based optimal region selection to identify metabolite profiles associated with acute rejection in children after renal transplantation.

RESULTS: The sample included NR=69, BR=40, AR=14. Potential regions of classification strategy was derived. The sample was divided into 3 groups: NR, BR, AR. The classification achieved a balanced optimized Sensitivity & Specificity (Se & Sp) of 92.9% and 93.5%. Comparing AR vs. BR+NR, the classification achieved a balanced optimized Sensitivity & Specificity (Se & Sp) of 92.9% and 93.5%. Comparing AR vs. BR+NR, the classification achieved a balanced optimized Sensitivity & Specificity (Se & Sp) of 92.9% and 93.5%.

CONCLUSION: This approach is inexpensive and may be useful in prospective surveillance for rejection. Urine spectral profiles associated with acute rejection can be identified in this population and will be optimized with larger sample size. Validation with a larger independent sample is needed.
Abstract# 18

**ARTERIAL STIFFNESS AND DISTURBED CA-P AND BONE METABOLISM AFTER KIDNEY TRANSPLANTATION.** Orsolya Csepregkál,1 Éva Kis,1 Gabriella Bekó,1 Pétér Sallay,1 Attila J. Szabó,1 Tivadar Tulassay,1 Antal Szabó,2 György Reussz.1 1Ist Department of Paediatrics, Semmelweis University, Budapest, Hungary; 2Central Laboratory, Semmelweis University, Budapest, Hungary.

**PURPOSE:** Arterial stiffness (Ast) is an individual predictor of CV mortality and morbidity. Ast increases via vascular calcification. Altered bone turnover might have a role both among dialysed (D) and renal transplant (Tx) children. The relation between Ca-P, bone metabolism and Ast was investigated. The aim of our study was to characterize the role of the fetuin-A and bone markers (BM).

**METHOD:** Pulse wave velocity (PWV) of 11 D and 17 Tx patients (RRT=D+Tx) was measured by applanation tonometry. Serum levels of Ca, P, creatinin, fetuin-A, and BM (BAPL-bone-specific-alkaline-phosphatase, OC-osteocalcin, β-ectosplasts) and iPTH were also analysed. The value of CaHPO4 in the serum was computed. CaHPO4/ Fetiun-A (C/F) ratio was assessed to characterise the amount of calciprotein complexes. Data of age-and gender matched healthy children were used as controls (K). The pre-transplant cumulative dose of calcitrol (CITL) was also assessed.

**RESULTS:** C/F and Fetuin-A were higher in RRT than K. OC, β, C/F of Tx were significantly lower than D, but did not differ from K. There was a significant positive correlation between PWV-Z and C/F (r=0.38, p<0.05), further both parameters correlated with OC (r=0.45 and 0.38, p<0.05). In the D group, BAPL and C showed a positive correlation with PWV (r=0.75 and r=0.69, p<0.05 respectively) and also correlated with each other (r=0.65, p<0.05). In Tx, there was a positive correlation between C/T and PWV (r=0.51, p<0.05)

**CONCLUSION:** The increased bone turnover characterizing D group was coupled with an increased potential of calcium-phosphate precipitation as shown by the increase of C. It might explain the connection between disturbed mineral and bone metabolism in tx patients considering the effects of vascular calcification process on PWV. Bone turnover returns to normal range after Tx, but further long term follow-up studies are needed to establish the effects of bone and mineral metabolism on Ast in the long run. Supported by OTKA-071730 and ETT 435/2006

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Abstract# 19

**EFFECT OF ENTERAL TUBE FEEDING ON GROWTH IN HEART TRANSPLANT RECIPIENTS.** Louise Bannister,1 Stacey Pollock,1 Cedric Manlihilt,1 Brian W. McCrindle,1 Anne I. Dipchand,1

1Labatt Family Heart Centre, Hospital for Sick Children, Toronto, Canada.

**PURPOSE:** Adequate growth following heart transplantation (HTx) in pediatric patients is a challenge. We sought to determine trends in patient growth pre- and post-HTx and whether the use of enteral tube feeding is beneficial in this population.

**METHOD:** All HTx recipients at a single institution from 1990-2005 were included. Patients were excluded if they did not survive 30 days after HTx. Linear regression models adjusted for repeated measures were created in order to measure change in weight and height z-score over the first year pre-HTx and the entire duration of post-HTx follow-up. Z-scores for age and gender were calculated using the Centre for Disease Control algorithm.

**RESULTS:** 133 patients (59% males) were enrolled. Patients had congenital heart disease in 63% of cases and underwent HTx at a median of 2.3 y (0-19 y). Followup was for a median of 3.5 y (0-13.9 y). A total of 1,025 height (ht) and weight (wt) measurements were available pre-HTx and 2,701 post-HTx. Enteral feeding pre-HTx was given to 21 patients and to 31 patients post-HTx. Pre-HTx, patients’ median wt z-score was -1.3 (-4.8 to +2.6) and ht z-score was -1.1 (-4.5 to +3.3). Post-HTx, patients median wt z-score was -0.9 (-5.0 to +2.5) and ht z-score was -1.5 (-5.0 to +2.8). Factors associated with greater gain in wt z-score in the post-HTx period were male gender (p<0.003), lower number of days of induction therapy (p=0.0001), lower doses of maintenance immunosuppression therapy (p=0.02), shorter exposure to Azathioprine (p<0.0001) and steroids (p=0.0001) and lower grade of rejection at 1 y post-HTx (p=0.02). Use of enteral feeding was associated with a greater increase in wt z-score pre-HTx (0.49±0.25, p=0.05) and post-HTx (0.64±0.02, p=0.03). Despite increases in wt z-score with the use of enteral feeding, wt z-scores in this population did not approach normal during the study period.

**CONCLUSION:** Normalization of weight z-score after HTx was difficult to achieve. Although enteral feeding contributed to a closer to normal z-score prior to and after HTx, weight z-score in pediatric HTx recipients was not found to normalize over time.

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Abstract# 20

**LONG-TERM QUALITY OF LIFE AND COMPLIANCE IN PATIENTS AFTER HEART TRANSPLANTATION IN CHILDHOOD AND ADOLESCENCE.** Wolfgang K. Albert,1 Christiane Gresch,1 Roland Hetzer,4 Psychosomatic Department, Deutsches Herzzentrum Berlin, Berlin, Germany; 2Department of Surgery, Deutsches Herzzentrum Berlin, Berlin, Germany.

**PURPOSE:** Young patients who undergo heart transplantation in their early childhood or adolescence are confronted with specific developmental problems. They have to overcome a life-threatening illness, to separate from their family, to integrate in peer groups and find a job training. The study aimed to measure 1) the health related quality of life (HRQOL) and 2) the compliance patterns in 27 patients who were transplanted between the age of 4 and 17 and were between 16 and 27 years old at time of evaluation.

**METHOD:** Assessment was done by semi-structured interviews directed at psychosocial outcome, compliance, relationship to family and peer-group and integration into work. HRQOL was also measured using the short- form health survey (SF-36), the WHO quality of life questionnaire (WHOQOL-bref) and the Giessen Subjective Complaints List (GBC). Analyses were done by qualitative content analyses and statistical testings using norm samples and patients transplanted in adulthood.

**RESULTS:** Young patients showed excellent “physical functioning” with a low degree of “bodily pain” and good “role physical” performance. In contrast they scored significantly below the means of healthy peers in all scales of the SF-36 and showed a significantly reduced HRQOL in the physical and psychological domains (p<0.001) of the WHOQOL-bref. The most impressive findings were very low ratings (p<0.001) in “general health” and “mental health” (SF-36), confirmed by a high degree of burden of complaints (GBB). In the semi-structured interviews many young patients reported a high degree of emotional insecurity, hopelessness and difficulties in compliance. In particular inconsistent and incorrect medical compliance induced graft rejection and damage and needs to be seen as an expression of latent suicidal tendencies.

**CONCLUSION:** Young adult transplant patients, who received a new heart in childhood or adolescence are to be seen as a high risk group for psychological distress and noncompliance. There is an urgent need for development of specific treatment programs.
Abstract# 22
DETERMINATION OF ALLOSENSITIZATION BY MULTIPLE ASSAYS AND ASSOCIATION WITH FIRST YEAR REJECTION.
Brian Feingold,1 Alin Girmita,2 Adriana Zeevi,1 Carol Bentlejewski,2 Louise Smith,1 Eric S. Quivers,1 Susan A. Miller,1 Steven A. Webber.1
1Pediatric Cardiology, Children’s Hospital Pittsburgh, Pittsburgh, PA, USA; 2Immunology, Starzl Institute, UPMC, Pittsburgh, PA, USA.
PURPOSE: The utility of new, highly sensitive assays for detection of anti-HLA antibodies (Ab) in pediatric heart transplant (PHTx) candidates is unclear.
METHOD: In an pilot prospective study, 35 PHTx candidates were evaluated for allosAb by DTT treated AHG-CDC, ELISA, and LumineX® assays. Assay performance for anti-HLA class I and class II antibodies (anti-HLA) was evaluated. Associations with acute cellular rejection (ACR) and humoral rejection (HR) in the 1st year after transplantation (Tx) were assessed.
RESULTS: Median age was 4.7yr (range 0.2-20.8yr). Listing diagnoses were cardiomyopathy (CM, n=17), congenital heart disease (CHD, n=15), and re-transplantation (ReTx, n=3). The prevalence of allosensitization at any time prior to Tx was 15% by AHG-CDC, 43% by ELISA, and 63% by LumineX® for HLA antigens.
CONCLUSION: Twenty percent were sensitized against MICA. Sensitization was more common in CHD/ReTx than CM (ELISA: 56% vs. 29%, p=0.12; LumineX®: 78% vs. 47%, p=0.06). There was a trend toward more ACR episodes in ELISA sensitized (S) vs. non-sensitized (NS) pts (0.15 vs. 0.04 episodes/mo; p=0.08); however, no association of LumineX® sensitization with ACR (S: 0.10 vs. NS: 0.06/mo; p=0.52) was seen. In 16 pts non-sensitized by AHG-CDC or ELISA, LumineX® sensitization was not associated with ACR (S: 0.05 vs. NS: 0.04/mo; p=0.9). Neither ELISA nor LumineX® status was associated with HR; however, the presence of donor specific antibody (DSA) preTx was associated with HR (0.40 vs. 0.03/mo; p=0.005). Four pts had at least one HR episode (3/6 DSA+ vs. 1/22 DSA−).

Abstract# 23
OUTCOMES OF PEDIATRIC HEART TRANSPLANTATION FOR CONGENITAL VERSUS ACQUIRED HEART DISEASE.
Stacey M. Pollock-Barziv,1 Cedric Manlhiot,2 Brian W. McCrindle,2 Anne I. Dippchan.1 1SickKids Transplant Centre, The Hospital for Sick Children, Toronto, ON, Canada; 2Labour Family Heart Centre, The Hospital for Sick Children, Toronto, ON, Canada.
PURPOSE: Results for heart transplantation (HTx) have historically been reported to be worse for patients with congenital heart disease (CHD) than those with acquired heart disease (cardiomyopathy [CM], arrhythmias, tumours). We reviewed outcomes of a large, single pediatric HTx centre to ascertain perioperative and post-HTx outcomes for congenital vs acquired heart disease.
METHOD: Retrospective review of the HTx database between 1989- Dec.2007 of de novo pediatric HTx recipients following institutional ethics approval. Data collected included demographics, pre-HTx medical characteristics (surgical history, HTx sensitization, days wait-listed), and perioperative and post-HTx outcomes including ICU time, ECMO use and survival.
RESULTS: During the study period 181 patients underwent HTx, of whom 118 had CHD (65%); 43 hypoplastic left heart syndrome); and 63 acquired heart disease (AHD)30 male, 48% LV fibromas, and 61 CM: 11 restrictive CM, 48 dilated CM; 2 Anthraclylne CM). Of the CHD patients, 71 (60%) were male, 24 (20%) were fetal listings and 64 (54%) had prior cardiac surgeries: failed univentricular palliation (n=35); failed biventricular repair (n=28). Mean follow-up time of the groups was similar: 3.8 yrs (CHD) vs 3.5 yrs (AHD). Kaplan Meier survival outcomes were better for AHD vs CHD at 1 yr post-HTx: 88% vs 80%; 3 yrs: 86% vs 74.5%; and 5 yrs: 73% vs 68.5%. CHD patients were more likely to be HLA sensitized (13% vs 6%, p<0.01), have younger age at HTx (4.8 yrs vs 7.3 yrs, p<0.05), significantly longer mean days wait-listed (105 vs 64, p<0.01), use of ECMO post-HTx (17 pts vs 5, p<0.01), and significantly greater mortality (17 vs 13, p<0.05) than AHD patients.
CONCLUSION: Despite improvements in overall survival for pediatric HTx recipients, patients with CHD continue to have higher mortality after HTx, compared to those with AHD. The increased risk of HLA sensitization and prior cardiac surgeries likely contributes to the increased risk of death in patients with CHD.

Abstract# 24
INCIDENCE OF DONOR-SPECIFIC HLA ANTIBODIES IN PAEDIATIC CARDIAC TRANSPLANT RECIPIENTS.
C. Irving,1 A. Hasan,1 V. Carter,1 A. Gennero,1 G. Purry,1 B. Kirk.1 1Paediatric Cardiac Transplantation. Freeman Hospital, Newcastle Upon Tyne, United Kingdom.
PURPOSE: There is increasing evidence that development of donor-specific HLA antibodies (DSA) following cardiac transplantation correlates with poor graft survival although there is little data in the paediatric population. We aimed to describe the incidence of donor and non-donor specific HLA antibodies following paediatric cardiac transplantation and their effect on cardiac function.
METHOD: HLA antibodies were analysed in 59 paediatric cardiac transplant recipients. Mean age 10.4 years (0.7-18), mean time post transplant 5.1 years (0.3-17.3). Testing was performed on the Luminex platform using Labscreen screening kits(One Lambda USA) with subsequent identification using Tepnel Lifescreen ID kits(Tepnel USA) or single antigen kits(One Lambda USA). Cardiac function was evaluated by echocardiographic fractional shortening(FS).
RESULTS: Donor-specific antibodies(DSA) were found in 4 patients(7%). 15%28% had non-DSA detected. No antibodies were detected in the majority of patients(68%). All 4 patients with DSA had HLA class II antibodies whilst 2 also had HLA class I. DSA 2 of these patients were subsequently re-transplanted. One had repeated rejection episodes and the other worsening function and coronary artery disease. A third patient had previously positive DSA detected 7.2 years post transplantation during a presentation in cardiac failure. The fourth patient had DSA 2 months post transplant which were no longer detectable 3 months later on repeat testing. FS in the patients re-transplanted was 22% and 28% at time of antibody detection. The third patient had impaired contractility with FS of 24% whereas the patient in whom the antibodies subsequently disappeared had normal cardiac function. Of the patients with non-DSA, mean FS was 40% with no difference shown between these groups.
CONCLUSION: HLA donor-specific antibodies are rarely found in paediatric cardiac allograft recipients but if present on a persistent basis suggest a poorer prognosis. Routine screening and regular testing is recommended to further evaluate their significance.

Abstract# 25
SAFETY AND EFFICACY OF EVEROLIMUS IN PEDIATRIC PATIENTS AFTER CARDIAC TRANSPLANTATION.
Francesca I. Calò Carducci,1 Giorgia Gruitter,1 Francesco Parisi.1 1Cardiothoracic Surgery and Cardiology, Pediatric Hospital “Bambino Gesù”, Rome, Italy.
PURPOSE: Immunosuppressive therapy is mandatory after heart transplantation (HT) to prevent cardiac allograft vasculopathy (CAV). However, despite recent advances, drug toxicity still represents a major concern, especially in pediatric subjects due to their longer life expectancy. Everolimus (EVR), a proliferation signal inhibitor, has been shown to significantly reduce in adults the severity of CAV and to allow a reduction in cyclosporine dosage. There is limited data on the use of EVR in pediatric patients. Aim of this study is to describe the experience with EVR of a single pediatric center.
METHOD: A total of 45 patients were being treated with EVR for the prevention of HT complications in our Institution. Thirty-nine patients are on maintenance therapy and 6 de novo. EVR blood level are kept between 5 and 7 ng/ml. In 41 patients, EVR is associated with cyclosporine (750-800 mg/ml), in 4 patients EVR is associated with tacrolimus (3-6 ng/ml).
RESULTS: Mean age at transplant was 10y and 7m (range: 5m-24y). Indication for treatment was: increase of CAV severity in 23 patients, renal impairment/drug toxicities in 14 patients, CMV infection in 3 patients, re-transplant in 1 patient, other reasons in 4 patients. Mean age at the beginning of EVR treatment was 17y 4m (range: 4y-25y), mean follow-up before EVR was 7y 11m (range: 4y-19y 7m), mean follow-up after EVR was 7y 19m (range: 2m-4y 3m). Mean creatinin level was not significantly different before and after EVR. Among the 45 patients, 29 were on statins before EVR, 34 after EVR, in all of them showed a normal lipids profile. No significant increase of CAV severity (as defined by IVUS) was documented during EVR treatment. Also, there were no loss of graft and no episodes of acute rejection. The most common side-effect was stomatitis. Two patients developed lower limb lymphoedema. In 2 patients EVR treatment was stopped because of adverse effects.
CONCLUSION: EVR seems to be well tolerated in pediatric patients after HT and efficacious in the prevention of CAV progression.

Abstract# 26
EFFICACY OF VENTRICULAR ASSIST DEVICES IN CHILDREN.
Alexandra T. Fuchs, Julia Diterich, Sabine Daubrict, Rainer Kozlik-Feldmann, Heinrich Netz. Department of Pediatric Cardiology, Hospital Großhadern, Munich, Germany.
PURPOSE: Ventricular assist devices are successfully used in the treatment of end-stage cardiac failure in the pediatric population. This retrospective study evaluates early and late results of the implantation of ventricular assist device systems in children as bridge to recovery or bridge to transplant.
METHOD: 38 patients (pts) received assist devices, with ages ranging from 2 days to 23 years. There was size differences with weights ranging between 2.7 and 75 kg. 26 pts were supported with ECMO with 8 pts weighing less than 3 kg, 7 pts with Medos, 2 pts with Berlin Heart and 3 pts with Novacor. Pts were supported with an average of 4.2±3.2 days (ECMO), 18.2±8.0 days (Medos), 14.1±19.6 days (Berlin Heart) and 8.3±11.8 days (Novacor). Diagnosis were in 22 pts congenital heart diseases and in 16 pts acquired heart disease. Indications for implantation of the ECMO were postcardiomyopathy heart failure in 18/26 pts, reanimation in 3/26 pts and non-operation related cardiac failure in 5/26 pts, the indication for the use of the Medos, Berlin Heart and Novacor assist device was bridging to transplant in ECMO in all pts.
RESULTS: Primary myocardial recovery was only observed in 12/26 of the ECMO pts. 11/38 pts underwent transplantation (27% of the ECMO patients (5/18), 28% of the Medos pts. (2/7), all Berlin Heart pts. (2/2) and 67% of the Novacor pts. (2/3)). 20/38 pts (52.6%) were discharged and are long-term survivors.

CONCLUSION: These results demonstrate the efficacy and necessity of an assist program at a centre for pediatric heart cardiology.

Abstract# 27
PARVOVIRUS INFECTION AND MARKEDLY ELEVATED BNP LEVELS IN PEDIATRIC HEART TRANSPLANT RECIPIENTS.
Debra A. Dodd,1 Judy Burger.1 1Pediatric Cardiology, Vanderbilt Children’s Hospital, Nashville, TN, USA.
PURPOSE: BNP levels are utilized at some centers as part of the rejection surveillance protocol following heart transplantation. Factors other than rejection are known to cause elevation of BNP levels, but usually only to mild to moderate levels. We review our experience with parvovirus infection and BNP levels following orthotopic heart transplantation.
METHOD: The charts of all pediatric heart transplant patients presently followed at our center with a history of parvovirus induced anemia were reviewed.
RESULTS: Five pediatric heart transplant recipients developed severe anemia (PCV median 20, range 10-22) associated with positive parvovirus DNA PCR at a median of 44 months (range 8 to 59 months) after heart transplantation. All had normal shortening fractions (median 40, range 31 to 53) by echocardiogram. Two of the five underwent cardiac catheterization on presentation with negative biopsies, normal CVP (7-8), and unremarkable PCWP (12-15). The three most recent patients had BNP levels on presentation and they were all markedly elevated (median 1070, range 1022-1493). All five received IVIG and 4 of the 5 received blood transfusions. None of the patients were treated for rejection. In follow-up BNP levels are normal or have returned to baseline (median 76, range 42-268).
CONCLUSION: Parvovirus infection can be associated with markedly elevated BNP levels (>1000) in the absence of rejection or significant cardiac dysfunction by echocardiogram or cardiac catheterization. Whether this is due primarily to the anemia or to direct myocardial effects of the parvovirus on the myocardium could not be determined.

Concurrent Session I: Ethical, Psychological and Economic Issues 1

Abstract# 28
NEUROCOGNITIVE FUNCTION IN CHILDREN WITH INTESTINAL FAILURE: IMPACT OF TRANSPLANTATION.
Rachel M. Taylor,1 Sue Beath,1 Jonathan Hind,1 Jemma Mears,1 Jane Hartley,1 Girish Gupte,1 Jacqueline Blyth,1 Deirdre Kelly.1 1The Liver Unit, Birmingham Children’s Hospital NHS Foundation Trust, Birmingham, United Kingdom.
PURPOSE: Intestinal failure is associated with prematurity, need for artificial nutrition and prolonged periods in hospital. This may be associated with impaired neurodevelopment. The aim was to examine cognitive and motor development of children with intestinal failure (IF) assessed for transplantation (Tx) and determine the change post Tx.
METHOD: Developmental assessments were performed on 85 children, 44(53%) male, aged 36 months (range 8 to 168 months) and age at time of Tx was 17 (7– 92) mths. 44 (40%) were Tx: isolated liver (10), liver/small bowel (28) or isolated small bowel (6). Neurocognitive function pre and 1.3(0.5–10) yrs postTx is shown below.

<table>
<thead>
<tr>
<th></th>
<th>PreTx</th>
<th>PostTx</th>
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<tbody>
<tr>
<td>VIQ</td>
<td>95(61–129)</td>
<td>94(46-124)</td>
</tr>
<tr>
<td>PIQ</td>
<td>92(57–125)</td>
<td>99(49-110)</td>
</tr>
<tr>
<td>FSQ</td>
<td>99(60–114)</td>
<td>98(46-118)</td>
</tr>
<tr>
<td>MRI</td>
<td>93</td>
<td>95</td>
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<tr>
<td>MDI</td>
<td>81(50–118)</td>
<td>58(50-103)*</td>
</tr>
<tr>
<td>PDI</td>
<td>56(50–98)</td>
<td>52(50-76)*</td>
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</tbody>
</table>

*p=.001 vs. reference value (100)

Paired data were available in 16 children (<42mths), which showed no change in MDI or PDI up to 1.40(0.9–4.1) yrs postTx (pre-TDI 79(50–118), post-MDI 85(<50–103); pre-PDI 52(<50–88), post-PDI 52 (<50–78)–p.m). Developmental delay was noted in 66(80%) subjects preTx and similarly in 24 (83%) post-Tx.

CONCLUSION: Normal neurocognitive function was found in older children pre and post Tx in contrast to significant developmental delay in infants. The decline in neurocognitive function seen pre and post Tx in infants is multifactorial and may be related to prematurity, sub-optimal intake of nutrients and the need for extra immunosuppression.

Abstract# 29
SOCIODEMOGRAPHIC CORRELATES OF HEALTH-RELATED QUALITY OF LIFE AND ADHERENCE IN PEDIATRIC LIVER TRANSPLANT RECIPIENTS. E.M. Fredrickson,1 A. Well,1 V. Shieck,1 M.J. Lopez,1 J.C. Magee.1 1Pediatrics, University of Michigan, Ann Arbor, MI, USA; 1Surgery, University of Michigan, Ann Arbor, MI, USA.
PURPOSE: In many pediatric chronic illnesses, health-related quality of life (HRQOL) varies according to sociodemographic characteristics, with disadvantaged groups reporting lower HRQOL and poorer adherence. We evaluated the association between these variables in pediatric liver transplantation.
METHOD: We studied 42 children (M=7.7 yrs, range 10 months-16 years) within 5 years of transplantation (M=24.8 months; range 1-64 months). Parents completed standardized measures of HRQOL (PedDL 4.0, CHQ-PF-50). Children <6 years (n=23) completed the Pediatric self-report. Sociodemographic variables included race/ethnicity, parents’ marital status, and SES derived using the Four-Factor Hollingshead Index based on parental education and occupation. Adherence was assessed using clinic attendance and tacrolimus level standard deviations.
RESULTS: Correlational analyses indicated SES and marital status were significantly related (r=0.100, p=0.002), with unmarried parents having lower SES (r=0.050). SES and marital status were related to parent-proxy and child self-reported HRQOL (r=0.05) and clinic attendance (r=0.05). Controlling for marital status, SES remained related to parent reports of HRQOL on CHQ-PF50 scales of behavior (r=0.37, p=0.035) and family cohesion (r=0.36, p=0.041), and on PedsQL scales of emotional (r=0.35, p=0.041), social (r=0.38, p=0.025), school (r=0.34, p=0.041), psychosocial (r=0.43, p=0.001), and total functioning (r=0.41, p=0.014). Controlling for marital status, the associations between SES and child-reported HRQOL or adherence did not remain significant.
CONCLUSION: Lower SES and single parent status were associated with poorer child HRQOL and lower rates of clinic attendance. The mechanisms by which SES differentially impacts HRQOL in the setting of a single parent is unknown, but may reflect stressors associated with single parenthood. Parent perceptions of child HRQOL may be impacted by their own level of distress. Interventions focused on supporting the single parent may improve HRQOL, parent functioning, and health outcomes.

Abstract# 30
QUALITY OF LIFE IN ADOLESCENT LIVER TRANSPLANT RECIPIENTS. Rebecca Berquist,1 Carlos Esquivel,1 Kenneth Cox,1 William Berquist,1 Iris Lit.1 1LPCH Pediatric Liver Transplant, Stanford University, Palo Alto, CA, USA.
PURPOSE: To evaluate the quality of life in adolescent patients post liver transplantation.
METHOD: We recruited liver transplant patients ages 12-21 greater than 1 year post-transplant. Participants completed the 23-item PedsQL(TM) 4.0 Genetic Core Scales that includes physical, emotional, social and school domains. Scores were compared with published norms from healthy and chronically-ill populations. Statistical analysis was conducted using the GraphPadInStat program.
RESULTS: A total of 73 subjects (36 F and 37 M) participated in the study. Adolescent liver transplant patients had a significantly higher self-reported quality of life than patients with other causes of end-stage liver disease in the emotional domain. Within the school domain, there was a significant difference between items (p<0.05). Compared to healthy norms, however, our patients had a significantly lower overall quality of life (p<0.05). There was no significant difference in the physical or social scores compared to healthy norms (p<0.136, 0.895). However, there was a significant difference related to emotional and school scores (p<0.0295, p<0.0001). There was no significant difference between samples (p<0.05) in the emotional domain. Within the school domain, there was a significant difference between items (p<0.0002); the lowest item score revealed problems with memory. There was no significant association of quality of life with gender (0.6534), age (0.4408) or age post-transplant (0.9727).
CONCLUSION: Adolescent liver transplant recipients have a significantly better quality of life compared to some chronically ill populations that does not vary with gender, age or years post transplantation. Compared to data from healthy subjects, there is a significantly lower quality of life that on further analysis appears related to emotional and school issues. The lower scores related to memory warrants further investigation regarding an etiology that might relate to medication or disease. Further research data suggest the need to address these psychosocial domains during routine follow up to promote quality of life and improve outcomes for adolescent liver transplant patients.

Abstract# 31
TRANSFER COACHING PROJECT FOR ADOLESCENTS WITH END-STAGE RENAL DISEASE (ESRD), EFFECT ON ALLOGRAFT LOSS. Ulrike John,1 Martina Oldhafer,1 Kristina Breuch,1 Gesila Offner.2 1Univ. Kinderklinik, Jena, Germany; 2Kinderklinik, Medizinische Hochschule, Hannover, Germany; 3Kuratorium für Dialyse und Nierentransplantation, Neu-Isenburg, Germany.
PURPOSE: Deficits in medical and psychological care as well as in health care education of adolescents following renal transplantation (NTx) are of great concern during transition from pediatric into adult care. World wide more than 20% graft loss occurs during this period. In Germany, a total of 1000 adolescents suffering from ESRD, most of them with a functioning renal allograft. Annually, approximately 100
patients with ESRD are transferred to adult care. The aim of this study was to assess a coaching concept attending the transition of adolescents with ESRD from pediatric to the adult care.

**METHOD:** In 2003 a transfer schooling programme entitled “endlich erwachsen” was established. This concept commences at the age of 16 years with a one week seminar followed by 2 weekend workshops during a 3 year period, accompanied by weekend seminars for parents. The topics of the programme contains: 1. schooling, 2. medication, 3. circulation training, 4. nutrition, 5. psychosocial support and 6. vocational guidance. The health related quality of life (HRQoL) was assessed in both adolescents and parents using the European KIDSCREEN 27 questionnaire.

**RESULTS:** A total of 125 adolescents, 56 females and 69 males (15-24 y of age) completed the programme. 91 patients had a functioning graft, 27 were on dialysis and 7 suffered from end stage renal failure without renal replacement therapy. Among them, the majority (68%) were in pre-school age when renal replacement therapy was initiated. Six grafts (66%) were lost during the 3 years coaching program. The HRQoL score showed only small deficits in physical activities and school performance compared to the average population with a T-score of 46.4 and 43.3, respectively. However the psychological well being of the adolescents was judged worse by the parents (T-score of 40.8 versus 52.1).

**CONCLUSION:** The data show that a coaching concept facilitates transition of adolescents with early childhood ESRD to the adult clinic and reduces allograft rejection rate.

**Abstract #32**

**NEURODEVELOPMENTAL OUTCOME IN CHILDREN TRANSPLANTED FOR BILIARY ATRESIA.** Rachel M. Taylor,1 Pat McKeirnan,1 Jo Wray,1 Sue Beath,1 Jemma Mears,1 Deirdre Kelly.1

1The Liver Unit, Birmingham Children’s Hospital NHS Foundation Trust, Birmingham, United Kingdom.

**PURPOSE:** Liver transplantation (LT) is standard treatment for children with end-stage liver disease with 5 year survival >80%. The aim of this study was to evaluate the long-term effect of LT on neurodevelopmental outcome in a series of 127 children transplanted for biliary atresia (BA).

**METHOD:** 61 (48%) were male, median age at the time of assessment was 7.2 years (range 1.2–172 months). Neurodevelopmental function was measured using BSID II in children <42 months, providing mental (MDI) and psychomotor (PDI) developmental scores. WISC-III were used in those >42 months providing verbal (VIQ), performance (PIQ) and full scale (FSIQ) IQ scores. Data were available in 1, 2, and 5 yrs post-LT. Scores were compared to the mean reference value: 100±15 and paired analysis was used where pre and post LT data were available.

**RESULTS:** The median age at transplant was 12.6 months (5.4–174 months). Neurodevelopmental function was measured using BSID II in children transplanted for biliary atresia (BA).

<table>
<thead>
<tr>
<th></th>
<th>Pre-LT</th>
<th>2yr</th>
<th>5yr</th>
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<tbody>
<tr>
<td>MDI</td>
<td>89 (79-111)</td>
<td>86 (69-92)</td>
<td>87 (65-121)</td>
</tr>
<tr>
<td>PDI</td>
<td>89 (73-109)</td>
<td>83 (62-85)</td>
<td>84 (56-124)</td>
</tr>
<tr>
<td>FSIQ</td>
<td>90 (75-109)</td>
<td>77 (59-90)</td>
<td>81 (65-121)</td>
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<tr>
<td>VIQ</td>
<td>89 (70-119)</td>
<td>80 (61-98)</td>
<td>83 (56-123)</td>
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<tr>
<td>PIQ</td>
<td>89 (73-109)</td>
<td>83 (62-85)</td>
<td>84 (56-124)</td>
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</table>

*p < .05

Serial data were available in 43 children pre and 1.3 (0.8–10.9) yrs post-LT. The only change in neurodevelopmental scores were in PDI (71 (50–106) vs. 78 (49–125), p = .01).

**CONCLUSION:** Children with BA have impaired neurodevelopmental function before and after LT. There is a trend towards improvement over time. Improvements in PDI noted in those with paired data may reflect the debilitating affects of liver disease on motor function. Neurodevelopment is impaired in children with biliary atresia, which is not ameliorated in the short and medium term by transplantation. Long-term follow-up using sensitive measures of cognitive function are required.

**Abstract #33**

**PARTICIPATION IN THE WORLD TRANSPLANT GAMES: IMPACT ON PSYCHOLOGICAL FUNCTION AND PERCEIVED QUALITY OF LIFE.** Jo Wray,1 Carololley.1

1Cardiothoracic Transplantation, Great Ormond Street Hospital, London, United Kingdom; 2Transplant Sport UK, Winchester, United Kingdom.

**PURPOSE:** With improving survival after all forms of organ transplant, attention is now being given to other aspects such as psychological adjustment and quality of life. The World Transplant Games are held biannually and recently young people aged 13-18 years have been eligible to participate. The purpose of this study was to assess whether there was any benefit in terms of psychological function and perceived quality of life from participation in the Games.

**METHOD:** In 2007, 29 young people from the UK (16 boys, 13 girls) aged 13-18 years attended the World Transplant Games in Bangkok. All had undergone solid organ transplantation (4 heart, 15 kidney and 5 liver) 26–177 months previously and all were required to undertake some physical training prior to participation. Young people and their parents were also asked to complete previously validated questionnaires assessing quality of life, anxiety, attitude to transplant, hope and self esteem at 4 time points (3 months pre, immediately pre, immediately post and 3 months post participation in the Games).

**RESULTS:** There were improvements over time on all domains of functioning, with significant differences (p<.05) between time 1 and time 4 on measures of attitude to transplant, self esteem and perceived quality of life. The only significant difference between the 3 groups of organ recipients was on a visual analogue measure of overall quality of life, on which heart recipients scored significantly higher, indicating better quality of life than their liver or kidney counterparts 3 months after the Games.

**CONCLUSION:** Participation in the World Transplant Games had a positive impact on psychological functioning and perceived quality of life in the short term. Further evaluation is required to determine whether such benefits are maintained in the longer term.

**Abstract #34**

**ADHERENCE, CLINICAL OUTCOMES, AND RESOURCE UTILIZATION AMONG PEDIATRIC KIDNEY TRANSPLANT RECIPIENTS.** Nataliya Zelikovsky,1 Diane Shellmer,2 JoAnn Palmer,1

1The Liver Unit, Birmingham Children’s Hospital NHS Foundation Trust, Birmingham, United Kingdom. 2Pedsiatric urology, Boston Children’s Hospital, Boston, MA, USA.

**PURPOSE:** The study examined the relationship between adherence, clinical outcomes and utilization of health care services for pediatric kidney transplant recipients using a multi-method battery.

**METHOD:** Twenty-eight kidney transplant recipients (M age14.1±3.3; 75% male, 71.4% Caucasian) participated. Battery included a semi-structured adherence interview (MAM), electronic monitoring system (MEMS), and standard deviations of blood serum levels (SD) over a 3-month period.

**RESULTS:** The number of non-adherent patients identified ranged from 42% to 90% depending on the method and the degree of non-adherence worsened with time since transplant. Non-adherence was associated with post-transplant clinical outcomes and resource utilization. Higher percentage of missed doses reported on the MAM interview was associated with higher incidence of acute rejections (r = .59, p < .01) and higher incidence of PMD visits (r = .50, p = .009), ED visits (r = .59, p < .001), hospital admissions (r = .72, p < .001), kidney biopsies (r = .50, p < .008) and use of “other” resources (r = .56, p < .002). SD detection method of non-adherence was related to acute organ rejections (r = .83, p < .001), but not to resource utilization. MEMS was not related to outcomes. All patients with a history of acute rejections were identified as non-adherent by at least one adherence measure; only 42% of the patients with acute rejections were identified as non-adherent by all three methods.

**CONCLUSION:** Multi-method adherence assessments should be used to accurately capture patients who are non-adherent and at risk for poor clinical outcomes post-transplant since no single measure is ideal. Since adherence declines with time it would be important to identify patients who are non-adherent early in order to prevent adherence problems from exacerbating and having an irreversible impact on health care outcomes.

**Abstract #35**

**NEURODEVELOPMENTAL OUTCOME OF INFANTS <5 KG POST-LIVER TRANSPLANTATION (LT).** Rachel M. Taylor,1 Pat McKeirnan,1 Sue Beath,1 Jo Wray,1 Jemma Mears,1 Jacqueline Blyth,2 Girish Gupta,2 Deirdre Kelly.1

1The Liver Unit, Birmingham Children’s Hospital NHS Foundation Trust, Birmingham, United Kingdom; 2Pediatrics, Pittsburgh Children’s Hospital, Pittsburgh, PA, USA.

**PURPOSE:** Early infancy is an important period for brain development, which may be influenced by poor nutrition or liver disease. The aim of this study was to evaluate neurodevelopmental progress in infants who underwent LT weighing <5 kg.

**METHOD:** Neurodevelopmental assessments were conducted in 9 infants <5kg (median 4.6 (range 2.8–5) months who received an isolated LT (Gp 1). Seven (78%) were male, median age at LT was 35 weeks (0.50–6.8 months). The aetiology of liver disease was choledochal (3), acute liver failure (2), metabolic liver disease (2), metastatic (1) and intestinal failure associated liver disease (1). Neurodevelopmental progress was measured using the BSID II which provided mental (MDI) and psychomotor (PDI) development indices. Comparisons were made with 17 infants >5kgs within the same age range who underwent LT (Gp 2). This group were heavier (6.5 (5.5–9.4) kg, p < .001) and less premature (0 vs 22%) than those in Gp 1, p = .04.

**RESULTS:** Median MDI scores were within the normal range in both groups pre-LT. No difference was found in the PDI scores although there was a tendency for the <5kg infants to score in the mildly delayed (70–84) range.

**CONCLUSION:** Children with BA have impaired neurodevelopmental function before and after LT. There is a trend towards improvement over time. Improvements in PDI noted in those with paired data may reflect the debilitating affects of liver disease on motor function. Neurodevelopment is impaired in children with biliary atresia, which is not ameliorated in the short and medium term by transplantation. Long-term follow-up using sensitive measures of cognitive function are required.
CONCLUSION: Infants who were transplanted <5kg have comparable neurodevelopment compared to those transplanted >5kg. Both have a degree of motor delay pre-LT with a decrease in MDI and PDI scores after transplant in the short-term. The incidence of delayed neurodevelopment is lower in infants >5kg. The reasons for this warrant further examination and whether this is sustained in the long-term has yet to be determined.

Abstract# 36
PURPOSE: Infants undergoing liver transplantation (LT) are exposed to many factors that may impair cognition and development. This study reports the first cohort to undergo cognitive assessment at 1 year post-LT and at age 4 years.

METHOD: Since 1999, this program has prospectively enrolled all children < 6 years of age at LT with The Registry and Follow-up of Complex Therapies Program. Longitudinal assessment is completed at 1 year post-LT, if less than 36 months at LT again at 4 years of age. Children < 42 months are administered the Bayley Scales of Infant Development-II (BSID-II) providing mental (MDI) & motor (PDI) scores. Children 4-7 years have full scale IQ (FSIQ) assessed with Wechsler Preschool and Primary Scales-Third Edition (WPPSI-III).

RESULTS: 63 children are registered and 15 children have undergone both a BSID-II and WPPSI-III. The 15 patients had a mean age at transplant 13.1 ± 8 months, 10/15 are male. 10/15 have the primary etiology of biliary atresia, and 5/10 having a living related graft. Mean ages at the time of assessment with the BSID-II and WPPSI-III were 26 ± 9 months and 52 ± 13 months. The mean change in score was an improvement between the MDI and FSIQ 15 ± 14 points. There was no correlation in improvement of MDI and FSIQ with age at transplant, primary etiology or graft type. There were 6 children with MDI scores of <70. All but 2 children had improved scores. A recognized clinical significant change in scores is >0.5 a standard deviation; this occurred in 12 of the 15 children. However, mean scores remained below normative values.

Table 1: GHQ scores in HPN and pre-ITx groups (0=normal). Data as median(range).

<table>
<thead>
<tr>
<th>Test Result</th>
<th>Score</th>
<th>Correlation BSID-II to WPPSI-III</th>
<th>FSIQ</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDI</td>
<td>74 ± 18</td>
<td>0.62</td>
<td>0.018</td>
<td></td>
</tr>
<tr>
<td>PDI</td>
<td>89 ± 19</td>
<td>0.62</td>
<td>0.005</td>
<td></td>
</tr>
<tr>
<td>FSIQ</td>
<td>93 ± 22</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CONCLUSION: Infants who require LT are at risk for developmental delay but demonstrate improvement in their cognitive ability. Developmental/cognitive testing should be standard post-LT care to identify delays and allow for early intervention to maximize cognitive potential and provide greater success in school performance.

Abstract# 37
HEPATITIS B VACCINE RESPONSE FOLLOWING PEDIATRIC LIVER TRANSPLANTATION. Helen M. Evans,1 Simon Chin,1 Stephen Mouat,1 Lesley Voss. 1Starship Children’s Health, Auckland, New Zealand.

PURPOSE: De novo hepatitis B acquired during or following liver transplantation (LT) commonly leads to chronic hepatitis B which is difficult to treat in the setting of immunosuppression. Hepatitis B infection is common in the New Zealand population, particularly those of Pacific ethnicity, hence hepatitis B vaccination is universal for all babies from 6 weeks old. The purpose was to investigate whether children undergoing LT achieve sustainable immunity to hepatitis B with standard neonatal vaccination alone.

METHOD: Retrospective review of hepatitis serology in all children with follow-up of ≥1 year post-LT (n = 30). All children start standard neonatal hepatitis B vaccination prior to LT. Response is confirmed at LT assessment by anti-hepatitis B surface antibody (anti-HBs) titre. Titres of >10 iu/ml are considered to confer immunity. 1 year post-LT, titres are re-checked & re-vaccination offered to those with titres <10 iu/ml.

RESULTS: All 30 children (16 male; median age 18 months (range 4-168 months) were tested for anti-HBs pre-LT (median titre 172 iu/ml; range 0-1000 iu/ml). 4 had titres <10 iu/ml, including 3 infants transplanted younger than 6 months, before completion of vaccination. These were offered vaccination post-LT. On re-testing 29/30 children at a median of 16 months post-LT (range 11-64 months), median anti-HBs titre had increased to 0 iu/ml (range 0-420 iu/ml), 20/29 having titres >10 iu/ml, including all 3 who underwent vaccination post-LT. 6/29 with titres <10 iu/ml, have since undergone re-vaccination & 4/6 have achieved titres of >10 iu/ml (median 50 iu/ml; range 0-1000 iu/ml). 1 child developed de novo chronic hepatitis B via a HB-core positive graft despite pre-LT anti-HBs titres of 32 iu/ml.

CONCLUSION: Standard neonatal hepatitis B vaccination confers sufficient immunity in children undergoing LT but this is not sustained & the majority lose detectable anti-HBs following LT. Response to re-vaccination suggests that the anamnestic response may confer latent immunity that can be re-activated post-LT in some children despite immunosuppression. Further prospective study is required in a larger cohort of children to confirm these findings.

Abstract# 38
IMPACT OF PEDIATRIC HOME PARENTERAL NUTRITION AND INTESTINAL TRANSPLANTATION ON PARENTAL MENTAL HEALTH. Jonathan Hind,1 Susan V. Beath,1 Sue Protheroe,2 Liz Wagener,1 Deirdre A. Kelly,1 Girish L. Gupte.1 The Liver Unit, Birmingham Children’s Hospital, Birmingham, West Midlands, United Kingdom; 2Paediatric Gastroenterology Department, Birmingham Children’s Hospital, Birmingham, United Kingdom.

PURPOSE: To compare quality of life (QoL) relating to mental health in parents of children with intestinal failure (IF) on long-term home parenteral nutrition (HPN) or assessed for intestinal transplantation (ITx), and to look at changes in QoL in the first year post ITx.

METHOD: Parents of children with IF completed 2 validated QoL questionnaires, the child health questionnaire (CHQ) and general health questionnaire (GHQ). In the CHQ 2 domains relating to parental QoL (impact on parental time (PT) and emotion (PE)) were used. There were 2 groups, those with a child being assessed for ITx (n=12, completed questionnaires pre-ITx, 6months post ITx and 12months post ITx) and those with a child on HPN attending clinic in the study period (n=4, completed questionnaires once at a clinic visit).

RESULTS: Table 1: GHQ scores in HPN and pre-ITx groups (0=normal). Data as mean(range).

Fig.1: GHQ over time where 1=pre-ITx, 2=6months post-ITx and 3=12months post-ITx.

Fig.2: PE and PT over time where 1=pre-ITx, 2=6months post-ITx and 3=12months post-ITx.
Partial livers were more likely to be used in younger recipients with lower body weights (P<0.05). However, there was no significant difference found in ischemic time or blood product usage. Within the partial liver group, patient and graft survival was equivalent in the reduction, live donor, and split liver cohorts.

CONCLUSION: Partial liver grafts provide acceptable long-term outcomes for pediatric liver recipients, however both patient and graft survival are diminished when compared to whole liver transplants (P<0.01).

Abstract# 40
COMBINED LIVER-KIDNEY TRANSPLANTS (CLKT) IN CHILDREN <15 kg: TECHNICAL ASPECTS AND OUTCOMES.
M.T.P.R. Perera,1 P.J. McKiernan,1 C. Lloyd,1 D.V. Milford,1 A.D. Mayer,1 D.A. Kelly,1 Gennaro Selvaggi,2 Jang Moon,3 David Levi,4 Seigo Nishida,1 Andreas Tzakis.1Liver & GI Transplantation, University of Miami, Miami, FL, USA.
PURPOSE: Multi-organ transplantation is technically challenging in small children. Herein we report outcomes following CLKT in children weighing less than 15 kg.
METHOD: An analysis of prospectively collected data of children undergoing CLKT between 1994-2008 was performed. Twenty (23) children underwent CLKT during study period [14 male (61%), age 8.6(1.6-16.7) y]. Eight (8/23; 35%) patients were <15 kg (Recipient vs. Donor: age 2.2(0.5-3.7) vs. 7.6(1.2-17.5) yrs, weight 13.4(7-31) vs. 38.1(11.3-92) kg). Partial liver grafts were used whenever possible to further expand the donor pool.

Concurrent Session II: Organ Specific: Liver, Small Bowel and Pancreas 2
CONCLUSION: Hepatic venous outflow obstruction with earlier recurrence had a poor outcome, and stenting should be considered. However, stenting is not always effective.

Abstract# 43
PRE-EMPTIVE MANAGEMENT OF ANASTOMOTIC BILIARY STRICTURES AFTER PEDIATRIC LIVER TRANSPLANTATION. V. Corno,1, L. Locatelli,2, A. Lucianetti,2, D. Pinelli,2, A. Sonzogni,2, R. Nani,2, R. Agazzi,2, M.C. Dezza,2, M. Zambelli,2, M. Guizzetti,2, G. Torre,2, M. Colledan.1 1Liver-Lung Transplantation Center, Ospedali Riuniti, Bergamo, Italy. PURPOSE: Biliary stenoses are a frequent cause of morbidity after liver transplantation (OLTx) and in some cases are reported to lead to the lost of the graft. We pursued an aggressive approach in their management at our Center. METHOD: From October 1997 to November 2006, 294 children (median age 1.37 years; median weight 9 kg) underwent a primary OLTx (64 whole liver, 230 split liver, divided in 213 left lateral segment, 12 extended right and 5 full left grafts). A hepatico-jejunostomy was performed in 274 (93%) cases and a duct-to-duct anastomosis in 20 (7%). Early and late complications were defined as those occurred within or after 90 days. A liver biopsy was performed in all the cases of even slight increase in liver enzymes, and when it showed signs of mechanical cholestasis, even in absence of jaundice, itching or bile duct dilatation at US scan, a percutaneous cholangiogram (PTC) was performed. Any stricture, even mild, was treated by balloon dilatation and placement of a temporary biliary drainage , repeated until normalization of the liver function test. In case of unsuccessful of repeated procedures a surgical re-do of the anastomosis was performed. RESULTS: 58 biliary stenoses occurred in 57 children. 97% of the stenoses developed in the recipients of a split liver graft. Their incidence was 20%, 33 (11%) occurred early and 25 (9%) late. Only 9 cases were jaundiced. A duct dilatation was found at a US scan in 40 cases (68%). 38 (67%) children were asymptomatic. All the patients underwent PTC, balloon dilatation and placement of a temporary biliary drainage that was successful in 44 cases (76%), a re-do of the anastomosis was required in 14 cases (24%). Patient and graft survival among the 57 children was 98%/91% and 98%/99% respectively at 1 and 5 years. No graft was lost for an isolated biliary stenosis after the clinical assessment. Scores ranged from 0-100, with higher scores for the JIA group (P =0.01). Compared with the normal population, OLT recipients had lower subscale scores for self-esteem (P=0.003), general health perception (P=0.000), and emotional impact on parents (P=0.002). Bodily pain was lower in OLT patients. Living-related allograft children showed a trend toward a better physical summary score than cadaveric ones (P=0.08). Children with higher summary scores tended to be younger at the time of transplantation, had mothers with a university degree. CONCLUSION: Our study showed a strong negative impact in the psycho-social area in OLT recipients and a tendency to a better physical summary score in living-related allograft recipients. Measuring quality of life in OLT children is essential for their follow up.
Abstract# 47
IS STANDARD IMMUNOSUPPRESSIVES-RELATED SPECIFIC TOXICITY DETERMINED GENETICALLY IN PEDIATRIC RENAL ALLOGRAFT RECIPIENTS – ANALYSIS OF 200 PATIENTS COHORT.
Ryszard Grenda,1 Sylvester Prokurat,1 Andrzej Ciechanoowicz,2 Department of Nephrology, Kidney Transplantation and Hypertension, Children’s Memorial Health Institute, Warsaw, Poland; 2Department of Clinical Biochemistry and Laboratory Diagnostics, Pommeranian Medical University, Szczecin, Poland.
PURPOSE: Toxicity of common immunosuppressive drugs is one of the factors limiting the efficacy and safety of long-term therapy. Aim of the study was to evaluate relation between specific drug-related toxicities and several gene polymorphisms.
METHOD: Overall 208 children and adolescents at mean age of 11±4.4 years, who received primary renal allograft (181 from deceased donor and 26 from life-related donor) in 1996-2005 were analyzed. Immunosuppression protocols included CNI (CsA or TAC) combined with AZA or MMF and prednisone. Specific CNI and antiproliferative drugs toxicities were noted, basing on biopsy - proven and/or clinical criteria. Genotyping including several polymorphisms of genes for IL6, TNFα, TGFβ, CYP3, IL-1, IL-1β, CCR5 and MCP-1 was performed.
RESULTS: In 38,5% of pts. treated with CsA and 29,5% with TAC nephrotoxicity, as well as in 3% of AZA-treated and 6,4 % of MMF-treated pts. myelotoxicity was detected. Age, gender, type of pre-transplant dialysis, donors age, origin of the graft and duration of cold ischemia time were not significant factors for drug toxicity. For CNIs – drug exposure and duration of treatment were not significant either. TAC nephrotoxicity was correlated with CCR5 gene polymorphism (p=0.041). In none case of nephrotoxicity and in 21% of pts. with no toxicity wt/delta32 polymorphism was detected. In pts. with wt/delta32 the graft function at 1 year was significantly better (GFR 115±28 vs 86±43 ml/min/1.73m2; p=0.022). Correlation between MMF myelotoxicity and polymorphism G(-308)A TNFα (p=0.005) was found, however in patients with overt toxicity exposure to the drug was significantly higher.
CONCLUSION: Specific genetic background should be regarded a one of the risk factors of immunosuppression-related post-transplant toxicity. CCR5 gene wt/delta32 polymorphism is associated with less TAC nephrotoxicity and better renal function.

Abstract# 48
METABOLIC SYNDROME IN PEDIATRIC TRANSPLANT RECIPIENTS IN EARLY DISCONTINUTION OF STEROIDS VERSES STEROID GROUP.
Amy Maduram,1 Eunice John,1 Guillermo Hidalgo,1 Jose Oberholzer,2 Enrico Benedetti,2 Pediatric Nephrology, University of Illinois at Chicago, Chicago, IL, USA; 2Transplant Surgery, University of Illinois at Chicago, Chicago, IL, USA.
PURPOSE: Steroids have played a valuable role in transplantation as a treatment option. The incidence of metabolic syndrome (MS) in pediatric steroid and steroid-withdrawal group patients has not been well established. The purpose is to assess the prevalence of MS in pediatric renal transplant (RT) patients receiving steroids (SG) or early steroid withdrawal; steroids discontinued 5 days after transplantation (SWG).
METHOD: We retrospectively reviewed 62 pediatric RT pts between 2000 and 2007 who received SG or SWG. MS criterion was defined as the presence of any 3 of 5 criteria: 1) BMI >97th %ile, 2) hypertension (SBP/DBP >95th %ile or on medications), 3) triglycerides >99th %ile, 4) HDL-cholesterol <5th %ile, 5) fasting glucose >100mg/dl. Genotyping including several polymorphisms of genes for MDR1, TNFα, TGFβ, IL-1RN (-1144), IL-1A (-181), IL-1B (-511), IL-1RN (-38), IL-6 (-174), IL-6 (-174), IL-6 (-174), IL-6 (-174) was performed. In pts. with wt/delta32 the graft function at 1 year was significantly better (GFR 115±28 vs 86±43 ml/min/1.73m2; p=0.022). Correlation between MMF myelotoxicity and polymorphism G(-308)A TNFα (p=0.005) was found, however in patients with overt toxicity exposure to the drug was significantly higher.
CONCLUSION: Specific genetic background should be regarded a one of the risk factors of immunosuppression-related post-transplant toxicity. CCR5 gene wt/delta32 polymorphism is associated with less TAC nephrotoxicity and better renal function.

Abstract# 49
VARIABLES AFFECTING ESTIMATED GFR AFTER RENAL TRANSPLANTATION: A NAPRTCS ANALYSIS.
Asha Moudgil,1 Karen Martz,1 Donald M. Stabelein,2 Dechu P. Puliyanda,2 Nephrology, Children National Medical Center, Washington, DC, USA; 2Emmes Corporation, Potomac, MD, USA.
PURPOSE: As deterioration of eGFR preceds graft loss, understanding variables affecting eGFR after transplantation (TX) may help prolong graft survival.
METHOD: NAPRTCS data (1987-2006) was analyzed to study effects of donor, recipient, treatment related and other variables on eGFR after TX. Of 8438 children with a functioning TX at day 30, those dyeing with graft function, and <3 yrs of follow up were excluded. Those with failed grafts in <3 yrs had an eGFR of 5 carried forward for analysis to avoid potential bias. Univariate, multivariate linear regression, and time-varying covariate analysis was done.
RESULTS: Young (<6 yrs, 6-12 yrs, >12yrs) age correlated with better long-term eGFR (+8.5 and +5.1 ml/min, p <0.0001). Female, non-blacks, TX after 1995, absence of ATN and IS with tacrolimus (TAC) had better long-term eGFR (+2.6, +6.5, +5.9, +5.6, p<0.0001). eGFR after 30 positively correlated with eGFR at 3 yrs (p=0.0001). Acute rejection (AR), hospitalizations and blood pressure medications in the prior 6 months were negatively associated with long-term eGFR (-5.2, -2.6, -1.6 ml/min, p=0.0001). TX from ideal (36-35 yrs) donors had best eGFR at day 30 (+5.7 ml/min) and TX from young (<5 yrs) donors fared poorly (+8.9 ml/min, p=0.005). eGFR improved in recipients of young donors and survival eGFR of ideal donors at 3 yrs (+1.8ml/min, p=0.01). eGFR deteriorated every 6 months (-3ml/min, p=0.0001). Donor source, primary diagnosis, HLA match, and induction had no effect on long-term eGFR.
CONCLUSION: 1. Strategies to reduce ATN, AR, hospitalizations and IS with TAC may preserve long-term eGFR. 2. Effect of BP control on eGFR and TX from young donors should be explored.

Abstract# 50
ACUTE AND CHRONIC RENAL GRAFT REJECTION AND GENETIC BACKGROUND – ARE THERE ANY ASSOCIATIONS?
Sylvester Prokurat,1 Andrzej Ciechanoowicz,2 Barbara Pietosa,2 Ryszard Grenda,1 Nephrology, Kidney Transplantation, Childrens Memorial Health Institute, Warsaw, Poland; 2Laboratory of Pathobiology and Molecular Biology, Pommeranian Medical University, Szczecin, Poland; 3Tissue Typing Laboratory, Childrens Memorial Health Institute, Warsaw, Poland.
PURPOSE: Genetic background is regarded as one of important factors which may influence rejection rate and function of renal graft. Aim of the study was to evaluate correlation of several genes polymorphisms and rate of acute and chronic rejection as well as long-term renal function in cohort of children after renal transplantation.
METHOD: Patients and methods: overall 205 patients at mean age of 11±4.4 years, transplanted between 1996 and 2005 were evaluated. Genotyping including several polymorphisms of genes for MDR1, TNFα CYP3A5, IL-1β, IL-1RN, IL-6, IL-10, MCP-1, TGFβ and CCR5 with PCR and RFLP techniques was performed. PCR was calculated basing on Schwartz formula.
RESULTS: Incidence of biopsy-proven first episode of acute rejection was 12.1% and (among them) re-rejection rate was 20.8%. Among patients with recurrent rejection GG polymorphism in IL-1RN was significantly (p=0.038) more frequent than CC. This was also the case among patients with chronic allograft nephropathy (CAN) (23.3% of whole population) (p=0.044).
CONCLUSION: Gene polymorphisms of IL-6, IL-1RN and TNFα were shown as significant factors influencing rejection rate, chronic rejection and long-term graft function in children after renal transplantation.

Abstract# 51
MONITORING NON-COMPLIANCE AND GRAFT REJECTION IN PEDIATRIC RENAL TRANSPLANT PATIENTS USING VARIATION IN BLOOD IMMUNOSUPPRESSANT LEVELS.
Hilda E. Fernandez,1 Margaret Hsiau,1 David Gjerston,2 Mohammed H. Malekzadeh,1 Robert B. Ettinger,1 Mattel Children’s Hospital, UCLA, Los Angeles, CA, USA; 2Dept of Pathology and Lab Medicine, UCLA, Los Angeles, CA, USA.
PURPOSE: Non-adherence is a major cause of graft rejection (rx) in renal transplant (tx) patients. In adolescent liver tx pts, increased variation in tacrolimus (FK)
Abstract# 53
ERYTHROPOIETIN TREATMENT PROTECTS AGAINST RENAL ISCHEMIA/REPERFUSION INJURY THROUGH THE UP-REGULATION OF SERUM AND GLUCOCORTICOID REGULATED KINASE-1. Kriszta Rusai,1 Ágnes Prókai,1 Beáta Szebeni,1 Andrea Fekete,1 András Treszl,1 Adám Vannay,1 Veronika Müller,1 Uwe Heemann,1 Jens Lutz,2 Tivadar Tulassay,1 Attila J. Szabó,1
1First Department of Pediatrics, Semmelweis University, Budapest, Hungary; 2Department of Pathology, Semmelweis University, Budapest, Hungary; 3Department of Nephrology, Klinikum Rechts der Isar, Munich, Germany; 4Research Laboratory for Pediatrics and Nephrology, Hungarian Academy of Sciences and Semmelweis University, Budapest, Hungary.

PURPOSE: The serum- and glucocorticoid-inducible protein kinase 1 (SGK1) is an anti-apoptotic serine-threonine protein kinase mainly induced through the p38 MAPK pathway. It has been shown that the phosphorylated form mediates protection against various forms of cellular stress. We determined the effect of the erythropoietin (EPO), of which apoptosis inhibiting properties have been proved in several forms of ischemic injury on SGK1 expression both in an in vitro and in vivo models of renal ischemia/reperfusion (IR) injury.

METHOD: In vitro we examined hypoxic HEK cells and we also used an in vivo model of renal IR injury. SGK1 expression was determined by PCR, Western blot analysis and immunofluorescent staining.

RESULTS: In vitro, EPO exerted a protective effect on hypoxic human embryonic kidney (HEK) cells detected by Annexin V FACS analysis which was paralleled by a significant overexpression of SGK1 shown by RT-PCR and Western blot analysis. Treatment of HEK cells with the p38 MAPK inhibitor SB203580 resulted in a decreased induction of SGK1 after EPO administration. Downregulation of SGK1 expression by small interfering RNA abolished the anti-apoptotic effect of the EPO treatment. In renal IR injury, pre-treatment of rats with EPO had a significant protective effect on tissue injury and renal function. Furthermore, expression and phosphorylation of SGK1 were higher in EPO treated animals compared to vehicle treated rats assessed by real-time PCR, Western blot and immunofluorescence techniques.

CONCLUSION: SGK1 could mediate the protective effects of the anti-apoptotic EPO under ischemic conditions demonstrated in the I/R injury of the kidney.

Abstract# 54
RENAL TRANSPLANTATION DOES NOT NORMALIZE CARDIOVASCULAR RHYTHMICITY IN CHILDREN WITH CHRONIC KIDNEY DISEASE. Janusz Feber,1 Tomas Semean,2 Giaccomo Simonetti,2 A. Wolfenstetter,1 Burkhard Toenshoff,2 Franz Schaefer,1 Elke Wuehl,3 1Department of Pediatric Nephrology, Children’s Hospital of Eastern Ontario, Ottawa, ON, Canada; 2Department of Pediatrics, University Hospital Motol, Prague, Czech Republic; 3Department of Pediatric Nephrology, Center for Pediatric and Adolescent Medicine, Heidelberg, Germany.

PURPOSE: Children with CKD display blunted circadian (24h) and ultradian (12h, 8h, and 6h) cardiovascular (CV) rhythms. Altered circadian rhythmicity is an independent CV risk factor, and abnormal ultradian rhythms have been linked to renal dysfunction. The integrity of CV rhythmicity in patients post kidney transplantation (Tx) is unknown.

METHOD: We analyzed the prevalence and dimensions of circadian and ultradian rhythms by Fourier Analysis of 24h ABPM profiles in 123 Tx children from 3 university centres (age 3-20 yrs; GFR 70±28 ml/min/1.73m²; time since Tx 3.8±3.2 yrs). Results were compared with data of 938 age-matched healthy subjects and 408 CKD patients (stage 2-4; GFR 49±22).

RESULTS: The prevalence of hypertension was 87% and 62%, and of uncontrolled hypertension 31% and 37%, in the Tx and CKD cohorts, respectively. Non-dipping was found in 36% of Tx and 27% of CKD patients compared to 10 % of controls (p<0.0001). While the prevalence of 12h rhythms was slightly increased in Tx (55%) and CKD (54%) vs. controls (40%; p<0.0001), the amplitudes of the 24h, 12h, 8h, and 6h rhythms were reduced in Tx compared to controls (p<0.0001 for 24h, 8h, and 6h), similar as in the CKD cohort. Acrophasies were delayed compared to controls (p<0.05 for 24h and 8h). Similar results were found for heart rate rhythmicity.

CONCLUSION: Pediatric renal allograft recipients exhibit a high prevalence not only of hypertension but also of abnormal circadian and ultradian cardiovascular rhythmicity. The relevance of these alterations for long-term graft function and CV health awaits further examination.
Abstract# 55

PAEDIATRIC OUTCOMES OF CARDIAC TRANSPLANTATION FOR CONGENITAL HEART DISEASE VERSUS CARDIOMYOPATHY. Claire Irving,1 Gareth Parry,1 Asif Hasan,1 Richard Kirk.1 1Paediatric Cardiothoracic Transplantation, Freeman Hospital, Newcastle Upon Tyne, United Kingdom.

PURPOSE: Cardiac transplantation is now accepted management of end-stage cardiac failure in the paediatric population. We aimed to review our experience and compare outcomes in children with cardiomyopathy to those with congenital heart disease (CHD).

METHOD: Between 1987 and 2008, 179 orthotopic cardiac transplants were performed in 174 patients (90 male) under 18 years of age in our institution. We included one heart-kidney and one heart-lung transplant. Outcomes were retrospectively reviewed using databases and hospital records.

RESULTS: 113 patients (65%) were transplanted for cardiomyopathy (dilated n=104, hypertrophic n=2, ischaemic n=2, restrictive n=2, other n=3). 61 were transplanted for CHD. Mean age at transplant overall was 8.4 years (0.1-17.9 years) with no significant difference between groups (p=0.6). 22 cardiomyopathy patients were on mechanical support at transplant, 7 extra-corporeal membrane oxygenation (ECMO), 14 ventilator assist device (VAD), 1 intra-aortic balloon pump compared to 8 CHD patients (6 ECMO, 3 VAD). 10 were AB0 mismatched transplants with the oldest of these 3.3 years at transplant. There were 39 deaths, 21 in the CHD group and 18 in the cardiomyopathy group. Overall actuarial survival was 91.4% at 30 days, 88.7% at 1 year, 85.6% at 5 years, 73.5% at 10 years and 68.5% at 15 years with improved survival for patients transplanted in the last 10 years. Survival in the CHD group was 83.5% at 30 days, 79.3% at 1 year, 77.4% at 5 years, 64.2% at 10 years and 64.2% at 15 years compared to the cardiomyopathy group which was 95.6% at 30 days, 93.6% at one year, 86.8% at 5 years, 78.5% at 10 years and 67.9% at 15 years. 6 patients were re-transplanted, 1 of the CHD group and 5 of the cardiomyopathy group. 16 patients (9%) developed post-transplant lymphoproliferative disease and 3 required renal replacement therapy.

CONCLUSION: The population of survivors of paediatric cardiac transplantation continues to increase. While survival at 1 year was worse in those patients transplanted for CHD versus the cardiomyopathy group, attrition related to this was similar.

Abstract# 56

LATE CLINICAL OUTCOME AFTER PEDIATRIC HEART TRANSPLANTATION – ANALYSIS OF RISK FACTORS. Estela Azeka,1 Natasha Damásio Fairbanks Barbosa,2 Marcelo Jatene,2 Carla Tanamati,1 Arlindo Riso,1 Miguel Barbiero Marcial,3 Cardiology, Heart Institute (InCor) University of Sao Paulo Medical School, Sao Paulo, Brazil; 2University of Sao Paulo, Sao Paulo, Brazil; 3Cardiac Surgery, Heart Institute (InCor) University of Sao Paulo Medical School, Sao Paulo, Brazil.

PURPOSE: The aim of this study was to evaluate the causes of mortality, morbidities and the risk factors associated with late (more than one year after transplantation) clinical outcome.

METHOD: Seventy one children were submitted to heart transplantation at our institution. Patients included in this study were those who survived more than one year of transplantation. The following factors were studied: age, weight and gender of receptor and donor, need of ECMO, dialysis pre-transplant, pulmonary vascular resistance index, ischaemic time, infection, rejection.

RESULTS: Forty four children were studied. The age ranged from 28 days to 15.7 years (mean: 4.5 years). The survival curve of patients more than one year after transplantation was 97.7% at three years and 88.6% at five years. The causes of mortality were: PTLD in 37.5%, sudden death in 37.5%, rejection in 12.5% and Pneumocystis jiroveci infection in 12.5%. Between 3 and 5 years, there were four deaths (one rejection, two sudden deaths and one PTLD). Ischemic time was the only factor that showed to influence in mortality (p<0.001). There was a trend risk of mortality in the presence of nephrotoxicity (p=0.08) and PTLD (p=0.06). The incidence of systemic arterial hypertension was 40.9%, nephrotoxicity 6.8%, gallstones in 11.4%, diabetes mellitus in 2.3%, dyslipidemia in 9.1%, coronary artery disease in 29.5% and PTLD in 13.6%. The incidence of early rejection (less than one year after transplantation) was 100% and late (cellular rejection more than one year after transplantation) rejection 61.4%.

CONCLUSION: Ischemic time was the only risk factor related to late clinical outcome after heart transplantation.

Abstract# 57

EXERCISE FOLLOWING HEART OR LUNG TRANSPLANT: A QUALITATIVE EXPLORATION OF ADOLESCENT PERCEPTIONS AND BEHAVIORS. Alison C. Hassall,1 Robin D. Deliva,1 Barbara E. Gibson,2 Division of Physiotherapy, Department of Rehabilitation, The Hospital for Sick Children, Toronto, ON, Canada; 2Department of Physical Therapy, University of Toronto, Toronto, ON, Canada.

PURPOSE: The purpose of this qualitative study was to examine adolescent heart or lung transplant recipients’ perceptions of exercise following an acute, out-patient based physiotherapy (PT) exercise program. Research questions: 1) How do adolescent heart or lung transplant recipients perceive exercise at 3 months post-transplant? 2) What are their perceptions of this PT exercise program?

METHOD: Following IRB approval, adolescent patients (10 years or over) post-heart (HTx) or lung transplant (LTx) who had completed a 3 month, out-patient based PT exercise program were recruited. A descriptive qualitative design using semi-structured interviews was conducted with participants. Data was analyzed for themes using 2 coders employing standard methods of constant comparison.

RESULTS: Seven HTx (mean age = 13 ± 1.41) and six LTx recipients (mean age = 15 ± 1.41) were interviewed. Three primary themes emerged: 1) Participants accepted the necessity of doing their exercise program. Reasons ranged from externally imposed expectations to self-motivation in order to achieve health and pre-illness activity levels. 2) Participants felt that they were better able to participate in typical age-related activities with exercise. The exercise program was perceived as an important facilitator to achieving these goals. 3) Participants preferred exercise modalities that were fun, functional and recreational. Exercise activities that were goal directed toward sport performance were viewed as important.

CONCLUSION: Adolescent heart and lung transplant recipients were strongly motivated to exercise to maintain health and participate in peer-related activities. They perceived that the exercise program assisted with re-integration into the community and enhanced their experiences. Adolescent feedback was invaluable to help develop practical, relevant exercise programs in the acute post-operative period and guide long term fitness recommendations.

Abstract# 58

ARTERIAL HYPERTENSION AFTER HEART TRANSPLANTATION IN PEDIATRIC PATIENTS IS RELATED WITH IMMUNOSUPPRESSIVE DRUG LEVEL. Francesca I. Calò Carducci,1 Giovanna Gruutter,2 Ugo Giordano,1 Francesco Parisi.1 Pediatric Hospital “Bambino Gesù”, Rome, Italy.

PURPOSE: Hypertension is a significant complication after orthotopic heart transplantation (OHT), in pediatric patients. Clinical pressure measurement fails to recognize hypertensive adults patients in more than 30% of cases and can not detect the loss of nocturnal reduction in blood pressure, which is associated with hypertensive end organ damage. This study investigated the role of twenty-four-hour ambulatory blood pressure monitoring (24ABPM) after OHT in pediatric patients. Furthermore we looked for correlation between hypertension and immunosuppressive treatment.

METHOD: Nineteen pediatric transplant recipient with no additional risk factors for hypertension other than OHT, underwent 24ABPM. Random blood pressure (RBP) was measured using a sphygmomanometer before 24ABPM. Anagraphical data and given treatment of all patients were recorded.

RESULTS: Mean age at transplant was 10 years and six months (8-17y5m), the mean age at study was 17y (range 13y-28y). Hypertension (mean diurnal diastolic pressure >85 mm Hg) was detected in 1 out of 19 patients by RBP (5%) and in 8 out of 19 patients by 24ABPM (42%) (p<0.001). No case of white coat hypertension were detected. Among the 11 patients that were not found to be hypertensive by 24ABPM, 7 (63%) did not show the physiological (>10%) nocturnal reduction of blood pressure, a sign of denervation-induced autonomic dysfunction. Hypertensive and normotensive recipients were similar for sex, age at transplantation, time between transplantation and 24-hour ambulatory blood pressure. In contrast, hypertensive patients had higher cyclosporine blood levels (130 ng/ml vs 80 ng/ml p<0.02).

CONCLUSION: This study demonstrates that conventional blood pressure monitoring underestimates the incidence of post heart transplantation hypertension in pediatric patients. 24ABPM may improve the management of post-transplantation hypertension. Hypertension after pediatric cardiac transplantation is associated with cyclosporine blood level.

Abstract# 59

CADAVERIC LOBAR LUNG TRANSPLANTATION AN OPTION FOR PAEDIATRIC PATIENTS WAITING LUNG TRANSPLANT. Jacquie H. Burton,1 Glen P. Westall,1 Justin Negri,2 Silvana Marasco,2 Greg I. Snell.1 Lung Transplant Service, The Alfred Hospital, Melbourne, Victoria, Australia; 2Department of Cardiothoracic Surgery, The Alfred Hospital, Melbourne, Victoria, Australia.

PURPOSE: Children with advanced lung disease awaiting lung transplantation are likely to spend a longer period on waiting lists before appropriately sized donor organs become available. These longer waiting times reflect the lower organ donation rates.
seen in children; rates that are significantly lower than those reported in the adult population. Confounding this is that Australia has one of the lowest organ donor rates in the Western World. Three children with advanced lung disease, who deteriorated whilst waiting for lung transplantation, underwent lobar lung transplantation in the absence of appropriately sized donor lungs.

**METHOD:** We describe the clinical course of three children (all female) aged between 9-15 years, with advanced lung disease. Their diagnoses included obliterative bronchiolitis post-myocplasma infection, cystic fibrosis and obliterative bronchiolitis due to graft versus host disease post bone marrow transplant.

**RESULTS:** All of the children received “cutdown” bilateral loblar transplants from cadaveric adult brain-dead organ donors. In all cases the transplant operation involved implantation of the right middle and upper lobes and of the left upper lobe. Their intensive care stays were 2, 2 and 15 days, with a total length of stay of 11, 27 and 26 days. The longer inpatient stays for two patients were due to treatment of a chest infection and additional rehabilitation due to deconditioning pre transplant. Two of the patients are more than 180 days post transplant and have had no episodes of rejection from surveillance lung biopsies performed. Their lung function was stable at an FEV1 of 1.26 L (55% pred) and FVC of 1.81 (78% pred) and an FEV1 of 1.11 (63% pred) and FVC of 1.66 (94% pred).

**CONCLUSION:** Given the low organ donation rates in children, and in the absence of appropriately sized donor lungs, novel strategies such as lobular transplantation must be considered, particularly when children continue to clinically deteriorate whilst on the lung transplant waiting list.

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**Abstract #60**

**ANAEMIA AFTER PAEDIATRIC CARDIAC TRANSPLANTATION,** Claire Irving,1 Asif Hasan,1 Andy Gennery,1 Richard Kirk,1 Paediatric Cardiac Transplantation, Freeman Hospital, Newcastle Upon Tyne, United Kingdom.

**PURPOSE:** Anaemia is common in solid organ transplant recipients but prevalence in children after successful cardiac transplantation is still poorly described. We aimed to describe the prevalence of chronic anaemia in well children following cardiac transplant and to document causes and incidence of acute anaemia in this group.

**METHOD:** A retrospective review of children at least 6 months post cardiac transplantation. We analysed haemoglobin (Hb) levels pre-operatively and regularly thereafter. Renal function was evaluated by glomerular filtration rate (GFR). We noted immunosuppressive regimens and total body iron stores as assessed by ferritin levels. Chronic anaemia was diagnosed on the basis of Hb below the lower limit of normal for age and sex and persisting for at least 6 months.

**RESULTS:** 71 children (36 male), mean age 11.1 years (1.0 to 17.9). Mean time post transplant 6.1 years (0.6 to 17). Mean age at transplant 5.1 years (0.1 to 15.2). Mean Hb for the population was 8.9g/dl. 64 patients (90%) were anaemic for more than 6 months during the 18 year study period. Mean ferritin was 131 (12-885) micrograms/litre. Renal function was abnormal at time of lowest Hb level in 19 (29%). At last sample, 33 (46%) had a Hb below normal and 4 (12%) had impaired renal function with low GFR. 6 patients had acute anaemia, 2 related to parvovirus, 1 adenovirus infection, 1 gastrointestinal bleed, 1 post-transplant lymphoproliferative disease and 1 due to azathioprine. All paediatric patients in our institution are initially managed on ciclosporine-based immunosuppression. At time of study, 48 (67%) had changed to tacrolimus. 22 were on azathioprine and 17 on MMF. There was no increased incidence of chronic anaemia between patients on azathioprine and those managed on ciclosporine or tacrolimus alone.

**CONCLUSION:** Chronic anaemia is almost universal following paediatric cardiac transplantation and is likely due to a number of factors. Iron deficiency is common but treatment options are limited, especially for infants. The incidence of acute anaemia in this population group should prompt evaluation for infective causes.

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**Abstract #61**

**BODY COMPOSITION AND BONE MINERAL DENSITY CHANGES POST PEDIATRIC LUNG TRANSPLANTATION,** Colleen Jackson, Glen Westall. Nutrition, The Alfred, Melbourne, Victoria, Australia; Allergy, Immunology and Respiratory Medicine, The Alfred, Melbourne, Victoria, Australia.

**PURPOSE:** Changes in body composition and bone mineral density (BMD) are common after lung transplantation due to corticosteroid use, altered levels of physical activity, and insufficient nutrient intake. Consequences may include reduced recovery and rehabilitation, poorer quality of life, and osteoporosis. Our practice over recent years has included the administration of bisphosphonates, physiotherapy, and the provision of a diet sufficient in energy, protein, calcium and vitamin D. We reviewed the impact of these interventions by assessing temporal changes in body composition and BMD in a cohort of children and adolescents before and after lung transplantation.

**METHOD:** Body composition and BMD was assessed in 6 children (5 female, aged 9 to 15 years) with end-stage lung disease (cystic fibrosis, n = 4; obliterative bronchiolitis, n = 2) who underwent lung transplantation at the Alfred Hospital, between 2003-2007. Parameters analysed included age, gender, Z score (total body and lumbar spine), height, weight, body mass index (BMI), fat mass, fat free mass, and bisphosphonate use. Z scores, fat mass and fat free mass were determined by dual x-ray absorptiometry (DEXA).

**RESULTS:** Total BMD was maintained after transplant, despite high dose steroids. Total BMD (Z score) before (T-2, T-1) and after (T1, T2) transplant.

BMI increased after transplantation. Percentage body fat was reduced in only one child.

BMI before (T-2, T-1) and after (T1, T2) transplant.

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**Abstract #62**

**25 YEARS OF CARDIAC TRANSPLANTATION AT SAINTE-JUSTINE,** Frederic Jacques,1 Marie-Josee Rasoioisson,1 Suzanne Vobecky,1 Sylvie Michaud,1 Claude Chartrand,1 Nancy C. Poirier,1 Cardiovascular Sciences, CHU Sainte-Justine, Montreal, QC, Canada.

**PURPOSE:** The first Canadian pediatric heart transplantation was performed at Sainte-Justine Hospital in Montreal July 10, 1984. The present study reviews our complete experience with heart transplantation between 1984 and 2008.

**METHOD:** Patients charts of the transplantation clinic were reviewed. Survival analysis were performed with the Kaplan-Meier Method.

**RESULTS:** Fifty five transplantations were performed in 56 patients: 37 males, 18 females. Four were less than 1 year at transplantation, 25 were between 1 and 10 years and 26 between 11 and 18 years of age. Indications for transplantation were a congenital anomaly in 35, dilated cardiomyopathy (CMP) in 11, hypertrophic CMP in 6, arrhythmogenic CMP in 1, cystinosis in 1, and toxic myocarditis in 1. The 5- and 10-year survival free from rejection is 68% and 65%, respectively. Estimated mean creatinine clearance is 93 ml/min, 78 ml/min, 89 ml/min and 69 ml/min at 1, 5, 10 and 15 years, respectively. Two patients underwent kidney transplantation during follow-up. No patient is insulin-dependent. Of 27 adult patients still alive, 20 are followed by an adult transplant team. Twenty patients work, 5 in college, 11 are in either elementary or high school, and 2 in pre-school. Four patients are parents of at least one child.

**CONCLUSION:** Long term survival and functional results of our pediatric heart transplantation program are favorable and compare with other pioneering programs.
SPLIT LUNG TRANSPLANTATION IN A BOY WITH CYSTIC FIBROSIS.


Lung transplantation into an adult without wasting any graft. The ultimate solution for optimal use of donor lung is the split-lung technique. We report our experience with this technique.

METHOD: A 13 year old boy (Height 127 cm, weight 26.6 Kg) affected by cystic fibrosis was listed for lung transplantation for recurrent exacerbations of pulmonary infections and an end stage respiratory disease (FEV1, 41%). After a waiting time of 329 days a 15 yr old boy (Height 185 cm, weight 75 Kg) deceased organ donor became available. The calculated recipient total lung capacity (TLC) was 2.43 while the calculated donor’s TLC was 7.71 (right lung 4.24, left lung 3.47). The lungs were procured “on bloc” and divided on the back table at the donor’s hospital. The right lung was brought to a cooperative Center and used for a single lung transplantation. The left lung was brought to our Center and on the back table was divided in the upper and lower lobe. The recipient underwent a bilateral sequential lung transplantation (BSLT) through a “clamshell” incision. The right lung was removed first and the upper lobe was rotated of 180° and sutured in. Following reperfusion of the upper lobe (ischemia 240 minutes) the recipient left lung was removed and the lower lobe was implanted (ischemia 300 minutes). Immunosuppression was based on Basiliximab, tacrolimus and steroids.

RESULTS: Patient was discharged on the 29 post-operative day with a FEV1 of 63%. After 6 months FEV1 increased to 99%. After a follow up of 627 days patient is in good condition without any sign of Bronchiolitis Obliterans Syndrome.

CONCLUSION: Split-lung transplantation is an effective option to overcome size mismatch between recipient and donor. Use of split lung technique allows to use both lungs from the same donor, the left for a BSLT into a child and the right for a single lung transplantation into an adult without wasting any graft.

Abstract# 65
LONG-TERM (>10 YEARS) OUTCOME OF ADOLESCENT SURVIVORS OF CHILDHOOD LIVER TRANSPLANTATION.


Paediatric Liver Centre, King’s College Hospital NHS Foundation Trust, London, United Kingdom; PCRIC, UCL Institute of Child Health, London, United Kingdom.

METHOD: Data were available for 19/29 (66%) young people, 32% were male, mean age at time of study 15 ± 1.7 yrs. QL was measured using the CHQ-CF87, which has 11 domains reflecting physical, psychological, social and family function. Psychological outcomes were measured through standardised questionnaires: self-concept (P2H); emotional health (CDI) and behavioural problems (SDQ).

RESULTS: The mean time since transplantation was 12.3 ± 1.7 yrs. One had been in hospital for 2 days in the previous 6 mths, 84% had a secondary chronic condition and 3 (16%) self-reported as being non-adolescent. Young people had comparable QL to the general population except physical function (93.6 ± 8.2 vs 97.8 ± 7.6, p < .04), mental health (76.9 ± 17.6 vs 86.5 ± 10.3, p < .03), self-esteem (79.7 ± 15.1 vs 87.4 ± 11.4, p < .04) and general health perceptions (55.8 ± 15.5 vs 77.2 ± 13.5, p < .001). Young people had comparable self-concept (43.5 ± 6.8 vs 44.6 ± 10.2, p > .05) and emotional health (7.6 ± 6.3 vs 9.2, p > .05) but rated themselves as having significantly worse behaviour (19.9 ± 4.4 vs 10.3 ± 5.2, p < .001). However, 21% scored below the treatment range for emotional problems (CDI >12) and 42% for behavioural problems (SDQ >20), a further 42% were in the borderline range for treatment of behavioural problems (SDQ 16 – 20). There was a correlation between the domains of QL and self-reported non-adolescent to immunosuppression (r = -.51 to -.86, p < .03 to < .001).

CONCLUSION: Adolescents who have survived >10 yrs after liver transplantation have reduced QL in the psychological domains and a large proportion are within the treatment range for emotional and behavioural problems. These may be important considerations when assessing young people who are non-adolescent to immunosuppression.

Abstract# 66
A PILOT STUDY OF PHYSICAL, PSYCHOSOCIAL, AND EMOTIONAL ISSUES AFTER PEDIATRIC RENAL TRANSPLANTATION.

Stacey Pollock-BarZiv, Diane Hebert, Moira Korus, Valerie Langlois, Gail Picone, Rita Pool, Lisa Robinson, Angela Williams, Samantha Anthony.

SickKids Transplant Centre, Hospital for Sick Children, Toronto, ON, Canada.

METHOD: Criteria for determining success after renal transplant (RTx) have traditionally relied on survival and improvements in medical status. This assumes restoration of renal function will allow children to resume normal life activities and that quality of life (QOL) will improve. We sought to examine QOL outcomes including psychosocial, physical, and emotional aspects in RTx recipients.

RESULTS: RTx recipients completed a questionnaire package including Visual Analogue Scales for QOL (VAQOL), General Health, and Pain; the Pediatric QOL Inventory 4.0 (PedsQL 4.0), and the PedsQL End Stage Renal Disease Module.

CONCLUSION: Adolescents and young children, with 40% rating a score ≥5/10 (10 is most fatigue). Mean PedsQL subscale scores for physical health were comparable to healthy norms (mean 80.5; range 73.5-100; higher scores=better QOL), but were lower than expected for the psychosocial scale (mean 74.9; range 67.9-98.5). Data from the PedsQL Renal Module found that adolescents experience a high level of worry, weight concern and problems attributed to kidney issues (swelling, thirst), difficulty with family and peer interaction, and missing school.
CONCURRENT SESSION II: ETHICAL, PSYCHOLOGICAL AND ECONOMIC ISSUES 2

parenting stress 3 months to 16 years (median 2 years) after transplant, at either a routine clinic visit or annual review.

RESULTS: One third of both mothers and fathers obtained scores indicative of significant psychological distress. Mothers of children with a pre-transplant diagnosis of cardiomyopathy had higher levels of distress (34%) than mothers of children with congenital heart disease (18%), although the groups did not differ in terms of time since transplant or age of the child. Parents also identified significant levels of illness-related parenting stress in the areas of communication, emotional distress, coping with their child’s medical care and balancing the demands of their roles. Parents of children with CM exhibited significantly more problems with communication about their child’s illness and emotional dysfunction compared with parents of children with CHD. Within the 50 parent dyads there was no correlation between mothers’ and fathers’ levels of distress nor in their ratings of difficulty of coping with illness related stresses. However, scores indicated a high level of agreement in determining the frequency of occurrence of particular illness-related stressors.

CONCLUSION: Parents of cardiothoracic transplant recipients exhibit elevated levels of psychological distress and illness-related stress. Pre-transplant diagnosis is a salient factor in post-transplant psychological functioning and within individual parent dyads mothers and fathers react differently to the demands of caring for a transplanted child. Evaluation of parental psychological functioning should be a routine part of follow-up after transplantation and the differing impact on individual family members addressed.

Abstract# 68

ABO-INCOMPATIBLE HEART TRANSPLANTATION – A PARENTS’ PERSPECTIVE. Samantha J. Anthony,1 David B. Nicholas,1,2 Anne J. Diphchand,1 Lori J. West.3 1The Hospital for Sick Children, Toronto, Canada; 2University of Calgary, Edmonton, Canada; 3University of Alberta, Edmonton, Canada.

PURPOSE: The discovery that infants with heart disease can be transplanted safely with an ABO-incompatible (ABO-i) organ revolutionized infant heart transplantation (HTx). While this groundbreaking technique led to a new therapeutic pathway, this treatment option was fraught with potential risk and uncertainty. To date, no literature has explored parents’ decision-making processes, nor the post-HTx experiences of these families. This exploratory study examined the “lived experiences” of parents of ABO-i HTx recipients.

METHOD: This qualitative study was guided by an ethnographic approach to explore the perspectives of study participants. Data was collected through semi-structured interviews. Following verbatim transcriptions of the interviews, transcripts were subjected to data analysis through the utilization of qualitative computer software (N’Vivo) and saturation of themes was achieved.

RESULTS: Eight families (7 mothers / 4 fathers) of the earliest cohort of infants who underwent ABO-i HTx participated. Results include an array of complex experiences. While HTx offered families hope, parental decision-making processes were characterized by intense feelings of desperation, helplessness and fear, all amplified by a sense of urgency. Similar to psychosocial data examining non-ABO-iHTx, the Tx journey significantly disrupted family life and impacted familial roles and relationships. ABO-i HTx experiences involved many unique challenges including 1) poor communication and knowledge insufficiencies with community care providers, and 2) heightened stress and fear surrounding the increased risk and uncertainties perceived accompanying ABO-i HTx. Adaptation ‘facilitators’ which emerged for families included guarded optimism and unyielding determination.

CONCLUSION: Families experienced profound and idiosyncratic psychosocial stressors throughout the ABO-i HTx experience, many of which differed from non-ABO-i recipients. Results provide healthcare professionals with a framework for providing enhanced clinical care and psychosocial support to this unique population.

Abstract# 69


PURPOSE: Identification of psychological variables that impact adherence can guide interventions for transplant patients.

METHOD: Study examined quality of life (PedoQL), family functioning (FAD), and parent adjustment (PIP) and adherence in adolescent transplant patients at time of listing and 12 months after transplant. Medical Adherence Measure, a semi-structured interview was used to assess adherence.

RESULTS: Participants were 60 patients (age14.32 yrs±2.18, 75% male, 63% Caucasian and parents. The rate of non-adherence prior to transplant was high. 90% of patients reported some degree of non-adherence; 37% missed and 28% took late >10% of prescribed doses. On the quality of life measure, behavior issues were associated with missed (r=.42, p<.01) and late doses (r=.39, p<.05), and mental health issues were associated with missed (r=.38, p<.05) and late (r=.51, p<.001) doses. Missed doses was associated with mother reports of difficulties with overall family functioning (r=.34, p<.05), communication (r=.41, p<.01) and role definitions (r=.33, p<.05) among family members.

CONCLUSION: Adolescent quality of life in behavioral, emotional, and family domains play a significant role in adherence both before and after transplant. Behavioral family interventions are needed to improve adjustment and adherence for transplant patients.

Abstract# 70

COGNITIVE ABILITIES, QUALITY OF LIFE, AND PSYCHOSOCIAL BURDEN IN LIVER-TRANSPLANTED CHILDREN AND THEIR FAMILIES. THE PROJECT “Live®”. Karl-Heinz Schulz,1 Elvira Lorenz,1 Tanja Kaller,1 Rainer Ganschow,2 Bjoern Nashan,1 Andreas Richterich.1 1Department of Hepatobiliary and Transplant Surgery and Department of Medical Psychology, University Hospital Eppendorf, Hamburg, Germany; 2Department of Paediatrics, University Hospital Eppendorf, Hamburg, Germany; 3Department of Hepatobiliary and Transplant Surgery, University Hospital Eppendorf, Hamburg, Germany; 4Department of Psychosomatics in Children and Adolescents, University Hospital Eppendorf, Hamburg, Germany.

PURPOSE: For children and adolescents there is a risk to develop pervasive developmental disorders and secondary comorbidities before and after transplantation. The project “Live®” aimed at identifying the unique psychosocial and medical care and consultation for children and adolescents as well as their families.

METHOD: Since 2007 168 families were assessed. Results concerning the quality of life (KIDSCREEN 52), cognitive variables (Hamburg Wechsler intelligence test for children, HAWIK; Testbattery for Attentional Performance for children, KITAP), psychopathology (Schedule for affective disorders and schizophrenia for school age children, Kiddie-SADS), and the burden of the family (questionnaire to assess family burden, FABEL) will be presented.

RESULTS: At the time of transplantation, the mean age of the children (gender was balanced) was 2.7 (SD=3.2). In average, they were examined 8.3 (SD=4.5) years after transplantation. The major indication was biliary atresia (55%), 37% of the patients received a living donation. Despite there is a significant higher quality of life in children after transplantation compared to the norm, 49% of the sample show psychological disorders (e.g. enuresis 34%, adjustment disorder 24%, etc.) and cognitive abilities below average. Moreover, families with transplant children are highly burdened by the illness related stressors.

CONCLUSION: Results indicate that there is an urgent need for psychological support for these families and in addition, there is a strong demand for early developmental screening for children with liver transplantation to enhance integration in school and their further working life.

Abstract# 71

TEXT MESSAGING SIGNIFICANTLY IMPROVES ADHERENCE TO IMMUNOSUPPRESSANTS IN PEDIATRIC LIVER TRANSPLANT RECIPIENTS. Tamir Miloh, Ronen Arnon, Jill Warshaw, Nanda Kerkar, Kishore Iyer. Recanati Liver Transplantation, Mount Sinai Medical Center, New York, NY, USA.

PURPOSE: Improve adherence to immunosuppressants in pediatric liver transplant patients by using text messaging.

METHOD: A prospective, IRB-approved study, sending text messages to the primary medication administration (patient/caregiver) of pediatric liver transplant recipients, displaying reminders to administer immunosuppressants at specific times set by the medication administrator. The receiver’s text-message response was recorded on triple immunosuppressants. Fourteen had history of histologically proven rejection on triple immunosuppressants. Fourteen had history of histologically proven rejection. Forty had history of histologically proven rejection. Forty had history of histologically proven rejection.

CONCLUSION: Adherent quality of life in behavioral, emotional, and family domains play a significant role in adherence both before and after transplant. Behavioral family interventions are needed to improve adjustment and adherence for transplant patients.
patients who continued the study or dropped out, respectively. Results are demonstrated in the table (including patients who dropped out).

<table>
<thead>
<tr>
<th></th>
<th>1 year before study</th>
<th>During study (3-6 months)</th>
<th>P value</th>
</tr>
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<tbody>
<tr>
<td>Prograf (Average SD: SB)</td>
<td>17.72 ± 3.91</td>
<td>15.76 ± 3.71</td>
<td>P = 0.001</td>
</tr>
<tr>
<td>ALT U/L</td>
<td>53.9 ± 33</td>
<td>40 ± 38</td>
<td>P = 0.23</td>
</tr>
</tbody>
</table>

CONCLUSION: Text messaging significantly reduced the SD of prograf levels, indicating improved adherence. The effect on graft function is yet to be determined.

Abstract# 72

COMPARISON OF QUALITY OF LIFE PERCEPTIONS BETWEEN ADOLESCENT RENAL TRANSPLANT PATIENTS, THEIR PARENTS AND HEALTHY CONTROLS: A PERFECT MATCH

Anneloes Decorte, Rita Lombaerts, Fabienne Dobbelts.

PEDIATRICS, University Hospitals Leuven, Leuven, Belgium; PEDIATRICS, University Hospitals Leuven, Leuven, Belgium; Psychiatrie, University Hospitals Leuven, Leuven, Belgium.

PURPOSE: Pediatric renal transplantation (RTx) is expected to prolong patient’s life and to improve the quality of life (QOL). Most studies did not study QOL in adolescents separately and did not compare their scores with those of healthy controls, or did use parent report instead of directly questioning the adolescent. The study’s purpose was to evaluate QOL from the perspective of the patient and his parents and to compare scores with data for healthy controls.

METHOD: In this cross-sectional study, all patients (10-18 years) in follow-up at our hospital completed the KIDSCREEN instrument as part of a broader study on psychosocial functioning, a validated tool of 27 items assessing generic QOL related to 5 dimensions (table 1). A parent version is available, as well as country, gender and age-matched norm data for both the patient and parent version.

RESULTS: 23 out of 26 patients and 22 parents participated (70% male; median age 15 yrs, range 11-18 yrs).

Table 1: Scores ± SD of KIDSCREEN-27

<table>
<thead>
<tr>
<th>Sub-scales</th>
<th>Patients (N=23)</th>
<th>Parents (N=22)</th>
<th>Patients versus parents (N=22)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical well-being</td>
<td>47.08 ± 5.28</td>
<td>52.08 ± 5.06</td>
<td>10.10 ± 5.00</td>
</tr>
<tr>
<td>Psychological well-being</td>
<td>48.45 ± 5.27</td>
<td>52.79 ± 5.09</td>
<td>4.34 ± 5.09</td>
</tr>
<tr>
<td>Autonomy and parent relationship</td>
<td>51.21 ± 5.35</td>
<td>53.95 ± 5.13</td>
<td>2.74 ± 5.05</td>
</tr>
<tr>
<td>Social support and significant others</td>
<td>53.32 ± 5.06</td>
<td>55.29 ± 5.34</td>
<td>1.97 ± 5.06</td>
</tr>
<tr>
<td>School</td>
<td>45.38 ± 5.06</td>
<td>46.46 ± 5.31</td>
<td>1.08 ± 5.06</td>
</tr>
</tbody>
</table>

An: Mann Whitney U test; b: Wilcoxon signed rank test

CONCLUSION: The QOL of adolescent patients is comparable to healthy controls. Parents rate their child’s psychological well-being, autonomy and child-parent relationship as worse compared to parents of healthy controls. No significant difference between the patients and parents ratings could be observed. We can conclude that adolescents are doing fine after RTx.

Abstract# LB 1

IMMUNOSUPPRESSION FREE PROTOCOL IN SOLID ORGAN TRANSPLANTATION YEARS FOLLOWING BONE-MARROW TRANSPLANTATION. Yaron Avitzur,1 Nathan Bar-Nathan,2 Yaacov Frishberg,1 R. Becker-Cohen,1 Tirza Klein,1 Don Krist,4 Rivka Shapiri,1 Eytan Moran,2 Institute of Gastroenterology and Nutrition, Schneider Children’s Medical center of Israel, Petach-Tiqwa, Israel; 2Department of Transplantation, Rabin Medical Center, Petach-Tiqwa, Israel; 3Division of Pediatric Nephrology, Sharee Zedek Medical Center, Jerusalem, Israel; 4The Cross Match Laboratory, Rabin Medical Center, Petach-Tiqwa, Israel.

PURPOSE: In reported cases of solid-organ transplantation following bone-marrow transplant (BMTx) from the same donor, immunosuppression was initially administered to prevent GVHD and gradually withdrawn. We report two children who received solid-organ grafts years after BMTx from the same donor without any immunosuppression.

METHOD: The first patient is a 17-y/o boy who underwent BMTx for ALL from his fully HLA-matched sister at the age of 3-years. Chronic renal failure developed following total body irradiation. The patient underwent kidney transplantation from the same donor. Following testing for chimerism that demonstrated a full match between the donor and recipient a single i.v. steroid-bolus was given before reperfusion and without any immunosuppression thereafter. The second patient is a 10-y/o boy who received a BMTx from his HLA-matched sister at the age of 7-months for SCID. Chronic liver disease associated with hepatopulmonary syndrome developed 9-years after BMTx.

RESULTS: Seventeen months post-transplant the first child has normal levels of creatinine. The second child was weaned off oxygen 4 weeks post-transplant and at 11 months has normal liver function tests. Both children have had no episode of acute rejection or GVHD.

CONCLUSION: Children who are full chimeras may benefit from immunosuppression-free protocol when a solid organ transplant is performed from the same HLA-matched living donor years after bone-marrow transplant.

Abstract# LB 2

ONE YEAR RESULTS OF A PROSPECTIVE, RANDOMIZED, MULTICENTER TRIAL OF STEROID AVOIDANCE IN PEDIATRIC RENAL TRANSPLANTATION. Minnie M. Sarwal,1 M. Benfield,1 R. Ettinger,1 V. Dharanidharika,1 R. Mathias,1 R. McDonald,1 W. Harmon,1 D. Kershaw,1 V. Vehaskari,1 E. Kamil,1 H. Baluarte,1 B. Warady,1 D. Ike,1 Bridges,1 T. Sigdel,1 L. L,1 O. Salvaterra,1 CCTPT, NAID, NIH, Stanford, USA.

PURPOSE: Single center non-randomized results with steroid avoidance have shown patient and graft benefits.

METHOD: 130 unsensitized, primary kidney recipients, 0-21 yrs of age, were enrolled from 12 US transplant programs (2004-2006), in a prospective 1:1 randomized multicenter study of steroid-free (SF) vs. steroid-based (SB) immunosuppression with matched demographics. SF patients received extended (6 mo) vs. standard (2 mo) Daclizumab induction in the SB group. Patients in both arms received tacrolimus and MMF maintenance. Protocol biopsies were performed at 0, 6, 12 and 24 mo, and for renal dysfunction.

RESULTS: Results at 1 year: SF 60 and SB 70 patients were enrolled; 11 SF and 16 SB were 0-5 yrs of age. Patient survival was 100% in both arms. Graft survival was similar (97% in SF vs. 98% in SB). Intent to treat (ITT) median delta height SDS scores from baseline were: 0.6 for SF and 0.5 for SB in the 0-5 yr old; 0.3 for SF and 0.3 for SB in the 6-12 yr old (p=ns). BPAR was 28% for SF vs. 34% for SB (p=ns) with 24% and 38% steroid-resistance respectively. 25% of SB rejections recurred within 3 months vs. 0% in SF. Mean calculated GFR was 102 vs. 101 for SF vs. SB for ITT; and 105 and 107 for SF and SB for SF for SB stratified for absence of BPAR. Percent hospitalizations were: 1 for SF vs. SB: 68% vs. 81% at 12 mo, with no differences in bacterial, fungal or viral infections between groups. Neoplasms were noted in 0% SF vs. 6.3% SB (n=1 PTLD; 2.3%) and PTDM in 1.7% SF (n=1 vs. 5.7% SB (n=4). There were no significant differences for hypertension, hyperlipidemia, leukopenia, anemia, AEs or SAEs between groups.

CONCLUSION: Preliminary analysis does not reveal a growth advantage at 1 year in children receiving SF vs SB immunosuppression. There was no difference at 1 year in BPAR and graft survival, and the SF group did not demonstrate excess morbidity. Protocol biopsy analysis and monitoring is planned for both groups until 3 years post-transplantation.

Abstract# LB 3

STEROID-FREE TACROLISSUM-BASED IMMUNOSUPPRESSION PROMOTES LONG-TERM PROPE/OPERATIONAL TOLERANCE IN PEDIATRIC LIVER TRANSPLANTATION. Raymond Reding,1 R. Mathias,1 H. Baluarte,1 B. Warady,1 Don Krist,1 T. Sigdel,1 L. L,1 O. Salvaterra,1 CCTPT, NAID, NIH, Stanford, USA.

PURPOSE: Long-term immunosuppressive therapy (IS) is required for most pediatric liver transplant (LT) recipients. As defined by Calne, prope (almost) tolerance may constitute an optimal condition combining graft acceptance with very low IS load and minimal IS-related toxicity.

METHOD: We reviewed 171 pediatric (median age at LT: 1.3y; range: 0.3-14.0y) long-term survivors after LT, transplanted between April 1999 and June 2007 under tacrolimus-based regimens (deceased donors n=97, 57%; living donors: n=74, 43%), with a median follow-up post-LT of 6.0y (range: 1.6-9.2y). Their current status regarding IS therapy was analysed and correlated with the initial IS immunoprophylaxis. Prope tolerance was defined as tacrolimus monotherapy, with mean trough blood levels ≤4ng/ml during the preceding year of follow-up, combined with normal liver function tests.

RESULTS: The 75 children transplanted before April 2001 received a standard tacrolimus-stereoids regimen. Beyond April 2001, the subsequent 96 patients received steroid-free tacrolimus-basiliximab or -daclizumab immunoprophylaxis. In the latter group, 43 (45%) never experienced any acute rejection episode and, consequently, never received steroids. In the long term, a total of 80 recipients (47%) developed prope tolerance (n=74) or IS-free operational tolerance (n=6), 27 of them belonging to the 43 steroid-free patients (63%). In contrast, only 53/128 (41%) children treated with steroids subsequently developed prope/operational tolerance. Correlation between initial immunoprophylaxis and current IS therapy showed that prope/operational tolerance was significantly associated with steroid avoidance during the whole transplant follow-up (p=0.015).
CONCLUSION: Steroid-free tacrolimus-based IS seems to promote long term graft acceptance under minimal/no IS. If confirmed, these results constitute the first evidence that minimization of IS, including steroid avoidance, might be tolerogenic in the long term after pediatric LT.

Poster Session I

Abstract# 73
EBSTEIN-BARR LOAD MONITORING IN PEDIATRIC LIVER TRANSPLANTATION AND RISK OF PTLD. Valerio Nobili,1 Andrea Pietrobattista,1 Maria Rita Sartorelli,1 Pietrobattista,1 Maria Rita Sartorelli,1

CONCLUSION: However all these 7 patients remained positive for HBsAg, HBeAg, and negative for combined to adefovir dipivoxil in these patients and HBV-DNA decreased 4 Log10.

RESULTS: In the remaining 7 patients HBV DNA decreased 1-3 Log10 in 4 patients and increased with elevated AST/ALT (400/500 IU/mL), positive AntiHBcIgM, and acute hepatitis and HBsAg, and became AntiHBs and AntiHBe positive. This patient had acute hepatitis only 1 patient who received lamivudine for 10 months cleared HBV DNA

METHOD: We performed EBV investigation monthly in the first year after transplantation and every two months afterward. The clinical samples were analyzed on whole blood using a Real-Time Polymerase Chain Reaction (RT-PCR) assay and results were expressed as copies per ml of whole blood. Primary infection was diagnosed by the appearance of VCA-IgM or VCA-IgG or RT-PCR in patients previously IgG seronegative; moreover we assume that all infant less than one year of age had to be EBV naive. Positive RT-PCR > 160000/ml at least 50% of samples over a minimum period of 3 months defines the state of persistent high viral detection (PVD). In case of PVD immunosuppression was gradually tapered. Antiviral therapy was not used.

RESULTS: We performed a retrospective review of 43 children monitored for a median of 6 years after OLT; 32 pts were IgG seronegative or less than 1 years old and 11 were seropositive before OLT. 28/32 had a primary infection at a median time of 6 months after transplantation (1-64) and 22/32 of these patients developed a PVD, while none of seropositive pts did it. The development of the persistent high load carrier state was seen more frequently following asymptomatic EBV infection than following EBV disease.

CONCLUSION: As reported by several authors also our data seem to confirm that EBV infection in seronegative patients has to be carefully monitored because it is associated with greater risk to develop PTLD. The reduction of immunosuppression still remains the first line for the PTLD management.

Abstract# 74
EFFECTS OF LAMIVUDINE TREATMENT ON DE NOVO HEPATITIS B INFECTION AFTER LIVER TRANSPLANTATION IN CHILDREN. Figen Ozcan,1 Hande Arslan,2 Bekhan Demirhan,2 Sinasi Sevmiti,2 Hamdi Karakayali,2 Mehmet Haberal,2 1Pediatry, Baskent University, Faculty of Medicine, Ankara, Turkey; 2Infectious Diseases, Baskent University, Faculty of Medicine, Ankara, Turkey.

METHOD: We included 51 liver transplanted children who were included in the study. Eight patients (15.6%) aged 1-13 years, developed de-novo HBV infection median 14 months (5-36months) after LT. Five received a liver from antiHBcIgG (+) donor. None received pretransplant EBV serology and every two months afterword. The clinical samples were analyzed by patients immunodeficiency and virulence of fungi pathogens.

RESULTS: Pretransplant EBV serology was negative in 14 patients. Initial therapy for 21 patients was reduction in immunosuppression (RDI). Nine patients had rituximab, and 14 had chemotherapy as second line therapy. Only three patients had improvement with rituximab. Twelve patients responded to chemotherapy. Four patients had surgical removal of the lesions. One patient died before any intervention. Two patients had improvement with RDI along with surgery. Six (27.3%) patients died during the follow up period with PTLD being the predominant cause in 4.

CONCLUSION: The treatment of PTLD continues to evolve because of the availability of newer agents. The efficacy of rituximab as sole agent in the treatment of PTLD remains to be proven.

Abstract# 75
EFFECTS OF LAMIVUDINE TREATMENT ON DE NOVO HEPATITIS B INFECTION AFTER LIVER TRANSPLANTATION IN CHILDREN. Figen Ozcan,1 Hande Arslan,2 Bekhan Demirhan,2 Sinasi Sevmiti,2 Hamdi Karakayali,2 Mehmet Haberal,2 1Pediatry, Baskent University, Faculty of Medicine, Ankara, Turkey; 2Infectious Diseases, Baskent University, Faculty of Medicine, Ankara, Turkey.

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CONCLUSION: The treatment of PTLD continues to evolve because of the availability of newer agents. The efficacy of rituximab as sole agent in the treatment of PTLD remains to be proven.

Abstract# 76
ORAL CANDIDA INFECTION IN ORGAN TRANSPANTED PATIENTS. Dorota Olczak-Kowalczyk,1 Joanna Pawlowska,2 Barbara Garuczewska,2 Ewa Smirksa,2 Malgorzata Syczewska,2 Ryszard Greenda,1 1Oral Pathology, The Children’s Memorial Health Institute, Warsaw, Poland; 2Gastroenterology, Hepatology and Immunology, CMHI, Warsaw, Poland; 3Clinical Microbiology and Immunology, CMHI, Warsaw, Poland; 4Nephrology, Kidney Transplantation and Hypertension, CMHI, Warsaw, Poland; 5Dental Practice, Warsaw, Poland.

PURPOSE: Candidiasis is one of the infectious complications in organ recipients caused by patients immunodeficiency and virulence of fungi pathogens. Aim of study: Assessment the frequency of oral candidiasis and identify the of the presence of Candida spp. in lesions on the oral mucosa in graft recipients.

METHOD: 185 patients after kidney or liver transplantation on immunosuppressant treatment and 70 in control group. Assessment included clinical examination of oral cavity, mycological diagnostic and statistical analysis.

RESULTS: Candida spp colonies were noted in the oral cavity in 63 graft recipients and in 19 control group and the most frequently type of fungi diagnosed was Candida albicans. The presence of Candida spp. in the oral cavity does not depend on the type of organ transplanted (p = 0.488), treatment administered (p = 0.308), age (p = 0.114), or graft survival time (p = 0.227). In immunosuppressed organ transplant recipients, the most frequent colony density of Candida spp. was found to be Code 4 (22 out of 63 patients, i.e. 34.92% of the total group); in the controls, however, it was Code 2 (8 out of 19 subjects, i.e. 42.1% of the total group). Seven organ transplant recipients diagnosed with oral candidiasis were found to have accompanying lesions which are frequently due to a co-pathogenic yeast of Candida spp. They included angular cheilitis (1), black hairy tongue (1), angular cheilitis and coated tongue (2), angular cheilitis and black hairy tongue (3).

CONCLUSION: Prevalence of Candida spp.in the oral cavity in transplant recipients was higher than in immunocompetent subjects. Kidney or liver transplantation predisposes to the development of higher density of Candida spp. colonies. Acknowledgment. The study was supported by project of Polish Ministry of Science: PB 887/ P05/2005/29
Abstract# 77
OUTCOME IN PEDIATRIC MALIGNANT LIVER TUMORS.
Nanda Kerkar,1 Sukru Emre,2 Johanna Mishra,3 Raffaella Morotti,2 Birte Wistinghausen,1 Emil Cohen,1 Schwarz Myron,1 Iyer Kishore,1 Surgery and Pediatrics, Mount Sinai School of Medicine, New York, NY, USA; 2Surgery, Yale, New Haven, CT, USA.
PURPOSE: To examine outcomes of pediatric malignant liver tumors managed by a single tertiary care center between 2001–2007.
METHOD: Retrospective chart review with IRB approval.
RESULTS: Seventeen malignant liver tumors were identified, 10 hepatoblastomas (HB), 6 hepatocellular carcinomas (HCC) and one sarcoma. The main features of the 2 groups are shown in Table 1.

<table>
<thead>
<tr>
<th>Table 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hepatoblastoma (n = 10)</td>
</tr>
<tr>
<td>Median age (range)</td>
</tr>
<tr>
<td>Presentation</td>
</tr>
<tr>
<td>Underlying disease (n)</td>
</tr>
<tr>
<td>Alphafetoprotein</td>
</tr>
<tr>
<td>Radiology</td>
</tr>
<tr>
<td>Chemotherapy (Chemo) + resection</td>
</tr>
<tr>
<td>Chemo + liver transplant (LT)</td>
</tr>
<tr>
<td>Resection alone</td>
</tr>
<tr>
<td>LT alone</td>
</tr>
<tr>
<td>Chemo + resection + LT</td>
</tr>
</tbody>
</table>

Follow-up 1.1 years (range 0.5 - 6.2) 3.2 years (range 1.3 - 4.6) || Outcome 3 alive (3 deaths due to metastasis) 5 alive (1 death due to recurrence) |

CONCLUSION: The adolescent female with sarcoma presented with ruptured tumor and required an emergency right liver lobectomy. She is alive and well after adjuvant Chemo.

CONCLUSION: Malignant liver tumors in childhood often pursue an aggressive course and frequently require multi-modality therapy. HCC in children appear to have a good prognosis after LT, with no recurrence. In HB, tumor recurrence after resection often requires salvage LT with chemotherapy. Our limited data suggest, that this subgroup of patients may carry a worse prognosis and justify earlier consideration for LT if a curative resection is uncertain.

Abstract# 78
RISK FACTORS AND OUTCOME FOR CYTOMEGALOVIRUS (CMV) INFECTION FOLLOWING UNRELATED CORD BLOOD TRANSPLANTATION (UCBT) FOR PEDIATRIC PATIENTS: A SINGLE CENTER EXPERIENCE IN SAUDI ARABIA. Sami Al-Hajjar,1 Amal Al-Seraifi,1 Ibrahim Al-Manci,1 Ali Al-Ahmar,1 Mouhoub Ayas,2 Abdullah Al Jeffy,2 Saleh Al Muhsen,2 Mohamed Shoukri,2 Hassan El Solh.2 Pediatrics, King Faisal Specialist Hospital & Research Centre, Riyadh, Saudi Arabia; 2Pediatric Hematology/Oncology, King Faisal Specialist Hospital & Research Centre, Riyadh, Saudi Arabia; 3Biostatistics, Epidemiology & Scientific Computing Dept., King Faisal Specialist Hospital & Research Centre, Riyadh, Saudi Arabia.
PURPOSE: To determine the incidence, risk factors, and outcome for CMV infection in pediatric patients who received UCBT at King Faisal Specialist Hospital & Research Centre (KFSHRC).
METHOD: We performed retrospective review and case control study for 73 pediatric patients who received UCBT between January 2003 and December 2007.
RESULTS: The overall incidence of CMV infection, early and late CMV infection was 58.9% (43/73), 62.8% (27/43) and 37.2% (16/43) respectively. Early CMV infection was treated with Ganciclovir Pre-emptive therapy that produced 76.9% success rate. Six of the twenty seven (22%) patients with early CMV infection progress to develop CMV end-organ disease including pneumonitis and retinitis. Disease progression was associated with high CMV antigenemia (270pp65 PMNs) (p=0.237).

Table 1

<table>
<thead>
<tr>
<th>Phase</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median age (range)</td>
<td>1.3 years (0.5 - 3.8)</td>
</tr>
<tr>
<td>Presence of CMV</td>
<td>Liver failure, fever with jaundice, abdominal pain</td>
</tr>
<tr>
<td>Underlying disease (n)</td>
<td>Beckwith-Wiedemann syndrome (1)</td>
</tr>
<tr>
<td>Alphafetoprotein</td>
<td>41,900 ng/ml (5000-1,866,342)</td>
</tr>
<tr>
<td>Radiology</td>
<td>Hepatocellular carcinoma with peritoneal metastases (4)</td>
</tr>
<tr>
<td>Chemotherapy (Chemo) + resection</td>
<td>4</td>
</tr>
<tr>
<td>Chemo + liver transplant (LT)</td>
<td>0</td>
</tr>
<tr>
<td>Resection alone</td>
<td>0</td>
</tr>
<tr>
<td>LT alone</td>
<td>0</td>
</tr>
<tr>
<td>Chemo + resection + LT</td>
<td>4</td>
</tr>
</tbody>
</table>

Follow-up 1.1 years (range 0.5 - 6.2) 3.2 years (range 1.3 - 4.6) || Outcome 3 alive (3 deaths due to metastasis) 5 alive (1 death due to recurrence) |

CONCLUSION: The risk factors for CMV infection included recipient CMV seropositivity (p<0.001), acute graft-versus-host disease (p<0.001), steroid therapy (p=0.001) and malignancy as underlying disease (p<0.001). Recipient gender was not a risk factor for CMV infection. Significant risk factors for CMV infection included recipient CMV seropositivity and acute graft-versus-host disease. Recipient CMV-positive patients or for unexplained serum creatinine elevation. Renal biopsy was performed if PCR or creatinine did not improve.

RESULTS: BKV load was demonstrated in 11 of 40 patients (27.5%). Mean determination time of BKV was 14.3 months Age, gender, renal replacement therapy before transplantation, living or cadaveric donor; blood transfusion history, immunosuppressive protocol and serum creatinine level were statistically similar in BKV positive or negative patients. BKV nephropathy was demonstrated in three patients in kidney biopsy. BKV-positive patients were managed with reduction of immunosuppression. Three of four children who received treatment with ciprofloxacin had prominently decreased viral load. Three children with BKV nephropathy received treatments with cidofovir. Three patients remained PCR+ in blood and 6 patients in urine after reduction of immunosuppression or treatment with ciprofloxacin or cidofovir. Renal function was stable in 9 children (82%) after seroconversion.

CONCLUSION: This is the first report of BK virus infection in Turkish renal allograft recipients. Serial monitoring of BKV viremia with early intervention may prevent graft loss in children, and ciprofloxacin might be suggested simultaneously with reduction of immunosuppression before cidofovir.

Abstract# 80
NON-HODGKIN LYMPHOMA (NHL) IN CHILDREN AFTER LIVER TRANSPLANTATION. Bozena Dembowska-Baginska,1 Irene Jankowska,2 Joanna Teisseyre,2 Joanna Pawlowska,2 Mikolaj Teisseyre,2 Wieslawa G Rajkowska,2 Piotr Kalincz,1 Danuta Perek,2 1Pediatric Oncology, The Children’s Memorial Health Institute, Warsaw, Poland; 2Gastroenterology, Hepatology and Immunology, CMHI, Warsaw, Poland; 3Surgery and Organ Transplantation, CMHI, Warsaw, Poland; 4Pathology, CMHI, Warsaw, Poland.
PURPOSE: Post-transplant lymphoproliferative disease (PTLD) is a known complication of solid organ transplantation. Among wide spectrum of PTLD abnormalities non-Hodgkin lymphoma (NHL) is the most serious.
METHOD: From a total of 389 children who were under our care after liver transplantation during the last 17 years (331 LTx were performed in our Institute and 58 abroad) 3 developed NHL. Clinical characteristics of the patients, treatment and outcome were analyzed.
RESULTS: Age at transplantation of the 3 patients was 2yrs8m, 3yrs8m, 8 yrs and time from liver transplantation to diagnosis of NHL was 6 months and in two pts. 9 years respectively. Two patients presented with stage III and 1 with stage IV disease according to Murphy classification. Two children were diagnosed with diffuse large B cell lymphoma (DLBCL) and one with Burkitt-like NHL. In 2 patients tumors expressed the CD20 antigen and were EBV-positive. One patient died of disease progression in central nervous system before onset of treatment. Autopsy revealed NHL involvement of the brain, lungs, and liver. Immunosuppression was withdrawn, antiviral in the 2 remaining patients and one additionally received treatment with CD 20 antibodies. In both the disease failed to regress after initial approach and chemotherapy according to Societe Francaise d’Oncoologie Pediatrique (SFOP) LMB protocol for B cell lymphomas was implemented. The treatment was ineffective in one patient who died of progression 11 months from NHL diagnosis. The other patient is in remission and still undergoing chemotherapy.
CONCLUSION: Prognosis in our children was unfavorable due to the stage of the NHL.

Abstract# 81
OVARIAN BORDERLINE CYSTADENOMA IN A FEMALE RENAL TRANSPLANT PATIENT WITH DENYS DRASH SYNDROME (DDS). Anja Leinhardt,1 Markus J. Kemper,1 Katharina Wencke,2 Reinhard Schnepfenhein,1 Dirk E. Müller-Wiel,1 1Pediatric Nephrology, University Medical Center Hamburg-Eppendorf, Hamburg, Germany; 2Pediatric Surgery, University Medical Center Hamburg-Eppendorf, Hamburg, Germany; 3Surgical Haematology and Oncology, University Medical Center Hamburg-Eppendorf, Hamburg, Germany.
PURPOSE: DDS is a rare cause for renal failure associated with WT1-mutation, rapid progressive nephropathy and an increased risk for Wilms tumor. Renal transplantation can be performed successfully. Patients with XY karyotype are known to be at risk for
gonadal blastoma. XX females are said to have normal genital development. Risk of gynecological malignancies is increased in organ transplant patients compared with that of the general population.

METHOD: Our geno- and phenotypically female patient aged 3 months old presented with renal failure due to mesangial sclerosis, peritoneal dialysis was started. DDS was confirmed with a heterozygous WT1 mutation (Exon 8: G→T, 379G→Cys). Bilateral nephrectomy has been performed and she received a renal transplant at the age of 3. Immunosuppressive treatment consists of prednisone, azathioprine and cyclosporine A. She underwent right modified radical mastectomy. HRCT scan of temporal bone showed opacification of middle ear cavity and mastoid air cells suggestive of mastoiditis for which she underwent right modified radical mastectomy. Histopathology report showed large areas of necrosis with inflammatory granulation tissue, numerous AFB on ZN staining and tissue RTPCR for mycobacterium came positive. Thus a diagnosis of tubercular mastoiditis was made and patient started on anti tubercular drugs (Isoniazid, Rifampicin, Pyrazinamide, Ethambutol). Secondary surutina was done 3 weeks after starting anti tubercul treatment.

CONCLUSION: Tubercular otitis media classically presents with painless otorrhea and multiple perforations. In conclusion tuberculosis should be considered in patients with non responsive chronic suppurative otorrhea with poor postoperative wound healing in post transplant patients.

Abstract# 84


PURPOSE: Fungal infections in transplant recipients are associated with high morbidity and mortality. We explore the use of an immune function assay as an adjuvant tool in monitoring fungal infections. The immune function assay ImmunoKnow (IK) is a cellular assay that measures the ability of T-helper lymphocytes to respond to mitogenic stimulation by phytohemagglutinin-L (PHA) in vitro by quantifying the amount of ATP produced in CD4+ T cells following stimulation.

METHOD: A 19 year old female received a combined kidney/liver transplant on 10/23/07. Pre-transplant B/C value of 578 was on repeat at 564, 543, and subsequently rose sharply to 807 on 11/5/07, which is in the high response range (>or equal to 525). Subsequently, the patient was diagnosed with aspergillus infection of the liver transplant incision on 11/7/07. Antifungal therapy (caspofungin) was instituted. On 12/5/07, murc of the chest wall was diagnosed and responded to antifungal therapy (voriconazole). Subsequently, and in response to therapy, IK values normalized to 207.

RESULTS: Low range IK levels coincide with infectious episodes while high range IK levels coincide with rejection. However in this case report, an extremely high IK value of 807 preceding the aspergillus and murc diagnosis.

CONCLUSION: A dramatic increase in the production of ATP by CD4+ T cells may precede fungal infections. Sharp increases in IK assay values may be a predictor of invasive fungal infections. Further reports are needed to validate this observation.

Abstract# 85

SIGNIFICANCE OF PROSPECTIVE VIRAL SCREENING IN PEDIATRIC RENAL TRANSPLANT (Tx) Recipients. Elizabeth Anyaegbu,1 Samhar I. Al-Akash,1 Driscoll Children’s Kidney Center, Driscoll Children’s Hospital, Corpus Christi, TX, USA.

PURPOSE: To study the significance of prospective viral screening and its effect on outcome in pediatric (Ped) renal transplant recipients.

METHOD: This is a retrospective study of 21 renal Tx Rec transplanted over a 19-month period. Viral screening for CMV, EBV, and BKV by quantitative PCR test was performed at regular intervals.

RESULTS: 17 (81%) were deceased-donor Tx Rec, mean age was 12.1 (8-21) years, 10 (48%) were male, 20 (95%) were primary Tx, all had PRA <10%. Mean follow up (FU) was 10.2 (1-19) months (mo) with 16 (76%) completing 6 mo and 11 (52%) completing 12 mo of FU. CMV donor (D)/Rec status was +/- in 6 (29%), +/- in 8 (38%), +/- in 4 (19%), and +/- in 5 (14%). EBV D/Rec status was +/- in 13 (62%), +/- in 8 (38%), and +/- in 3 (14%). DBV D/Rec status was +/- in 13 (62%), +/- in 8 (38%), and +/- in 3 (14%). 20 (95%) patients received induction therapy with either Daclizumab (57%) or Basiliximab (43%), and maintenance Tx with Tacrolimus (TAC)/mycophenolic acid (MPA) was used in 19 (90%), TAC/MPA/Prednisone (P) in 1 (5%), or TAC/P in 1 (5%). All pts received Valganciclovir for a minimum of 6 mo post-Tx. Protocol biopsies were performed in most pts. All pts tested negative for CMV. 4 (19%) pts developed EBV viremia, 3 were EBV-negative at Tx, BK viraemia and viremia developed in 10 (48%) and 4 (19%) pts, respectively. Therapeutic intervention was applied accordingly. No clinical CMV or EBV disease, BK nephropathy, or graft loss occurred in our pts. Only donor age >30 years was found to be a significant risk factor for BK viraemia/viremia, p = 0.0033. Rec age, Pre-Tx immunosuppression and induction Rx were not found to be significant.

CONCLUSION: None of the pts developed BKV nephropathy or graft loss inspite 19% of pts having evidence of viremia. CMV and EBV disease/Tx were not seen in our pts in spite having evidence of viremia and 38% & 24% being at high risk for CMV and EBV, respectively. Viral prophylaxis and screening leading to alteration in immunosuppression may have played a role in preventing these diseases. The optimal timing, frequency of testing, and appropriate therapy need further study.

Abstract# 83

TUBERCULAR OTITIS MEDIA IN A LIVER TRANSPLANT RECIPIENT. Neelam Mohan,1 Hema Mittal,1 Manpreet Sethi,1 Shalabh Sharma,2 Arvinder Soin.1 1Pediatric Gastroenterology and Hepatology, Sirgangaram Hospital, Delhi, India; 2ENT, Sirgangaram Hospital, Delhi, India.

PURPOSE: Mycobacterium tuberculosis (TB) is common cause of serious and potentially life-threatening disease in solid-organ transplant recipients due to immunosuppression. However incidence, clinical manifestations and optimal treatment of this disease in liver transplant recipients has not been adequately defined. Although pulmonary TB is the common in the general population, extrapulmonary presentation of TB are seen frequently among transplant recipients However tubercular otitis media is a rare presentation. Only one case report in adult patient with renal transplant has been reported.

METHOD: A 6 year old female child underwent liver transplantation in view of liver failure due to hepatitis two years back. She was on tacrolimus immunosuppression. Eighteen months post transplantation she presented with recurrent episodes of ear discharge and post auricular swelling. She was treated with antibiotics (oral, parental) and anti fungi for 8 weeks but had persistent symptoms. HRCT scan of temporal bone showed opacification of middle ear cavity and mastoid air cells suggestive of mastoiditis for which she underwent right modified radical mastectomy. Post operatively wound healing was poor and gaping of wound was seen. In view of poor wound healing and persistent wound dehiscence tubercular infection was suspected. RESULTS: Histopathology report showed large areas of necrosis with inflammatory granulation tissue, numerous AFB on ZN staining and tissue RTPCR for mycobacterium came positive. Thus a diagnosis of tubercular mastoiditis was made and patient started on anti tubercular drugs (Isoniazid, Rifampicin, Pyrazinamide, Ethambutol). Secondary surutina was done 3 weeks after starting anti tubercul treatment.
Abstract# 86
TUBERCULOSIS LYMPHADENITIS IN PEDIATRIC LIVER TRANSPLANTATION. Figen Ozcay,1 Osvaldo Arslan,1 Alper Necib,1 Dilek Konuksever,1 Hamdi Karakaya,2 Adnan Torgay,4 Mehmet Haberal,1 1Pediatrics, Baskent University, Faculty of Medicine, Ankara, Turkey; 2Pathology, Baskent University, Faculty of Medicine, Ankara, Turkey; 3General Surgery, Baskent University, Faculty of Medicine, Ankara, Turkey; 4Anesthesiology, Baskent University, Faculty of Medicine, Ankara, Turkey.

Purpose: Tuberculosis (tb) is a rarely seen opportunistic infection after LT. Tbc incidence was reported as 2.4% (6/254) in pediatric LT recipients in United Kingdom. Tbc lymphadenitis occurred in 1 out of 109 (0.9%) children who underwent LT between September 2001- March 2008 in our hospital.

Method: A left lateral segment of her mother’s liver was transplanted to the 7 month’s old patient with the diagnosis of PFIC-2. She had BCG vaccine when she was 1 month’s old. Her PPD test and EBV IgG was negative before LT.

Results: 16 months after LT she had primary EBV infection. Her EBV viral load was 4.8x10^5 copies/mL. Tacroplisum dose was decreased and oral acyclovir was prescribed for this reason.

Conclusion: In children our knowledge about presentation, diagnosis and treatment of tb after LT is limited. Tbc lymphadenitis should be in the differential diagnosis of enlarged lymph nodes in liver transplanted children.

Abstract# 87
THE ROLE OF VALACYCLOVIR ON EBV VIRAL LOADS IN PEDIATRIC LIVER TRANSPLANTATION PATIENTS. Figen Ozcay,1 Hande Arslan,1 Banu Bilizci,1 Sinasi Sevms,1 Gokhan Moray,1 Mehmet Haberal,4 1Pediatrics, Baskent University, Faculty of Medicine, Ankara, Turkey; 4Pathology, Baskent University, Faculty of Medicine, Ankara, Turkey.

Purpose: Many children undergoing primary/reactivated EBV infection or PTLD following LT maintain chronically elevated EBV viral loads without displaying symptoms. We reviewed our experience with valacyclovir on peripheral blood EBV viral loads in EBV infected patients after LT.

Method: Children aged 6-36 months; transplanted with the diagnoses of biliary atresia (6), PFC type 2(2), hepatoblastoma (1), Crigler Najjar syndrome (1), Alagille syndrome (1) and idiopathic neonatal cholestasis (1). Eight (%66) EBV IgG seronegative at the time of LT and developed primary infection Valacyclovir was given to 2 patients who had primary EBV infection and PTLD prior to development of EBV carrier state. Two had EBV reactivation and chronic carrier state for 8 and 10 months before valacyclovir treatment. Three patients had primary EBV infection and became chronically EBV PCR positive for more than 1 year before valacyclovir. For 2 EBV reactivated patients valacyclovir was given at first detection of EBV PCR positivity. Valacyclovir was prescribed immediately to 3 patients when asymptomatic primary EBV infection was detected. Peripheral blood EBV viral loads were tested every 2 months. The proportion of subjects with EBV viremia who had ~0=2log10 decrease in EBV copies/mL was the primary outcome.

Results: The duration of valacyclovir treatment was median 10 (8-11) months. At the beginning of valacyclovir treatment median level of EBV viral loads was 1.1x10^6 (1x10^4 - 1x10^7). Only 1 out of 12 patients who had primary EBV infection and treated with valacyclovir cleared EBV virus at 4th month of treatment. EBV viral loads did not change in 7/12 patients and decreased only 1 log10 (2 pts) or 2 log10 (2 pts) despite treatment. All patients remained asymptomatic and did not develop PTLD.

Conclusion: In this small non-placebo controlled study, valacyclovir treatment was not effective on EBV viral loads.

Abstract# 88
CO-EXISTENT BARTONELLA HENSELAE AND ATYPICAL MYCOBACTERIUM INFECTION IN AN IMMUNOSUPPRESSED RENAL TRANSPLANT PATIENT. Shazia Adalat,1 Judy Taylor,2 1Paediatric Nephrology, Evelina Childrens Hospital, London, United Kingdom.

Purpose: We highlight two unusual infections in an immunosuppressed transplant patient presenting with fever of unknown origin and lymphadenopathy.

Method: We present an eight year old boy with end-stage renal failure secondary to posterior urethral valves who had received a pre-emptive live related renal transplant five years earlier. He acquired primary EBV five months post-transplant and responded well to reduction of immunosuppression with no evidence of ongoing EBV disease. He was maintained on prednisolone, tacrolimus and mycophenolate mofetil. Two weeks prior to presentation, he developed impetigo and axillary lymphadenopathy. The lymphadenopathy increased in size with no response to flucloxacillin. He was systemically well apart from night sweats. The only significant history obtained retrospectively was a scratch from his kitten.

Results: Initial investigations included an abdominal ultrasound revealing several hypoechoic, avascular lesions within the liver and spleen; the renal transplant was unremarkable, and CXR was normal. EBV PCR was 2,000 copies/ml. At biopsy, purulent matted lymph nodes were removed. Histology showed caseating granulomas with occasional acid fast bacilli. M&R confirmed several low attenuation lesions in the liver with no significant abdominal lymph node enlargement.

Conclusion: Our patient demonstrated PUO with lymphadenopathy and hepatic and splenic lesions. Differential diagnoses included post-transplant lymphoproliferative disease and fungal and tuberculous infections. Immunosuppressed patients are susceptible to a variety of opportunistic infections, and in this case, two unusual infections, Bartonella henselae and atypical mycobacteria, co-existed. It is important to understand interactions between multi-drug regimens and immunosuppressants.

Abstract# 89
ORAL Hairy Leukoplakia in Renal Transplant. Paulina C. Salas,1 Viola M. Pinto,1 Pedro Zambrano,1 Jean Grandy,1 Department of Nephrology, Exequiel Gonzalez Cortés Hospital, Santiago, Region Metropolitana, Chile.

Purpose: Oral hairy leukoplakia (OHL) is an intraoral lesion associated with EBV oncurs mostly in people with HIV. We report OHL in HIV negative renal transplants. I: A 9 years old girl with renal dysplasia. At age 4, she received a renal allograft. Immunosuppressive drugs: prednisone, mycophenolate and ciclosporina. She was EBV (+) and CMV (+).

Results: At age of 7 CyA was stopped and tacrolimus was included. 18 month later she presented tonsillar hypertrophy and went to tonsillectomy. Biopsy showed chronic tonsillitis. Tissue PCR was positive for EBV and plasma PCR was 300 copies/cc. She continued with malaise. Physical exam showed lips edema and ulcers, intraoral lesions and hairy lesions in the surface of the tongue and along the borders. Tissue biopsie PCR was positive and biopsy showed chronic glossitis. She also had herpes simplex virus and papillomas.

Conclusion: Because viral infections and some risk of PTLD development, immunosuppressive drugs were reduced, ranacymicin was added and one dose of IV immunoglobuline was given. The patient recovered and oral lesions and papilloma partially resolved. Viral load for EBV remains about 500 to 600 copies/cc.

II: A 5 years old boy with renal dysplasia. At age 3 he received a renal allograft. He was EBV (+) and CMV (+). Immunosupression: prednisone, azathioprine and tacrolimus. 30 months later he showed bilateral parotid enlargement. Study for paramyxovirus was negative. Then oral mucosa swell and tongue lesions were added. Plasma PCR EBV was 8760 copies/cc. Tissue EBV PCR was positive and biopsy showed chronic glossitis. Immunosuppressive drugs were reduced and 2 weeks of ganciclovir was added achieving lesions resolution . Soon after the OHL returned. Plasma PCR showed 6160 copies/cc. Azathioprine was stopped, ranacymicin was introduced, and again received antiviral therapy for a month. Symptoms resolved partially and one in a while recur.

Conclusion: Prevalence of OHL in renal transplant recipients is 11.3%. Antiviral therapy reduces the lesions, however they may recur after several weeks. OHL could complicate with candida superinfection and in immunocompromised is a premalignancy lesion.
Abstract# 90

VERSINIA INFECTION SIMULATING LYMPHOPROLIFERATIVE DISEASE. POST LIVER TRANSPLANT. Esther Granot,1 Eitan Jakobovich,1 Esther Marva,2 1Kaplan Medical Center, Rehovot, Israel; 2Hebrew University-Hadassah Medical School, Jerusalem, Israel; 1National Public Health Lab, Jerusalem, Israel.

PURPOSE: Y. enterocolitica infections usually present as acute diarrheal illness or terminal ileitis and mesenteric lymphadenitis. Reactive arthritis and cutaneous lesions may have a chronic course. Prolonged fever, malaise, weight loss, splenomegaly and retroperitoneal lymphadenopathy are not attributed to Versinia infection.

METHOD: Report of Y. enterocolitica infection simulating lymphoproliferative disease, in an immunocompromised host.

RESULTS: A 14y old girl, 3y post liver tx. for biliary atresia, presented with fever 40°, extreme fatigue, malaise, anorexia and occasional vomiting without diarrhea, abdominal pain or arthralgia. On exam - spleen palpable 4 cm. Lab results: WBC 12,000, hemoglobin 10.7g%, platelets 298,000, ESR 151, CRP 127. GGT, GPT, LDH, bilirubin – normal, γGT 60-80 IU/ml, albumin3.5g%, total protein 8.9g%. Blood, urine, stool cultures- negative. Stool parasites, occult blood - negative. Abdominal US - enlarged spleen, retroperitoneal & mesenteric lymph nodes (1.8cm). Abdominal CT-suggestive of thickened small bowel loops, no mucosal abnormalities. Serology negative for – EBV, CMV, parovirus, Q fever, cat scratch, legionella, brucella. Autoimmune markers- negative. PET-CT: diffuse uptake in liver, diffuse skeletal uptake, no uptake in lymph nodes or spleen. BM (aspiration, biopsy) – normal. Fever persisted for 5-6w. Over next 4mths anorexia and fatigue gradually improved, ESR, γGT, hyperglobulinemia all returned to normal, spleen size decreased. On U/S m after initial onset of symptoms lymphadenopathy & splenomegaly resolved. Clinical recovery prompted further search for infectious, self limiting etiology. Serology also sent for Y. enterocolitica and found to be positive (ELISA, Euroimmun AG). In blood sample 1m later – increase in antibody titer x2.

CONCLUSION: In an immunocompromised host Y. enterocolitica infection can present as a chronic illness of fever, malaise, anorexia, abdominal lymphadenopathy and splenomegaly. Versinia enterocolitica infection, post liver transplant, can simulate a lymphoproliferative disease.

Abstract# 91

PROGNOSIS OF LATE LYMPHOMA MAY DEPEND ON HEPATIC AND NUTRITIONAL STATUS. Florence Lacaille,1 Frederique Sauvat,2 Pierre Frange,3 Olivier Goulent.1 1Paediatric Hepatogastroenterology- Nutrition, Necker-Enfants Malades Hospital, Paris, France; 2Paediatric Surgery, Necker-Enfants Malades Hospital, Paris, France; 3Paediatric Immuno-Haematology, Necker-Enfants Malades Hospital, Paris, France.

PURPOSE: to describe the different outcomes on chemotherapy, in four patients with or without altered nutritional status and liver function.

METHOD: Two children had a liver transplantation (Tx) (P1 and 4), a liver and small bowel tx. Three were EBV positive. P1 and 4 had a dysfunctioning graft due to biliary complications, P3 a mild chronic liver rejection. Both grafts were normal in P2.

RESULTS:

Patients’ characteristics at the diagnosis of lymphoma

<table>
<thead>
<tr>
<th>Patient</th>
<th>P1</th>
<th>P2</th>
<th>P3</th>
<th>P4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age at diagnosis</td>
<td>11</td>
<td>10</td>
<td>15</td>
<td>9</td>
</tr>
<tr>
<td>Delay from Tx</td>
<td>10</td>
<td>6.5</td>
<td>10</td>
<td>2.5</td>
</tr>
<tr>
<td>Localization</td>
<td>Small bowel, diffuse</td>
<td>Burkitt, abdominal</td>
<td>Small bowel, localized</td>
<td>Burkitt, incites</td>
</tr>
<tr>
<td>Height (SD)</td>
<td>-1</td>
<td>0.8</td>
<td>-2.2</td>
<td>-</td>
</tr>
<tr>
<td>Weight for height (SD)</td>
<td>-1.5</td>
<td>-0.5</td>
<td>-1</td>
<td>-0.5</td>
</tr>
<tr>
<td>Bilirubin microM</td>
<td>20</td>
<td>7</td>
<td>10</td>
<td>35</td>
</tr>
<tr>
<td>ALT, IU</td>
<td>120</td>
<td>39</td>
<td>40</td>
<td>113</td>
</tr>
</tbody>
</table>

RESULTS: Chemotherapy followed the SIOPEN protocol. It was well tolerated in P2. He is now considered in remission, with normal grafts. Jaudicence developed in the other patients. P1 and P3 developed severe neurological pain, diarrhea, liver failure and died. Chemotherapy was suspended after 2 months in P4 because of bilirubin 600 microM (ALT 80 IU, INR 1), and a normal PET-scan. Follow-up is too short to ascertain remission.

CONCLUSION: Late-occurring lymphoma is a severe complication, but can be cured with chemotherapy. However, the tolerance to this treatment was highly dependent on the child’s nutritional status (normal only in P2), and on the handling of the drugs by the transplanted liver, normal in P2, moderately (P3) or more severely (P1 and P4) damaged. The main cause of death in P1 and P3 was drug toxicity. It led us to decrease the dose of exposure for P4, that did not prevent a severe jaundice to develop, and the treatment to be prematurely stopped. The protocols of chemotherapy should be carefully tailored to the transplanted patient’s liver status, and the nutritional status preserved as much as possible during treatment.

Abstract# 92

THE VALUE OF IMMUNOPHYLAXIS FOR CYTOMEGALOVIRUS INFECTION WITH INTRA VENOUS IMMUNOGLOBULINS IN PEDIATRIC LIVER TRANSPLANT RECIPIENTS RECEIVING A LOW-DOSE IMMUNOSUPPRESSIVE REGIMEN. Katrin Krampe,1 Andrea Brien-Richter,1 Lutz Fischer,2 Bjornen Nashan,3 Rainer Ganschow.1 1Department of Pediatrics, Pediatric Gastroenterology and Hepatology, University Medical Center Hamburg-Eppendorf, Hamburg, Germany; 2Department of Hepatobiliary Surgery, University Medical Center Hamburg-Eppendorf; Hamburg, Germany.

PURPOSE: Following pediatric liver transplantation (LTx) the reported incidence of CMV infection is still high, especially in patients at risk (donor CMV+, recipient CMV-). Current approaches to cope with this relevant complication for postoperative morbidity include prophylactic or preemptive ganciclovir therapy. Since the risk for CMV infection is directly correlated to the intensity of immunosuppression, the aim of our study was to assess the value of intravenous immunoglobulins (IVIG) in order to protect children receiving a low-dose immunosuppression, from CMV disease.

METHOD: Twenty-eight children (median age 62.2 months) at high risk received prospectively three infusions of IVIG on day 4, 14, and 28 posttransplant and were monitored for six months post Ltx. Immunosuppression consisted of cyclosporine (initial trough levels 170 to 200 μg/l) and prednisolone (starting dose 15 mg/m²) as well as basiliximab induction therapy.

RESULTS: Patient survival was 100%, that of graft survival 92.9%. Two subjects developed laboratory signs of CMV infection (8%) and one child suffered from tissue invasive CMV disease (4%). Three patients had to be excluded from the study due to treatment failure.

CONCLUSION: We conclude from our study that a standard IVIG product is capable to prevent effectively from CMV disease in children receiving low-dose immunosuppression following Ltx.

Abstract# 93

POST-TRANSPLANT LYMPHOPROLIFERATIVE DISEASE PRESENTING WITH INTESTINAL INVOLVEMENT. Mustafa Koyun,1 Sema Akman,1 Ayfer Güir Gülven,1 Yunus Emre Baysal,2 Bahar Akkaya,3 Reha Artan,2 Dinç Celak,4 1Pediatric Nephrology, Akdeniz University, Antalya, Turkey; 2Pathology, Akdeniz University, Antalya, Turkey; 3Pediatric Gastroenterology, Akdeniz University, Antalya, Turkey; 4Microbiology, Akdeniz University, Antalya, Turkey.

PURPOSE: Post-transplant lymphoproliferative disease (PTLD) is a rare complication of renal transplantation, which is related to Epstein -Barr virus (EBV) infection. The mortality of intestinal involvement of PTLD was reported as high as 80-100%.

METHOD: A 5.5 year-old girl underwent renal transplantation from her mother. As immunosuppressive regimen, tacrolimus, mycophenolic acid and prednisone were introduced.

RESULTS: At post-transplant 23rd months, she came with abdominal pain, anorexia and weight loss of 5.5 kg. An upper gastrointestinal endoscopy was performed demonstrating erosive gastritis, oesophagitis and mild anal gastritis, and a biopsy sample showed chronic active gastritis, mild duodenitis. Lansoprasol and sucralphate were given; doses of immunosuppressive agents were reduced. Two months later, she applied with active gastrointestinal bleeding. Physical examination was unremarkable except abdominal distention. On laparatomy, perforations of antrum of stomach and caecum were detected. Pathological examination of biopsy specimen was compatible with PTLD. Bone marrow aspiration was normal. Polymerase chain reaction analysis for EBV was strongly positive (4,919,400 copies/ ml). Her immunosuppressive agents were stopped. Acyclovir and intravenous immunoglobulin were initiated. On follow-up, neutropenia emerged and she died with septicemia at 22nd day of hospitalization.

CONCLUSION: In the present case, irregular outpatient visits might be a risk factor for late recognition of EBV infection and for the modification of immunosuppressive agents on proper time.

Abstract# 94

NURSING ROLE IN ADMINISTERING RITUXIMAB FOR THE TREATMENT OF PTLD IN PEDIATRIC LIVER TRANSPLANT PATIENTS. Rachel A. Grzybowski-Smith, Kelly M. Jenson. Nursing, Nemours/DuPont Hospital for Children, Wilmington, DE, USA.

PURPOSE: This poster presentation demonstrates nursing implications when administering rituximab for treatment of PTLD (post-transplant lymphoproliferative disorder). Presently there is not a standard nursing policy for rituximab infusion, therefore, safe practices need to be developed for nurses.

METHOD: Literature review and evidence-based research.

RESULTS: Secondary to incorrect rituximab administration, there is a need for improved preparation to monitor for various complications that are encountered. To treat PTLD, rituximab is administered once a week for four to six doses. However, most complications occur in the first rituximab infusion. Nurses need to be familiar with the monitoring parameters and promptly recognize the various adverse reactions. Emergency medications should be at the bedside and pre-medication with diphenhydramine and
acctaminophen is recommended. The infusion rate should be titrated up in thirty minute increments until the maximum rate is reached. During this time, the patient is closely monitored for any signs or symptoms of reaction. If any reaction is noted, decrease the rate or stop the infusion. If the patient tolerates the first dose without complication, subsequent doses can be administered at an increased initial rate.

CONCLUSION: With established guidelines, nurses can safely administer rituximab infusions. A standardized procedure will assist in early recognition of acute adverse events and facilitate safe administration.

Abstract# 95
SYMPTOMATIC EBV INFECTION PRIOR TO SUCCESSFUL LIVER TRANSPLANTATION IN A PATIENT WITH BILATERAL ATRESIA. Eva Beijer,1 Åsa Jernberg,1 Antal Nemeth,1 Björn Fischler,1 1Dept of Pediatrics, Karolinska Univ Hospital, Huddinge, Stockholm, Sweden.

PURPOSE: To describe a patient on the waiting list for liver transplantation (ltx) with a primary, symptomatic EBV infection.

METHOD: Case report

RESULTS: This boy underwent a Kasai procedure for bilial atresia at the age of 2 months. During the first 3 postoperative years he had compensated chronic liver disease but at the age of 3 years he had bleeding esophagogastric varices and biochemical signs of decompensation and was put on the waiting list for ltx. 20 weeks later he developed fever, abdominal pain and an increase in the bilirubin level. Virological tests showed a primary EBV infection, with EBV-IgM and EBV-DNA detected in serum and in his bone marrow biopsy. The initial level of high EBV-DNA (7800 copies/ml) declined rapidly and was undetectable after 3 weeks. EBV-IgM remained positive for 10 weeks, EBV-IgG was first detected after 2 weeks. EBNA at significant levels was not detected until after 14 weeks and he was subsequently put on the waiting list. Liver transplantation was performed another 8 weeks later, i.e. 22 weeks after the diagnosis of EBV infection. He received a segment liver from an adult deceased donor and standard immunosuppressive treatment with tacrolimus and steroids. The graft function was good, but he needed repeated courses with i.v. antibiotics due to bide duct complications. EBV-DNA was repeatedly undetectable, also during a primary CMV infection, which was detected 16 weeks after ltx and treated with gancyclovir. 2.5 years after ltx he leads a normal life but has had considerable problems with attacks of cholangitis. EBV and CMV DNA have been repeatedly undetectable.

CONCLUSION: Primary EBV infection in patients with end stage liver disease may cause further hepatic decompensation. Gancyclovir treatment seems efficient in reducing the level of viremia and does not seem to delay the proper serologic response after which ltx may be safely performed.

Abstract# LB 9
RESPIRATORY VIRAL INFECTIONS IN CHILDREN AFTER SOLID ORGAN TRANSPLANT. Sandra K Burchett,1,2,3 Mindy S Lo,1 Nilanthi D Gunawardane,2,4 Catherine S Lachenauer,2,4,5 Leslie E Lehmann,1,2,4 Grace M Lee.1,2,3,5

PURPOSE: To describe the epidemiology & outcomes associated with RVIs in pediatric solid organ transplant (SOT), have limited preventive & treatment strategies. Our objective was to describe the morbidity/mortality in pediatric solid organ transplant (SOT), as well as to review our experience with deceased donors over an 14 year period at a single, large children's hospital.

METHOD: Retrospective chart review of SOT recipients at Children's Hospital Boston diagnosed with respiratory syncytial virus (RSV), influenza (IFV), parainfluenza (PIV), or adenovirus (ADV) RVI in children between 1990-2005. All patients had at least 12 months’ follow-up of pre-transplant period and post-transplant to assess outcomes of pre-existing morbidities and post-transplant complications. We compared children who received deceased donor organs with those who received living related donor organs.

RESULTS: Of RVIs among SOT (lung being the most common) at a tertiary children's hospital can be higher than that typically seen at adult hospitals, presumably because children tend to lack co-morbid conditions. Transplant programs should devote human resources towards organ donation and development at children's hospitals.

CONCLUSION: Children's hospitals may successfully recover a substantial number of organs for transplantation with appropriate involvement of the Transplant Center. Donation after cardiac death programs are also feasible and likely to contribute a significant number of organs. The mean number of organs transplanted per donor in children's hospitals can be higher than that typically seen at adult hospitals, presumably because children tend to lack co-morbid conditions. Transplant programs should devote human resources towards organ donation and development at children's hospitals.

Abstract# LB 10
DECREASED INCIDENCE & MORTALITY OF POSTTRANSPLANT LYMPHOPROLIFERATIVE DISORDERS (PTLD) IN PEDIATRIC INTESTINAL TRANSPLANTATION (PITx) RECEIVING RITUXIMAB AND ALEMTUZUMAB IMMUNOSUPPRESSION. Ran Tao,1 M. Green,2,3 G. Mazarieloglu.1 1Transplant Surgery, Children’s Hospital of Pittsburgh, Pittsburgh, PA, USA.

PURPOSE: PTLD has historically been associated with a high incidence and mortality in PItx but has not been well analyzed in the current era of induction immunosuppression (IS).

METHOD: We retrospectively reviewed the incidence and outcomes of PTLD in children receiving primary ITx from 1990 to 2008; risk factors (age, sex, EBV serologies, graft type, IS, ACR, splenectomy, and antibody use for steroid resistant ACR) were analyzed.

RESULTS: 97 primary PTx (36% isolated intestinal, 49% liver-intestinal and 15% multivisceral Tx) had a mean age at ITx of 5.1±3.5 years. Analyses were carried out in 3 cohorts: Group 1 no induction therapy (1990-1994) (n=50); 2) Cytoxan or Zenapax induction (1994-2002) (n=39); 3) rATG (n=97) or alemtuzumab (n=11) induction (2002-present) (n=10). Groups were similar in terms of age, sex and ITx type; Group 1 had a higher rate of EBV seropositivity pre-ITx. The overall incidence & outcome of PTLD as well as frequency of pertinent risk factors are shown in Table 1.

Abstract# 96
ORGAN DONATION FROM DECEASED DONORS AT A CHILDREN’S HOSPITAL. Jeffrey D. Punch,1 Mark T. Gravel,1 John C. Magee.1 Surgery, University of Michigan, Ann Arbor, MI, USA.

PURPOSE: Pediatric Transplantation is highly dependent on the supply of organs from deceased donors but pediatric hospitals often have incompletely developed deceased donation.

METHOD: In order to maximize donation, our Transplant Center created a full time staff position called Organ Donation Initiatives Director. This person works closely with ICU nurses, physicians, and OPO personnel in order to educate personnel, assist with donor family relations, and perform Quality Improvement activities. We reviewed our experience with deceased donors over a 14 year period at a single, children's hospital.

RESULTS: There were 61 organ donors that donated 257 organs during this time (average 4.4 donors per year, 18.4 organs per year). During this time there were 114 kidneys, 55 livers, 30 hearts, 27 lungs, 24 pancreata, and 7 intestinal grafts donated. 76 of the organs recovered were transplanted at our Transplant Center (30%), the remainder were transplanted elsewhere. The average number of organs per donor was 4.2. In 2001 we initiated a Donation after Cardiac Death (DCD) program. Since then, 8 of the 35 donors have been from DCD (23%). A total of 16 kidneys, 6 livers, and 2 Pancreas were recovered from DCD. The average number of organs from a donor after cardiac death was 3.0.

CONCLUSION: Children’s hospitals may successfully recover a substantial number of organs for transplantation with appropriate involvement of the Transplant Center. Donation after cardiac death programs are also feasible and likely to contribute a significant number of organs. The mean number of organs transplanted per donor in children's hospital can be higher than that typically seen at adult hospitals, presumably because children tend to lack co-morbid conditions. Transplant programs should devote human resources towards organ donation development at children’s hospitals.

Abstract# 97
SUCCESSFUL TREATMENT OF RECURRENT FSGS IN SECOND RENAL TRANSPLANT. Shazia Adalat,1 Judy Taylor.1 Paediatric Nephrology, Evelina Children’s Hospital, London, United Kingdom.

PURPOSE: We wish to present successful treatment in recurrent FSGS in a second transplant having lost the first to refractory disease.

METHOD: A 9 year old girl with end stage renal failure secondary to FSGS received her first cadaveric renal transplant in 2005. She was treated with plasma exchange and augmented immunosuppression for immediate recurrence of FSGS, with initial response,
but subsequently relapsed with reduction of immunosuppression for shingles. She failed to respond to any further treatment. She was re-transplanted in March 2008. In view of her previous history, she was pre-treated with rituximab with avoidance of BD19 count. At the time of transplant she received 2 mg/kg of methylprednisolone and was commenced on a cyclosporin infusion. She started MMF post-transplant, received 4 doses of daclizumab at fortnightly intervals. Good perfusion of the transplant was demonstrated by ultrasound post-operatively, urine was produced immediately and her creatinine initially fell. She received plasma exchange on day 1 as planned, but despite this she developed massive proteinuria within hours with a diminishing urine output and recurrence of FSGS was diagnosed. She returned to dialysis for 9 days following which renal function returned.

RESULTS: She was successfully treated with augmented immunosuppression (daclizumab, rituximab, cyclosporin, MMF and prednisolone) aiming for high cyclosporin levels of 250-300µg/l, and received 46 plasma exchange sessions over a 3 month period. Plasma exchange was slowly weaned once 24 hour protein excretions fell to less than 200mg/day.

She has no further recurrence of nephrotic syndrome and has no proteinuria six months post transplanted. Her graft function is stable with a plasma creatinine of 70µmol/l.

CONCLUSION: The risk of recurrent FSGS approaches 100% following recurrence in a previous graft. This occurred despite rituximab prior to transplant, but responded well to a prolonged course of plasma exchange. Our case demonstrates the possibility of a successful outcome with intensive treatment even in a high risk situation, although treatment may need to be continued for many months.

Abstract# 98
PAEDIATRIC RENAL TRANSPLANTATION USING NON-HEART BEATING DONATION. H.J. McCarthy,¹ A.G. Edwards,¹ E.J. Tizard,¹ J.D. Morgan,² M.A. Saleem,¹ ¹Nephrology, Bristol Royal Children’s Hospital, Bristol, United Kingdom; ²Surgery, Southmead Hospital, Bristol, United Kingdom.

PURPOSE: Expanding the donor base for paediatric renal transplants is an urgent and difficult issue. A minority of European countries use non-heart beating donation (NHBD) for pediatric recipients already. We report on the first two children in the UK to receive a renal transplant from NHBD and recommend its consideration in all suitable patients.

METHOD: Both patients’ families were consented for NHBD during initial transplant work-up. The first recipient was a 3-year-old boy with end stage renal failure (ESRF) secondary to posterior urethral valves and renal dysplasia. The second was a 14-year-old boy with ESRF secondary to vesico-ureteric reflux nephropathy. Both received 111 mismatched kidneys. In both cases immunosuppression included steroids, tacrolimus and mycophenolate mofetil with basiliximab (monoclonal antibody) at induction. Initially tacrolimus was given at half dose, normalising once graft function was established.

RESULTS: The first case had delayed graft function requiring one night of peritoneal dialysis, however his graft function normalised completely within 17 days. He has had a single acute rejection episode at four months, grade 1a on biopsy, with normalisation of his function after 3 days steroids. After 18 months his function remains excellent with a baseline creatinine of 50 µmol/l. The second case had no delay in graft function, however on day 13 he developed a rising creatinine treated with steroids but biopsy subsequently did not show rejection. After a complicated course he is now well with stable graft function with a baseline creatinine of 135µmol/l.

CONCLUSION: Our report demonstrates that it is possible to achieve a good result with the use of NHBD where there is an adult programme in place and awareness and co-operation from local intensive care units. We acknowledge there is a risk of delayed graft function and after the immunosuppressive regime accordingly. We recommend consideration of this practice in order to offer a greater chance of transplantation in the paediatric population.

Abstract# 99
PROMOTING ORGAN DONOR AWARENESS THROUGH EDUCATION: A MULTIDISCIPLINARY APPROACH. Camilla M. Cook, Patricia Moran, Marilyn M. Moonan, Fowler Kirsten, Katherine Hadley, Deborah Powers. 105/107 Nursing Unit, Children’s Hospital Boston, Boston, MA, USA.

PURPOSE: Currently, “more than 93,000 Americans are waiting for lifesaving organ transplants and many more wait for donated tissues. On average, 17 people in this country die every day –6,600 each year– waiting for organ transplantation. The reason is simple—a tragic shortage of donated organs and tissues.” (neob.org)

METHOD: At our hospital, during ‘Donate Life’ month, the gift of life is celebrated by transplant recipients with their families work to raise and increase awareness throughout the hospital by hosting various activities. A week-long display in the lobby of the hospital transplants and many more wait for donated tissues. On average, 17 people in this country die every day –6,600 each year– waiting for organ transplantation. The reason is simple—a tragic shortage of donated organs and tissues.” (neob.org)

RESULTS: We received nursing grand rounds, informative lobby display, and heartwarming articles in hospital publications.

CONCLUSION: Organ donor awareness is certainly a collaborative effort! Our hope is that our efforts will provide the public with the education they need to sign their organ donor card, and thus save lives by giving the gift of life!

Abstract# 100
HOW DOES PRE-LUNG TRANSPLANT PHYSICAL CONDITIONING AFFECT POST TRANSPLANT OUTCOMES IN CHILDREN. Dawn A. Freiberger, Dean Yimlamai, Anne Gould, Jing Zhou, Joanne Oliveira, Debra Boyer. Transplant, Childrens Hospital, Boston, Boston, MA, USA.

PURPOSE: The purpose of this retrospective chart review is to determine if the physical conditioning of pre-lung transplant patients, correlates to post transplant survival in children/adolescents. According to the UNOS, one of the factors that may influence an LAS score is the 6 minute walk test. A higher allocation score is assigned to patients who have a 6 minute walk test of less than 150 feet. In pediatric/adolescent patients the 6 minute walk test has been found to have more variations possibly due to age and cognitive development. Anecdotally, it is expressed that other factors related to transplantation such as “playing with friends or going to school” may also affect overall physical conditioning. A retrospective chart review study was developed to evaluate pre-transplant physical conditioning and post-transplant physical condition as well as survival.

METHOD: A retrospective chart review was performed on 60 pediatric and adolescent transplant electronic medical records and hand written medical records from 1990-2008. These charts were from patients who had received lung transplants at an urban children’s hospital in the Northeast. Pre-transplant physical condition was evaluated in relation to post-transplant physical condition and survival outcomes. Data analysis using descriptive statistics, frequencies, means was performed. Approval was obtained for the chart reviews from the institution’s IRB.

RESULTS: Preliminary findings show there is little impact on pre-transplant ambulatory status and NYHA on post-transplant recovery time measured by length of ICU stay and time on ventilator. Six minute walk test results may have some impact on length of stay in both the ICU and hospital stay. Data analysis is currently ongoing and further findings will be reported by end of 2008. Any correlation between pre-transplant physical condition and survival will be reported.

CONCLUSION: Preliminary data analysis leads us to believe that some measures of physical fitness pre-transplant may have more importance than others in measuring length of hospital stay post-transplant.

Abstract# 101
POSTTRANSPLANT LYMPHOPROLIFERATIVE DISEASE IN CHILDREN AFTER HEART TRANSPLANTATION. Estela Azeka, Rafael Leite,¹ Gustavo Noleto,1 Marcelo Jatene,2 Carla Tanamati,2 Vanessa Guimaraes,1 Klebha Machado,1 Luiz Benvenuti,1 Vicente Odoni,2 Miguel Barbero Marcial.1 ¹Cardiology, Heart Institute (InCor) University of Sao Paulo Medical School, Sao Paulo, Brazil; 2Surgery, Heart Institute (Incor) University of Sao Paulo Medical School, Sao Paulo, Brazil; 4Pediatrics, Children Hospital, Sao Paulo, Brazil.

PURPOSE: The aim of this study was to report a single center experience with posttransplant lymphoproliferative disease (PTLD) in children after heart transplantation.

METHOD: Seventy one children were submitted to heart transplantation at our Institution from October 1992 to September 2008. We analyzed the prevalence of PTLD, clinical presentation, CMV and EBV serology, immunosuppression, type of transplant and mortality.

RESULTS: Six patients had PTLD (50%; males). The prevalence of PTLD in our institution was 8.5%. The mean age at the time of transplantation was 2.2 years. Dilated myocardopathy was the most frequent cause of the indication for transplantation in four patients (66%). The remaining two patients had one restrictive cardiomyopathy and the other pulmonary atresia. All the patients used cytolytic drugs as induction therapy. The maintenance immunosuppressive regimen at the moment of PTLD diagnosis was cyclosporin and azathioprine. PTLD was developed at a mean time of 7.1 years after heart transplantation. The serology of EBV at the time of the diagnosis of PTLD was positive in four patients. The serology of CMV was positive in three patients. The PTLD was analyzed according to its localization. Papillary nodules were present in three patients. The others localizations of the tumors were abdominal mass in one patient and cervical mass in 2. The treatment of PTLD was reduction of cyclosporin and interruption of azathioprine. Two patients used rituximab. The mortality rate was 50%.

CONCLUSION: Our experience showed that PTLD after pediatric heart transplantation is an important late complication with high mortality.
Abstract# 102
EDUCATION AND REHABILITATION PROGRAMME FOLLOWING LUNG TRANSPLANTATION FOR CHILDREN. Jacqui H. Burton,1 Jenny-Marce Marshall,1 Prue Munro,1 Glen P. Westall.1 Paediatric Lung Transplant Service, The Alfred Hospital, Melbourne, Victoria, Australia.

PURPOSE: To describe the key components, structure and content of the outpatient education and rehabilitation programme post lung transplant.

METHOD: The 3 month programme consists of a weekly education session for children and parents, three physiotherapy sessions and an occupational therapy session. The aim is to comprehensively address the child’s physical rehabilitation and educational needs and provide psychosocial support to the child and family. A weekly team meeting is held to plan and review the progress of the child and family, allowing for flexibility in the programme to meet their needs as issues arise.

RESULTS: Six children (age 9-15 y; 5 female patients; cystic fibrosis n=3, obliterative bronchiolitis n=2, bronchiectasis n=1) have been transplanted. Education sessions focus on medications, infection, rejection, nutrition, physiotherapy/rehabilitation, occupational roles, stress management, donor issues and psychosocial readjustment. Information for children is presented at an appropriate cognitive level. Physiotherapy includes a progressive aerobic and strength training program, postural re-education and core stability, incorporating age appropriate play activities (running, dancing, jumping, ball skills). Occupational Therapy addresses the primary occupational roles of patient, student and player through therapeutic play. Themes include returning to school, friends and the community, adjustment to new health status, participating fully within the family, strategies to manage side effects of medications and altered body image issues. School return occurs once the programme is completed. Liaison and visits/teleconferencing occur prior to school commencement, with follow up contact and visits offered to review the ongoing transition process back in to school.

CONCLUSION: We plan to formally evaluate this programme in the future. To date the children and families completing the programme have expressed a high level of satisfaction. We feel the programme provides appropriate physical, educational and psychosocial support for children and families adjusting to life post lung transplantation.

Abstract# 103
ARRHYTHMIAS AFTER PEDIATRIC HEART TRANSPLANTATION. Livia Caroline Barbosa Mariano,1 Estela Azeka,2 Cesar Gruppi,2 Eduardo Sosa,2 Miguel Barbero Marcial.3 1Cardiology, Heart Institute (InCor) University of Sao Paulo Medical School, Sao Paulo, Brazil.

PURPOSE: the purpose of this study was to evaluate arrhythmias and correlate to clinical outcome such as sudden death, heart failure, rejection, coronary artery disease pediatric heart recipients.

METHOD: 30 patients were prospectively studied. The age ranged from 1.9 to 17.7 years (mean age: 10.3 years ). The 24 hours EKG was performed. The presence of arrhythmias were analysed with the following parameters: diagnosis of cardiopathy, age at the moment of transplantation, ischemic time, time of follow-up and immunosuppression regimen. The clinical events studied were: coronary artery disease, rejection, dyslipidemia, systemic arterial hypertension, heart failure and sudden death.

RESULTS: Thirty patients were studied, 47% were female. The indication for transplantation was cardiomyopathy in 80%. Mean age of recipients was 4.5 years and the mean follow-up period was 5.8 years. The ischemic time ranged from 45 to 265 minutes. Disturbances of cardiac rythm were found in 80% of patients (sinus taquicardia, supraventricular and ventricular isolated beat). Systemic arterial hypertension was presented in 37%, heart failure in 13%, dyslipidemia in 40%. Coronary artery disease in 23%. There was no correlation between EKG findings and clinical outcome.

CONCLUSION: In this study, disturbances of EKG were common after heart transplantation.

Abstract# 104
LATE REJECTION AND RISK FACTORS AFTER PEDIATRIC HEART TRANSPLANTATION. Estela Azeka, Jochebed Kyoung Kim, Luiz Brenvenuti, Marcelo Jatene, Carla Tanamati, Miguel Barbero Marcial. Cardiology, Heart Institute (InCor) Universiy of Sao Paulo Medical School, Sao Paulo, Brazil.

PURPOSE: The purpose of this study was to evaluate late rejection (more than one year after transplantation) and risk factors associated to rejection.

METHOD: Forty three children submitted to heart transplantation were included in this study. The maintenance immunosuppression was double therapy (calcineurin inhibitor and cictostatic drugs). The following parameters were studied: demographic data (gender, age, blood type from recipient and donor), presence of late rejection, rejection episodes during the first year after transplantation, CMV infection, ischemic time, reactive panel antibody, hemodynamic parameters of rejection episodes.

RESULTS: 43 patients were studied. The mean age was: 5.4 years (0.4 to 15.7 years). 60% were female. 67.4% were Caucasian. 60% presented CMV positivity serology. 34.9% of recipients were blood type O. 19 (40%) patients presented late rejection. There was a significant difference between the late rejection and non-late rejection group in relation to gender (p=0.03). However there was no risk factor associated with late rejection by logistic regression analysis.

CONCLUSION: Late rejection was prevalent after heart transplantation in this population, however potential risk factor was not identified.

Abstract# 105
SURVIVAL AND INCIDENCE OF ACUTE REJECTION IN PEDIATRIC HEART TRANSPLANT RECIPIENTS UNDERGOING EARLY STEROID WITHDRAWAL. Marie Osmerova,1 Alzbeta Sirotkova,2 Petr Nemec. 1Center of Cardiovasc. and Transplant Surgery, Brno, Czech Republic; 2Dept. of Pathology, St. Anna University Hosp., Brno, Czech Republic.

PURPOSE: To evaluate the feasibility of steroid withdrawal.

METHOD: We retrospectively reviewed 15 children , average age 11.6 years at transplant (2.5 - 16.5 y.) who underwent heart transplantation at the Center of Cardiovascular Surgery and Transplantation in Brno (Czech Republic) between May 1995 and May 2008. Mean follow-up was 82,5 months (1 - 139 m.). The immunosuppression protocol comprised ciclosporine, azathioprine (replaced in the last 5 years with mycophenolate mofetil) and corticosteroids. As induction therapy until 2002 we used ATG, in the following years Daclizumab.Surveillance for cellular rejection was performed by endomyocardial biopsy in all patients. Significant rejection was defined as ISHLT grade ≥ 1B during the first post-transplant year and grade 2 or higher more than one year after transplantation. Weaning from steroids was attempted in all patients.

RESULTS: Twelve patients (80%) underwent successful steroids withdrawal in the first three months (average 6 weeks) after heart transplantation. There was a significant difference in the incidence of treated rejection episodes between periods 1-3 months and 3-12 months after heart transplant (p < 0,05). Seven patients (46,6%) suffered a subsequent rejection episode after steroid withdrawal (55% ISHLT gr. 1B, 27% gr.2, 18% gr. 3A-3B ). There has been no patient on maintenance steroid therapy in our group of children. One patient died of acute rejection one month after operation, one of graft dysfunction 6 years after transplant and one patient underwent retransplantation because of coronary arteriopathy 12 years after transplantation.

CONCLUSION: In our group of children steroids could be withdrawn successfully in most of them during first three months after heart transplantation. A low acute rejection score during the first three months predicts successful steroid withdrawal.

Abstract# 106
CLINICAL OUTCOME ASSOCIATED WITH CONVERSION TO TACROLIMUS-BASED IMMUNOSUPPRESSION IN A SINGLE CENTER EXPERIENCE AFTER PEDIATRIC HEART TRANSPLANTATION. Klebia Machado,1 Estela Azeka,1 Evelinda Trindade,1 Marcelo Jatene, Carla Tanamati, Vanessa Guimaraes, Miguel Barbero Marcial.2 1Cardiology, Heart Institute (InCor) University of Sao Paulo Medical School, Sao Paulo, Brazil; 2Cardiology, Heart Institute (InCor) University of Sao Paulo Medical School, Sao Paulo, Brazil.

PURPOSE: the purpose of this study was to evaluate the use of tacrolimus as an alternative immunosuppression therapy for refractory, late rejection and morbidities after pediatric heart transplantation.

METHOD: Patients included in this study were those who needed conversion from cyclosporine to tacrolimus after heart transplantation at Heart Institute (InCor) University of Sao Paulo Medical School. The induction therapy consisted of intravenous methylprednisolone and antithymocyte serum. The maintenance immunosuppression was based on cyclosporine and azathioprine. The following parameters were studied: incidence of acute rejection, morbidities, the efficacy of conversion in relation to rejection episodes and morbidities.

RESULTS: Twenty five patients were studied. 52% were female. The mean age at the moment of transplant was 5.1 years (0.9 to 13.8 years). The main indication for transplantation was cardiomyopathy is 19 (76%). The reason for conversion was rejection in 14 (52%), side effects of cyclosporine in 8 (32%) and rejection and adverse effects in 3 (12%). The mean follow-up period was 5.4 years (1.3 to 9.1 years). The survival was 88%.

CONCLUSION: This study demonstrated that tacrolimus may be an alternative to cyclosporine therapy.
Abstract# 107

CYSTIC FIBROSIS WITH SEVERE DILATED CARDIOMYOPATHY IN EARLY INFANCY: UNUSUAL CASE OF INDICATION OF HEART TRANSPLANTATION. Estela Azeke,1 Adriana Santos Oliveira,2 Denisse Fabron Barbosa,2 Patricia Campos Pieri,2 Marcelo Jatene,2 Carla Tanamati,3 Marcelo Jatene,3 Carla Tanamati,3

METHOD: Seventy one patients were submitted to heart transplantation at our institution from 1992 to 2008. We report the clinical outcome of a unique child who was submitted to heart transplantation and had cystic fibrosis.

RESULTS: A Caucasian child was submitted to heart transplantation at one year of age due to severe dilated cardiomyopathy. During the follow-up period of fifteen years, he developed repeated pulmonary infections, gallstones (submitted to cholecystectomy), diabetes mellitus and coronary artery disease. He was submitted to coronary bypass after nine years of transplantation. His last echocardiogram shows normal systolic and diastolic function. Due to his pulmonary clinical evolution, the investigation of cystic fibrosis was performed with sweat test that confirmed the disease and the genetic profile which showed two mutations at delta S508. The patient is well and keeps the follow up in stable clinical conditions although his restrictive pulmonary function.

CONCLUSION: Cystic Fibrosis may be associated with severe dilated cardiomyopathy and the need of heart transplantation in early infancy.

Abstract# 108

BK VIRAEMA AND NEPHROPATHY IN A PAEDIATRIC RENAL TRANSPLANTATION POPULATION. Niamh M. Dolan,1 David Cubit,2 Neil J. Sebire,1 Stephen D. Marks.1

PURPOSE: To define the outcomes of renal transplantation in NPHP patients with BK viraemia and associated nephropathy in a single centre paediatric renal transplant population.

METHOD: Children who received renal transplants between 1993 and 2007 were monitored during the period May 2007 to June 2008. Plasma BK PCR DNA was measured weekly in those who had a renal transplant during this screening period. Those who received a renal transplant prior to this period had routine BK screening at clinic reviews or if there was any concern about graft dysfunction. A renal biopsy was done if there was any evidence of graft dysfunction.

RESULTS: 729 blood samples from 130 patients were screened during this study period with BK PCR DNA positivity detected in 8.5% (11) patients with 100% patient and graft survival. BK PCR DNA was only detected in patients who received transplantation after 2003 and the incidence increased significantly to 24% (937) from 2006-2007. BK viral associated nephropathy (BKVAN) was diagnosed in 2.3% (3/130) of all patients. 27.2% (3/11) BK PCR DNA positive patients developed BKVAN and had become viraemic at day 18-56 post transplant on triple immunosuppression (with corticosteroids, CsA and mycophenolate mofetil (MMF) in all patients.

CONCLUSION: BK viraemia may be associated with severe dilated cardiomyopathy and the need of heart transplantation in early infancy.

Abstract# 109

PRE TRANSPLANT OBESITY IS A RISK FACTOR FOR KIDNEY GRAFT AND PATIENT OUTCOME IN CHILDBIRTH RENAL TRANSPLANTATION. Ehsan Valavi, Hasan Otukeh. Pediatric Nephrology, Ahzbar Hospital, Ahzav, Khozestan, Islamic Republic of Iran, Pediatric Nephrology, Ali Asghar Hospital, Tehran, Islamic Republic of Iran.

PURPOSE: High body mass constitutes a significant risk factor for morbidity and mortality in the general population, but it has been associated with an increased survival among dialysis patients. Despite reduction of weight gain with the new immunosuppressive regimes, obesity is more common in post transplant period and its effects on adult renal transplant outcomes are controversial. The aim of our present work was to investigate the impact of pretransplant obesity and post transplant weight gain on patient and graft outcomes in childhood.

METHOD: In this cross sectional study sixty five consecutive renal transplant (Tx) recipients (51 boys and 24 girls) were included. Their mean age was 10.5 years and the mean follow-up was 4 years. Basal immunosuppression was steroids, cyclosporine (CsA) and mycophenolate mofetil (MMF) in all patients.

RESULTS: At the time of transplantation mean of body mass index (BMI) was 17.2(SD: 3.2) kg/m2, namely, BMI <5th percentile in 23%, 5 to 85th percentile in 55.3% and >85th percentile in 21.7%; while at the time of our study mean BMI was 22(SD: 5.2 kg/m2, BMI >5% percentile in 8.1% and >85th percentile were 34.5%. Pretransplant obesity (BMI>85th percentile) that was more frequent in younger age (p=0.02), was associated with chronic continuous decrease of GFR (p=0.01), hypertension (p=0.007), long term post Tx high weight gain (p=0.035) and pretransplant hyperlipidemia; but was not associated with gender, pre transplant hypertension, dialysis history, and acute rejection.

Obesity was more common in post Tx period and it was less frequent in prolonged graft duration (>6 months) but was not associated with acute rejection and chronic continuous decrease of GFR, hyperlipidemia, proteinuria and hypertension.

CONCLUSION: Univariate and multivariate analysis showed that pretransplant obesity had some effects on long term graft outcome; whereas post transplant weight gain was not risk factor for graft or patient survival in our experience.
failure following graft thrombosis. Moreover, 1 patient (2 year old girl) underwent graftectomy because of uncontrolled bleeding at venous anastomosis. She successfully got a deceased allograft when she was 6 yrs. Four grafts have been functioning well with the mean follow-up of 61 months (35 to 95 months).

CONCLUSION: Care should be taken for patients who had previous episode of abdominal surgeries or fistural indwellings of catheters. RTx for patients with IVC thrombosis should be performed when their body weight exceed 15 kg because of its safety issue.

Abstract# 112
LOWER REJECTION RATES FOR LAPAROSCOPICALLY PROCURED KIDNEYS IN PAEDIATRIC RENAL RECIPIENTS COMPARED TO OPEN DONATION.

Pankaj Chandak1, Nicos Kessaris1, Stephen D. Marks2, Anne Durkan3, Nanya Owusu-Ansah3, Jigna Patel1, Namrata Rastogi1, Peter Veitch1, Hugh McCarthy1, Nizam Mamaoos1, Transplant Surgery, Guy’s and St Thomas’ Hospitals, London, United Kingdom; 2Paed Nephrology, Great Ormond Street Hospital, London, United Kingdom; 3Transplantation, Royal Free Hospital, London, United Kingdom.

PURPOSE: Laparoscopic donation has become the method of choice in living donor transplantation in adults. Few data exist about its efficacy in paediatric recipients. Small studies have found no difference in graft survival when compared with open techniques, but previous UNOS data have suggested a higher incidence of rejection in laparoscopically procured kidneys.

METHOD: We examined the outcome in 85 consecutive paediatric renal transplant patients. We compared 46 recipients of laparoscopically (lap) procured kidneys performed over 3 years (2004-2007) to a historical control group of 39 recipients of open donors. Chi-square and Fisher’s exact test were used to analyse nominal data according to sample size. Mann Whitney U test was used to analyse numerical data.

RESULTS: Mean follow up in the lap and open group was 13 and 26 months respectively. The mean recipient age (yrs) was 9.78 (s.d. 5.04) in the lap group and 10.38 (s.d.6.7) in the open group (p=0.17). Two patients had delayed graft function in the lap group (4.3%) and one (2.5%) in the open group (p=0.562). At the latest mean follow up there was 100% graft survival in the lap group compared to 92 % (p=0.093) in the open group (3 failures). The incidence of acute rejection within 1 year of transplant was 26% (16 episodes in 12 patients) in lap group compared to 41% (29 episodes in 16 patients) in the open group (p=0.219). Incidence of operative complications (both intra and postoperative) was 23 % (11 pts) in the lap group and 31 % (12 patients) in the open group (p=0.643). There were no deaths in the lap group but 3 deaths (7.6%) in the open group 2 of which were from PTLD and the third from cerebral coning post op (p=0.093).

CONCLUSION: Our experience of laparoscopic kidney donation for paediatric recipients suggests excellent outcome with a lower rate of rejection compared to open donation.

Abstract# 113
DELAYED GRAFT FUNCTION IS REDUCED WITH ATG INDUCTION IN PAEDIATRIC KIDNEY TRANSPLANTATION.

Ramon Vilalta, Enriqueta Lara, Alvaro Madrid, Jose Nieto. Paediatric Nephrology, Hospital Vall d’Hebron, Barcelona, Spain.

PURPOSE: Reduction of delayed graft function (DGF) is one of the determinants of short and long term survival of renal transplantation. This is a report of a study associated with ATG induction compared with basiliximab (IL-2RA) : delayed graft function (DGF) , acute rejection (AR), graft survival (GS) and renal function (RF) were compared.

METHOD: 12 paediatric patients (2 transplanted under 5 kg) received a paediatric deceased donor kidney in 2007. They were treated with antihymocyte globulin (group A) ATG; n=6, 3 mg/kg/dose at days 0 (intraoperatorely) and 1,3,5 days ,or interleukin-2 receptor antagonists basiliximab (group B , IL-2RA; n=6, 12 mg/m2 at days 0 and 4).

RESULTS: Delayed graft function (DGF) was observed in 0 cases (group A) and in 6 cases (group B ,100% of patients), mean 7+/-3 days (p=0.001). Patients under 5 kg. were included in group A. Lymphopenia occurred routinely in group A and resolved after 3-6 months, and transient neutropenia in 2 children, none with serious infection. The incidence of CMV, PTLD and BK virus was 0 % in both groups. One year patient survival was 100% in both groups. One-year graft survival was 100% (group A) and 84 % (group B) because 1 patient loosed the graft in the humoral rejection episode. Acute cellular rejection did not occurred in all. At the12th month mean serum creatinine was 1.1 +/-0.6 mg/dl and 1.2 +/-0.5 respectively, NS.

CONCLUSION: ATG induction significantly reduced delayed graft function. T-cell function could be involved not only in donor cell damage, but also acting as antigen presenting cell (APC) in the arm of the innate immunity, that is invariably active in the first hours post-transplant, because donors were brain-death cadaveric. Down regulation of this APC process through ATG use could contribute to immediate diuresis. ATG was not associated with significant adverse effects. Both induction regimens led to a good patient and graft survival.

Abstract# 114
SUCCESSFUL CADAVERIC KIDNEY TRANSPLANTATION IN A 3.9 KG INFANT.

Oliver Amon1, Axel Bosk2, Philipp Szavy2, Joerg Fuchs2, Wolfgang Steurer.1 Pediatrics, University Hospital of Tuebingen, Tuebingen, Germany; 2Pediatric Surgery, University Hospital of Tuebingen, Tuebingen, Germany.

PURPOSE: Present the smallest infant successfully transplanted with a cadaveric kidney graft up to now.

METHOD: Case presentation.

RESULTS: A preterm infant with a birth weight of 2.700 gms and end-stage renal disease from posterior urethral valves had to be put on peritoneal dialysis shortly after birth. Because of multiple obstructions of the Tenckhoff catheter by fibrinous plugs he was switched to intermittent hemodialysis via a permcath catheter. Two life-threatening events, presumably related to his extreme arterial hypertension, lead to the decision to attempt an early kidney transplantation. Augmentation cystoplasty was performed successfully, followed 6 weeks later by a cadaveric kidney transplantation with a 4-year old child as donor. Body weight after transplantation was 3.9 kg and length 56 cm.

CONCLUSION: Care should be taken for patients who had previous episode of differentiation, and that serum cystatin C was not superior to serum creatinine in predicting acute rejection or increase in proteinuria.

RESULTS: An increase of more than 10% in Cys-C or S-Cre was defined as significant.

CONCLUSION: Our experiences showed that serum creatatin C had good correlation with serum creatinine, and that serum cystatin C was not superior to serum creatinine in predicting acute rejection or increase in proteinuria.

Abstract# 115
COMPARISON BETWEEN SERUM CREATININE AND SERUM CYSTATIN C LEVEL IN MONITORING RENAL TRANSPLANTATION.

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PURPOSE: To compare serum creatinine, creatinine clearance, estimated GFR and serum cystatin C in monitoring renal transplantation in children.

METHOD: Medical records of 23 kidney recipients in a single center, from 2005 to 2008, were analyzed retrospectively. Serum creatinine (S-Cre), serum cystatin C (Cys-C) levels were measured on day-15 and on month 1, 3, and every 3 months thereafter up to post-transplant 36th month. 24-hour urine was collected for creatinine clearance; Schwartz formula was used to estimate GFR. An event was defined as the presence of an acute rejection episode with or without biopsy; or increased levels of calcineurin inhibitors; or increase in proteinuria. An increase of more than 10% in Cys-C or S-Cre level was defined as significant.

RESULTS: A total of 143 samples were obtained during the study period; 66.4% of samples were obtained during the first 12 month. Correlation analysis between four markers revealed that the best correlation was between S-Cre and Cys-C (r = 0.791; p<0.001). The correlation between Cys-C and estimated GFR based on Schwartz formula (r = 0.627; p<0.001) and between Cys-C and Cre-clearance based on 24-hour urine collection (r = 0.499; p<0.001) were poorer. The sensitivity, specificity, positive and negative predictive values of a significant increase in Cys-C level were not significantly better than that of a significant increase in S-Cre level.

CONCLUSION: Our results showed that serum cystatin C had good correlation with serum creatinine, and that serum cystatin C was not superior to serum creatinine in predicting acute rejection or increase in proteinuria.

Abstract# 116
INFECTION AFTER PEDIATRIC RENAL TRANSPLANTATION: RESULTS OF A MULTI-CENTER STUDY FROM THE TURKISH PEDIATRIC KIDNEY TRANSPLANTATION STUDY GROUP.


PURPOSE: The aim of this study was to determine the incidence,etiology,risk factors and consequences for infection in these patients.

METHOD: We retrospectively analyzed data related to 194 pediatric patients(undergoing renal transplantation between January 1,2005 and June 30,2008) from 16 institutions in the Turkish Pediatric Kidney Transplantation Study Group (TPKTSG).

RESULTS: Among the 194 total patients,59 infections were identified in 51(26.2%) patients.Of those patients with development of infection, a single infection episode...
Abstract# 117

CHANGING PATTERN OF PEDIATRIC KIDNEY TRANSPLANTATION IN TURKEY: A 10 YEAR STUDY

Ilmaz Bilge,¹ Mehmet A. Turkmcn,² Necuta Buyan,³ Esra Baskan,⁴ Turkish Pediatric Kidney Transplantation Study Group.¹ Istanbul University, Istanbul Medical Faculty, Istanbul, Turkey; ²Dokuz Eylul University, İzmir, Turkey; ³Gazi University, Ankara, Turkey; ⁴Baskent University, Ankara, Turkey; ⁵Turkish Pediatric Nephrology Association, Ankara, Turkey.

PURPOSE: To document the changing pattern of childhood kidney transplantation (KTx) comparing to the data observed between 1995 and 2002.

METHOD: Turkish Pediatric KTx Study Group (TPKTSG) analyzed data related to 335 pediatric recipients from 17 centers in two periods, 1995 to 2002 / Group I (n=147) vs. 2004 to 2008 / Group II (n=208), 112 boys (53.8%), 96 girls (46.2%), retrospectively.

RESULTS: Group I and II were not significantly different in terms of mean age at onset of ESRD (12±3 vs 9 ± 4 yr), mean age at tx (14 ± 4 vs 12 ± 3 yr) of the patients. The mean awaiting time on dialysis decreased to 37±38 mo (0-185 mo). With time onset of ESRD (12±3 vs 9 ± 4 yr), mean age at tx (14 ± 4 vs 12 ± 3 yr) of the patients. The mean awaiting time on dialysis decreased to 37±38 mo (0-185 mo). With time

CONCLUSION: Almost all of the posttransplantation infections have been treated successfully, infections are still most important complications during follow up.

Abstract# 118

PEDIATRIC KIDNEY TRANSPLANTATION IN BELGIUM. Rita Lamberts. Pediatric Nephrology and Organ Transplantation, University Hospitals Leuven, Leuven, Belgium.

PURPOSE: In Belgium kidney transplantation is currently the treatment of choice for the child with end stage renal disease (ESRD). Dialysis remains the life saving bridge to the transplantation. Within the Eurotransplant (ET) community Belgium represents 14 % of the cadaveric transplantations and 22 % of the living related transplantation (LD) in children less than 16 years of age.

METHOD: Kidney transplantation in a single pediatric center in Belgium are analysed and presented. 107 transplantations in 97 patients are studied (1980-2002). Univariate and multivariate Cox regression analyses are used.

RESULTS: The patient survival in the pediatric center of Leuven is 94% at 3 yr and 91% at 5 yr. The overall graft survival is 82% at 3 yr and 74% at 5 yr. In the LD group the graft survival is 10% better than the overall actuarial graft survival rate. From our single center we report also an excellent long term outcome of young donors (< 5 yr). The high incidence of BK viremia (30% vs 24%) and urorological abnormalities (34% vs 41%) was also similar to the European experience.

CONCLUSION: The data of TPKTSG show that the outcome of Turkish pediatric transplants has continued to improve, and is comparable to those published from developed countries.

Abstract# 119

CONVERSION FROM TACROLIMUS TO SIROLIMUS IN PEDIATRIC RENAL TRANSPLANTS: TWO YEAR OUTCOMES.

Leonard Hymes,¹ Barry Warshaw,² Sandra Amaral,³ Larry Greenbaum,⁴ Rochelle Schmidt.¹ Pediatrics, Emory University, Atlanta, USA; ²Children's Healthcare of Atlanta, Atlanta, USA.

PURPOSE: Nephrotoxicity induced by calcineurin inhibitors may adversely influence long-term renal allograft outcomes. We have previously reported our early experience with tacrolimus (TAC) withdrawal in pediatric recipients. Objective: Report 2 year post-transplant outcomes in patients converted from TAC to sirolimus (SIR).

METHOD: Records from July 2006 to September 2006 were retrospectively reviewed for graft survival, acute rejection episodes, adverse events and renal function by Schwartz equation at 3 and 24 months post-transplant. Patients with stable graft function were withdrawn from TAC and converted to SIR if a protocol biopsies at 3 months did not display subclinical rejection (SCR). Patients continued Mycophenolate and prednisone.

RESULTS: 30 patients withdrew TAC (Table). Adverse events included hypercholesterolemia (13%), BK viremia (20%), EBV (13%), CMV (3%), aphthous ulcers (33%) and biopsy-proven rejection (13%). TAC was restarted in 4 patients for acute rejection, BK viremia and aphthous ulcers. The remaining 26 patients were maintained on SIR for 24 months (TABLE). Graft and patient survival was 100%. Mean GFR values were stable from 3 to 24 months. GFR declined in 7 patients (27 %) and improved in 18 (69%).

CONCLUSION: Children converted from TAC to SIR displayed satisfactory results at 2 years post-transplant with most patients demonstrating improved graft function. The incidence of acute rejection after conversion to SIR was similar to our previous experience with TAC-based immunosupression. The high incidence of BK viremia (20%) is also similar to our experience with all transplants since 2004. Aphthous ulcers occurred in 33 % of patients converted to SIR and was unique to this population treated with SIR and Mycophenolate.

Table: Patient Demographics and Graft Outcomes

| Converted to SIR | TAC restarted | SIR for 2 years | Age years | Deceased donors | African Am | Males | 2 Year Outcomes | Graft survival | Acute rejection | GFR improved | GFR m/l 3 mo | GFR m/l 24mo | *biopsy-proven after conversion to SIR |
|------------------|---------------|----------------|-----------|---------------|-----------|-------|----------------|----------------|---------------|-------------|------------|------------|------------|-------------------------------|
| 30               | 4             | 26             | 11±6      | 16            | 8         | 18    | 100%          |                | 4             | 18          | 93±20      | 98±32      | *biopsy-proven after conversion to SIR |

Abstract# 120

SEQUENTIAL LIVING RELATED PEDIATRIC RENAL AND HEPATIC TRANSPLANTATION FOR PRIMARY HYPEROXALURIA. Pankaj Chandak,¹ Stephen D. Marks,² Nizam Mamode,¹ Judy Taylor,¹ Nigel Heaton,³ Geoff Koffman.¹ Transplant Surgery, Guy’s and St Thomas Hospitals, London, United Kingdom; ²Paediatric Nephrology, Great Ormond Street Hospital, London, United Kingdom; ³Liver Transplant, Kings College Hospital, London, United Kingdom.

PURPOSE: Primary hyperoxaluria type 1 (PH1) is a rare autosomal recessive disorder causing overproduction of oxalic acid, leading to end stage renal failure (ESRF) and systemic oxalosis. Several transplantation options are available including combined or sequential liver-kidney transplantation (LKT). We present two paediatric cases of living related sequential LKTs (organs from same donors). To our knowledge these are the first two cases in the UK.

METHOD: Two neonates presented with ESRF due to PH1, at 3 and 2 months with plasma oxalate levels of 162 (normal <10) and 23 mM/l respectively. Both commenced haemodialysis and received a successful live related liver transplant (left lateral segment) at 13 and 16 months respectively. A sequential living related renal transplant (from the same respective liver donors) was performed at 22 (wt 10.8kg) and 23 (wt 11kg) months respectively. A midline transthoracic approach to the aorta/IVC for was performed in both cases, with single neurororjocyotomy and full closure of the abdomen.

RESULTS: There were no intra-operative technical complication. The initial post-renal transplant course was complicated in both children by treatable fluid overload, breathing difficulties and poor urine output. The second child developed asymptomatic CMV viraemia (treated). Both children had immediate graft function and at the latest follow up of 6 and 3 months there have been no rejection episodes, with plasma oxalate levels of 14 and 824 (normal) and 90 and 686817 respectively. Both children were immunosuppressed with steroid, tacrolimus and mycophenolate mofetil.
CONCLUSION: Sequential living-related paediatric hepatic and renal transplantation is both effective and feasible for paediatric recipients in ESFR due to PH1. In addition these two cases illustrate the challenges in both intra and peri-operative management of transplantation in small babies.

Abstract# 121
ARE AT-RISK PEDIATRIC KIDNEY RECIPIENTS MORE LIKELY TO HAVE THROMBOPHILIA THAN ADULTS? Christine S. Hwang,1 Edward J. Affley.1 1Department of Surgery, Southern Illinois University School of Medicine, Springfield, IL, USA.

PURPOSE: Thrombophilia is underreported as a cause for graft failure in pediatric kidney transplant recipients. We have previously reported 100% graft survival in children with thrombophilia anticoagulated post-transplant. In this study, we compared the incidence of children at-risk for thrombophilia versus adults as some speculate that thrombophilies are more common in patients on peritoneal dialysis.

METHOD: We considered at-risk patients to include those with previous thrombotic events or those on peritoneal dialysis. We entered data into a relational database and analyzed thirty data points. Patients received calcineurin based triple therapy. Categorical variables were compared using the unpaired Students' t-test. Nominal variables were compared using Chi-square. Differences were significant at P ≤ 0.05.

RESULTS:

<table>
<thead>
<tr>
<th>Incidence</th>
<th>Bleeding</th>
<th>Rejection</th>
<th>Graft Thrombosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pediatric (n=8)</td>
<td>Adult (n=214)</td>
<td>P-Value</td>
<td>Pediatric (n=8)</td>
</tr>
<tr>
<td>17.5%</td>
<td>53.3%</td>
<td>NS</td>
<td>0%</td>
</tr>
</tbody>
</table>

Pediatric patients with thrombophilia weighed significantly less than those without thrombophilia, 12 +/- 2 vs. 19 +/- 1 kg, p = 0.007 respectively. In adults there was no difference in BMI between the two groups. Adult patients with thrombophilia were more likely to have a bleeding complication than those without one, 30% vs. 4%, P ≤ 0.0001 respectively.

CONCLUSION: In summary, neither pediatric nor adult kidney transplant recipients with thrombophilia anticoagulated post-transplant developed graft thrombosis. We did not find any difference in the incidence of thrombophilia in the at-risk children vs. adult patients despite pediatric patients being on peritoneal dialysis. This suggests that pediatric patients with ESRD have the same risk as adults for thrombophilia and should be evaluated and subsequently treated. We did not find an increased incidence of acute rejection, as some authors have suggested, in children or adults with thrombophilia.

Finally, despite a high risk for bleeding in adults, there were no bleeding complications in any treated pediatric patient.

Conclusion: Pediatric kidney transplant recipients have the same risk for thrombophilia in comparison to adults.

Abstract# 122
ANALYSES OF PLATELET VOLUME BEFORE AND AFTER RENAL TRANSPLANTATION. Kaan Guillergonl,1 Haile Sakalli,1 Esra Baskin,1 Umut Selda Bayrakci,1 Nurcan Cengiz,1 Sima Sevmos,1 Hamdi Karakaya,1 Mehmet Tahir Cakaloglu,2 Pediatric Nephrology, Baskent University, Ankara, Turkey; 2General Surgery, Baskent University, Ankara, Turkey.

PURPOSE: Kidney transplantation may reverse hemorrhagic diatheses and/or thrombotic complications that are frequently seen in chronic renal failure (CRF). Platelet volume is a marker of platelet function and activation. Mean platelet volume (MPV) has been recommended to be an easy and useful parameter in order to indicate the bleeding problems and thrombotic events in adults.

Aim: To evaluate the role of mean platelet volume (MPV) as a marker to follow-up the tendency to hemorrhagic diatheses and/or thrombotic complications in patients before and after renal transplantation.

METHOD: 32 patients (F:M:16:16) aged between 5-18 years (median age=15) were included in the study. Complete blood count including MPV, prothrombin time (PT) and partial thromboplastin time (PTT) were measured immediately before and at the 1st post-transplant month. The etiology of CRF, dialysis modality, the problems of arteriovenous fistulas, duration of dialysis, medications, and donor type were recorded and laboratory parameters were evaluated.

RESULTS: At the end of the 1st post-transplant month mean MPV level was found to be decreased significantly when compared with the pre-transplant levels (8.3±1.5 vs. 7.7±0.9, p=0.04). A significant increase was observed in platelet levels at the post-transplant measurements (273.750±97.700 vs. 318.740±84.586, p=0.02). PT and PTT levels did not differ before and after transplantation. A positive correlation was found between MPV and serum albumin and AST levels (r=0.48 and r=0.61). However, a negative correlation was observed between MPV and CRP (r=-0.53). MPV level was not found to be related with immunosuppressive regimen.

CONCLUSION: Our study suggests that platelet activation relating bleeding and/or thrombosis were significantly improved after renal transplantation.

Abstract# 123
INCREASED CAROTID INTIMA MEDIA THICKNESS IN CHILDREN AND YOUNG ADULTS WITH RENAL TRANSPLANTATION. Mitra Basiratnia, Mojtaba Fazel, Mehrzad Lotfi, Mohammad Hossein Fallahzadeh, Ali Derakhshan.

Nephrology Urology Research Center, Shiraz University of Medical Sciences, Shiraz, Islamic Republic of Iran; Nephrology Urology Research Center, Shiraz University of Medical Sciences, Shiraz, Islamic Republic of Iran; Nephrology Urology Research Center, Shiraz University of Medical Sciences, Shiraz, Islamic Republic of Iran; Nephrology Urology Research Center, Shiraz University of Medical Sciences, Shiraz, Islamic Republic of Iran.

PURPOSE: Cardiovascular disease is a main cause of morbidity and mortality among children and young adults after renal transplantation. The aim of study was to investigate the carotid intima media thickness (cIMT) and its relation to risk factors for early arteriopathy in renal transplant patients.

METHOD: Twenty six renal transplant patients (14 girls, 12 boys) with stable graft function (eGFR > 40 ml/1.73m³) and 26 age and sex matched healthy controls were enrolled in this study. The measurement of cIMT was performed with high resolution B mode ultrasonography in multiple projections. The results were correlated with clinical and paraclinical parameters including: age, sex, BMI, blood pressure, GFR, duration of dialysis. Duration of CKD, CaxP product, cumulative dose of Ca based binder and calcitriol, lipid profile, uric acid, cyclopensine level, and rejection episodes.

RESULTS: The mean age of patients was 17 ±3.7 years. The mean time from CKD to transplantation was 33.5 ± 24.2 months. The average eGFR at the time of study was 57.3 ± 48.0 ml/1.73m³. Compared with control subjects, transplant patients had significantly higher cIMT. (P<0.001).

Among several risk factors, positive correlation was found between cIMT and age, duration of dialysis, and cumulative dose of calcitriol (P= 0.02 , P < 0.04 , P< 0.02), respectively.

CONCLUSION: Subclinical atherosclerosis is present in young transplant recipients. Non invasive monitoring of cIMT in renal transplant patients for detection of early vascular lesions would be of outmost value in preventing cardiovascular disease.

Abstract# 124

PURPOSE: Because tacrolimus (Tac) has highly inter- and intra-individual pharmacokinetic characteristics, monitoring is recommended but limited data are available in children especially of limited sampling strategies.

METHOD: After overnight fasting, blood samples were collected immediately before (TL), 1, 2, 4, 6 and 12h postdose. Patients had a standard meal immediately after their morning dose. AUC was calculated within the dosing interval using the trapezoidal method.

RESULTS: The median age of the patients at time of profile was 13.1 years (range 2-19 years). A total of 75 0-6h PK profiles and 58 0-12h PK profiles were obtained from twenty-four stable paediatric renal transplant patients at least one year after transplantation. The correlation between TL and AUC was poor (r = 0.58) and a much better correlation was obtained with C0-Tac and C1, C2 and C4 (r=0.97) or C0-Tac, C2 and C4 (r=0.98).

CONCLUSION: Limited sampling strategies are, especially in children, very interesting because it limits the hospitalisation. We found reliable limited sampling strategies (C0-Tac, C2, C4) for the exposure of Tac in stable paediatric renal transplant recipients.

Abstract# 125
URINARY TRACT INFECTION IN CHILDREN AFTER FIRST MONTH OF KIDNEY TRANSPLANTATION. Mohammad Kazem Fallahzadeh, Mohammad Hossein Fallahzadeh, Ali Derakhshan,1 Ghamar Hashemi, S.A. Malekhosseini. Shiraz Nephrology Research Center, Shiraz, Islamic Republic of Iran.

PURPOSE: Urinary tract infection (UTI) is the most common bacterial infection following kidney transplantation (KT). The purpose of this study was to evaluate UTI following kidney transplantation.

METHOD: Medical records of all children who had been transplanted in Shiraz Nemazzee Hospital and were under follow-up of pediatric nephrologists for 6 months to 15 years (mean=59.2±39 months) were reviewed and the data from their last visit was included in this study. Records of episodes of proved UTI following 1st month of transplantation were collected. SS1 15.1 software was used for data analysis.
RESULTS: Of two hundred and sixteen children ≥19 years at the time of transplantation, 138 patients were followed by pediatric nephrologists in Shiraz and included in this study. The mean age at transplantation time was 13.6±3.5 years with age range of 3 to 19 years. The male to female ratio was 1.33. Their Primary renal diseases were reflux-obstruction dysplasia (42%), hereditary-metabolic diseases (34%), glomerular diseases (19%), others (1.5%) and unknown (3.5%). The kidney donors were deceased (47.5%), related (36.9%) with 80.3% parents, and unrelated (15.2%). The mode of dialysis before transplantation was hemodialysis in the majority of cases (85.5%) and 12.1% had preemptive transplantation. UTI occurred in 24(17.3%) of the children, 12 with only 1 episode, 3 with 2 episodes and more than 2 episodes in 8 patients. Regarding the relationship of UTI and primary renal diseases; 14 (24%) were in reflux-obstruction group, 6(12.5%) in hereditary disease, 3(11.5%) in glomerular disease, and 1 in stone disease group. Despite using probiotic antibiotics by 9 patients (6.5%), recurrent UTI occurred in 5. Recurrent UTI occurred in 6 children with neurogenic bladder and in one child was stone disease despite post-transplant native nephrectomy in the latter.

CONCLUSION: UTI is not common in children after first month of KT in our center, except with primary disease of reflux-obstruction and especially in those with neurogenic bladder.

Abstract# 126
PEDIOATRIC EN-BLOC KIDNEY TRANSPLANTATION INTO PEDIATRIC RECIPIENTS: PILOT DATA. Lavjay Butani,1 Gerre Berg,1 Richard V. Perez,1 Keith K. Lau.1 1University of California Davis, Sacramento, CA, USA.

PURPOSE: Due to the current shortage in organ supply, en-bloc renal transplantation from small donors has become more common. However, because of concerns of higher complication rates, it is rarely performed in children. The purpose of our study was to describe our early experience on the safety and short term outcomes of en-bloc renal transplantation in children at our center.

METHOD: Medical records of all children receiving en-bloc renal transplants at our institution from 1/07 - 12/07 were abstracted. Data collected included age, sex, ethnicity, donor age, cold and warm ischemic time and surgical technique. Post-operative immunosuppression included 3 doses of steroids, 5 doses of Thymoglobulin and maintenance therapy with tacrolimus and mycophenolate mofetil. Surveillance renal biopsies were performed at 6±2 months.

RESULTS: Three patients underwent en-bloc renal transplantation during the study period. Median age at transplantation was 16.7 years with a median follow-up of 0.7 years. Donor age ranged from 9-49 months with a body weight from 10 to 22 kg. The grafts’ aortas were anastomosed to either the common or external iliac artery; the inferior vena cava was anastomosed to the common iliac vein. No technical complication was observed in the post-operative period. One patient had delayed graft function due to acute tubular necrosis. Another patient experienced acute deterioration of function due to tacrolimus toxicity. Both patients recovered without long term consequences. Nuclear medicine renal scans documented good function of both renal allografts before hospital discharge in all patients. All grafts showed increased renal size at follow up ultrasound. There was no clinical rejection at last follow-up. Surveillance biopsies showed neither sub-clinical rejection nor chronic changes.

CONCLUSION: Based on our experience, albeit limited, we feel that in experienced hands, en-bloc renal transplantation from young donors is acceptable and safe with low complication rates in the pediatric recipient.

Abstract# 127
HYPERURICEMIA IN PEDIATRIC KIDNEY TRANSPLANT RECIPIENTS. Ali Derakhshan,1 Ali Bahador,2 Kurosh Kazemi,2 Mohammad Hossein Fallahzadeh,3 Mitra Basiratnia,1 Mohammad Hossein Fallahzadeh,1 Nima Derakhshan,1 Mehdi Salehipoor,1 Seyed Ali Malek Hosseini.2 1Shiraz Nephro-Urology Research Center, Shiraz University of Medical Sciences, Shiraz, Fars, Islamic Republic of Iran; 2Nemazee Hospital Transplantation Center, Shiraz University of Medical Sciences, Shiraz, Fars, Islamic Republic of Iran.

PURPOSE: Evaluation and management of hyperuricemia following pediatric kidney transplantation.

METHOD: In a cross section study serum uric acid level was assessed in the latest referral of all children who had been transplanted in our center and had regular pediatric nephrologist follow up. Hyperuricemia was defined as serum uric acid level >6mg/dl or allopurinol consumption by the recipient. To remove the effect of allograft dysfunction on the serum uric acid level only children with serum creatinine <1.5mg/dl enrolled in this study.

RESULTS: One hundred and thirty eight out of 216 children ≥19 years at the time of transplantation who was followed by pediatric nephrologist, were involved in this study. There were 79(57.2%) boys and age at Tx was 3-19 years with a Mean±SD of (13.6±3.5) and minimum weight of 10 kg. Donor ages were 18±52 years with a mean (24.6±12.5)thith 41 parents, 9 siblings and other relatives, 67 deceased and 21 unrelated. Their Primary renal diseases consisted of glomerular diseases, hereditary diseases, reflux-obstruction dysplasia, stone and unknown in 26%(19), 47(34%), 58(42%), 2(1.5%) and 5(3.5%) respectively. The mode of dialysis before transplantation was hemodialysis in the majority of our cases (85.5%), followed by preemptive transplantation (12.1%). One hundred and thirteen had functioning grafts and in 88 of them serum creatinine were ≤1.5mg/dl. Forty three (48.8%) of the children had either serum uric acid ≥6mg/

POSTER SESSION I

RESULTS: Of two hundred and sixteen children ≥19 years at the time of transplantation, 138 patients were followed by pediatric nephrologists in Shiraz and included in this study. The mean age at transplantation time was 13.6±3.5 years with age range of 3 to 19 years. The male to female ratio was 1.33. Their Primary renal diseases were reflux-obstruction dysplasia (42%), hereditary-metabolic diseases (34%), glomerular diseases (19%), others (1.5%) and unknown (3.5%). The kidney donors were deceased (47.5%), related (36.9%) with 80.3% parents, and unrelated (15.2%). The mode of dialysis before transplantation was hemodialysis in the majority of cases (85.5%) and 12.1% had preemptive transplantation. UTI occurred in 24(17.3%) of the children, 12 with only 1 episode, 3 with 2 episodes and more than 2 episodes in 8 patients. Regarding the relationship of UTI and primary renal diseases; 14 (24%) were in reflux-obstruction group, 6(12.5%) in hereditary disease, 3(11.5%) in glomerular disease, and 1 in stone disease group. Despite using probiotic antibiotics by 9 patients (6.5%), recurrent UTI occurred in 5. Recurrent UTI occurred in 6 children with neurogenic bladder and in one child was stone disease despite post-transplant native nephrectomy in the latter.

CONCLUSION: UTI is not common in children after first month of KT in our center, except with primary disease of reflux-obstruction and especially in those with neurogenic bladder.

Abstract# 128
THE TRANSPLANTED KIDNEY OF MALE DONORS HAVE NOT BETTER OUTCOME THAN FEMALES IN PEDIATRIC RECIPIENTS. Ehsan Valavi, Hasan Otukesh. Pediatric Nephrology, Abuzar Hospital, Ahvaz, Khoezestan, Islamic Republic of Iran; Pediatric Nephrology, Ali Asghar Hospital, Tehran, Islamic Republic of Iran.

PURPOSE: Despite continuing advances in immunosuppressive and supportive therapies, the success of adults’ renal transplantation is impacted by factors present in the donor and recipient pre- and post-transplantation. These donor factors are deceased, older age, female gender, preexisting vascular, or renal disease, small kidneys, cause of death, prolonged ischemic time and delayed graft function. Some of these donor factors have been shown to contribute to chronic allograft nephropathy (C.A.N). CAN refers to the progressive decline of renal function and is now the leading cause of renal transplant loss in pediatric transplant recipients. METHOD: In this cross-sectional study, 60 pediatric renal transplant recipients(35boys/25girls) that aged 5-18yr and 18-115mo follow up (mean: 60mo) after adult living non related kidney transplantation(43Male donor/17Female donor) were evaluated for renal function and other biochemical tests and we used multivariate analysis to compare several factors in these two donor gender groups.

RESULTS: There was no significant difference of grafting duration and recipient gender in both male and female donor groups (p>0.05), and they had not significant difference in post-transplant immediate renal function, acute rejection and log term body mass index, chronic rejection and GFR, proteinuria and hypertension (p>0.05). Similarly donor age and difference between donor and recipient age had not significant effects on these factors (p>0.05).

CONCLUSION: Univariate and multivariate analysis showed that after living non related kidney transplantation in pediatric recipients; donor gender, donor age and difference between donor age and the child have not significant effects on long term outcome and thus we have more choices in living non related donors.

Abstract# 129
SUCCESSFUL RESCUE OF REFRACTORY, SEVERE ANTIBODY MEDIATED RENAL ALLOGRAFT REJECTION WITH SPLENECTOMY IN A HIGHLY SENSITIZED CHILD. Isabel Roberti,1 Shefali Vyas,1 Stuart Geffiner,2 Due Un Kim.3 1Pediatric Nephrology and Transplantation, Saint Barnabas Medical Center, Livingston, NJ, USA; 2Transplant Surgery, Saint Barnabas Medical Center, Livingston, NJ, USA; 3Pathology, Saint Barnabas Medical Center, Livingston, NJ, USA.

PURPOSE: Highly sensitized patients (PRA>90%) receive fewer kidney transplants (txp) and have a higher risk for severe rejection with poor long term outcome. We present a highly sensitized child who underwent desensitization protocol, received a second DD kidney txp and developed refractory antibody mediated rejection (AMR). After failing steroids, thymoglobin, IVlg and plasmapheresis (PP) an urgent splenectomy was performed.

METHOD: Pre-txp desensitization: IVlg (4g/kg), rituximab (2 doses 375mg/m² IV).

Post-txp meds: Thymoglobulin, Solumedrol, Cilcept, IVlg (2g/kg), Prograf (after day 5).

RESULTS: There was no significant difference of grafting duration and recipient gender in both male and female donor groups (p>0.05), and they had not significant difference in post-transplant immediate renal function, acute rejection and log term body mass index, chronic rejection and GFR, proteinuria and hypertension (p>0.05). Similarly donor age and difference between donor and recipient age had not significant effects on these factors (p>0.05).

CONCLUSION: Univariate and multivariate analysis showed that after living non related kidney transplantation in pediatric recipients; donor gender, donor age and difference between donor age and the child have not significant effects on long term outcome and thus we have more choices in living non related donors.
ABSTRACT# 130
SEVERE RENAL ARTERY STENOSIS OF TRANSPLANTED KIDNEY IN 7-YEAR OLD BOY: TREATMENT WITH TWO STENTS. Zvonimir Puretic,1 Jasna Slavicek,2 Zlatko Cacic,3 Marko Batinić,4 Ines Humar,5 Petar Kes,1 Hrvoje Puretic,6 Zeljka Mustapic.1
1Department of Dialysis, University Hospital Centre Zagreb, Zagreb, Croatia; 2Department of Radiology, University Hospital Centre Zagreb, Zagreb, Croatia; 3Clinical Department of Laboratory Diagnostics, University Hospital Centre Zagreb, Zagreb, Croatia.

PURPOSE: Evaluation of clinical and diagnostic approach to a child with severe renal artery stenosis (RAS) of grafted kidney; case report.

Therapeutic possibilities of percutaneous transluminal angioplasty (PTA) by dilatation and stenting. Immediate results and follow up of 18 months.

METHOD: Digital subtraction angiography (DSA) by Seldinger technique. PTRA – Stenovier XL (balloon dilatation) (because of stenosis) Implantation of first stent CoCr 5x18 mm, system 0,014", because of restenosis. Implantation CrCo,6x19, system 0,014", Dynamic renal. (because of in-stent stenosis).

RESULTS: Boy with congenital renal failure and verified diagnosis of oligomeganephronic hypoplasia was on peritoneal dialysis for 2 years prior to kidney transplantation performed at the age of 7 years (BW 24 kg, BH 122 cm) in April 2007 (deceased donor 16 ys, MM 3). Prompt kidney function and normal BP.

Immunosupression: cyclosporine, prednisone and mycofenolate mofetil.

After 2 months hypertensive crisis with BP 200/120 mmHg. Color Doppler (CD) verified RAS of graft with artery flow rate 5 m/s. DSA showed disoevasive 4 mm long stenosis 3 mm distal from anastomosis. PTA – dilatation performed and immediate CD show flow rate 1,9-2,4 m/s. Moderate hypertension persists, fibrotive changes of artery on DSA (1 Mo later), insertion of artificial stent.

Follow up: still hypertensive, after 3 Mo insertion of second stent proximally of first. Sirolimus instead of tacrolimus was administered. Later without antihypertensives, kidney function always good. After first PTA is on aspirin permanently.

After 18 Mo posttransplant BP 100/70, creatinine 68 µmol/L, BW 29 kg BH 132 cm. CD of kidney showed flow rate 2,2 m/s.

CONCLUSION: Severe RAS of transplanted kidney could be safely diagnosed and treated nowadays, even in young children. Follow up for 18 months and normal physical activity suggest that long-term good outcome could be expected.

ABSTRACT# 131
THE OUTCOME OF RENAL TRANSPLANTATION IN CHILDREN WITH FSGS. Esra Baskin,1 Umut Selda Bayrakci,2 Handan Ozdemir,2 Beyhan Demirhan,2 Nurcan Cengiz,1 Hamdi Karakayali,1 Sinasi Sevnis,3 Mehmet Haberal.1 1Pediatric Nephrology, Baskent University, Ankara, Turkey; 2Pathology, Baskent University, Ankara, Turkey; 3General Surgery, Baskent University, Ankara, Turkey.

PURPOSE: The recurrence of focal segmental glomerulosclerosis (FSGS) after renal transplantation has a potentially detrimental impact leading to the loss of renal function. Although, plasmapheresis (PF) and rituximab are commonly recommended the treatment is still a matter of debate. We report our single-center experience to assess the outcome of the renal transplantation in children with FSGS.

METHOD: Medical records of 10 (F: 4/M: 6) FSGS transplanted patients with FSFGS were evaluated. Among 10 grafts 7 were from living related and 3 from deceased donor.

The original diagnosis of FSFGS as well as recurrences were biopsy-proven in all patients. All patients treated with calcineurin-based immunosuppressive therapy. PF was done at days 3, 5, 7, 10 and 15 consecutive days following transplantation to all living related donor transplanted patients. Patients with deceased donation had only post-transplant PF.

RESULTS: The mean age was 12.6±4.7 years. The mean duration of follow-up was 23.1±16.2 months. Two patients with hyperacute rejection were followed-up for less than 1 month. One of them had biopsy-proven humeral hyperacute rejection while the other had responded partially. The one who did not receive rituximab had a graft loss at the 2nd month of transplantation.

CONCLUSION: Recurrence of FSFGS in the transplanted kidney is a severe condition associated with graft loss. New therapeutic regimens and the efficacy of rituximab and PF should be evaluated in prospective studies with large groups.

ABSTRACT# 132
DELAYED GRAFT FUNCTION DUE TO RECURRENT FSFGS. Caroline Strawmann,1 Sander Florman,2 V. Matti Vehaskari,1 1Pediatrics, LSU Health Sciences Center, New Orleans, USA; 2Surgery, Tulane University, New Orleans, USA.

PURPOSE: Focal segmental glomerulosclerosis (FSGS) is known to recur in approximately 30% of transplanted kidneys, typically presenting with heavy proteinuria and initially impaired renal function. A circulating factor in the recipient is hypothesized to be responsible for the increased glomerular permeability, whereas progression into graft failure is thought to involve other factors such as progressive sclerosis. We present a case to support the notion that a circulating factor may also be responsible for delayed graft function.

METHOD: A 15-year old patient with collapsing FSGS received a kidney from her father after undergoing bilateral nephrectomy. Cold ischemia time was minimal and there were no surgical problems. Graft status was monitored by standard chemistries, urine protein/creatinine ratio (Upr/Cr, mg/ml). Doppler ultrasound and percutaneous biopsies.

RESULTS: Delayed graft function with severe oliguria was evident from post-transplant day 1. By day 4 her s-Cr had risen from 9.0 to 11.3 mg/dL, prompting initiation of hemodialysis. Her Upr/Cr was already high on day 1 (4.2) and rose to 23-35 during the first month. Biopsies of the transplanted kidney on days 2, 10 and 30 showed diffuse fusion of the foot processes but no ATN or other injury. Doppler US showed good blood flow. Plasmapheresis treatments were begun on day 11 and continued with decreasing frequency for 6 months; earlier discontinuation attempts resulted in prompt recurrence of heavy proteinuria. She was able to discontinue dialysis 1 month post-transplant with improving graft function. After plasmapheresis was stopped at 6 months, her Upr/Cr has remained normal and s-Cr at 1.2-1.4 mg/dL. Follow-up biopsy still shows partial foot process fusion.

CONCLUSION: The early onset of heavy proteinuria, unequivocal biopsy findings of extensive foot process fusion, absence of ATN and clear response to plasmapheresis strongly support the recurrence of FSFGS as the etiology of the delayed graft function in this case, suggesting that pretransplant plasmapheresis for removal of the putative circulating factor might be beneficial in aggressive FSGS.

ABSTRACT# 133
CYP3A5 POLYMORPHISM IN MEXICAN RENAL TRANSPLANT RECIPIENTS. Maria Ines del Pilar Garcia-Roca,1 Herminda Reyes,1 Lourdes Ortiz,2 Saul Valverde,3 Ana Maria Hernandez,4 Benjamin Rodriguez,1 Josefin Alberi,2 Eduardo Mancilla,3 Mara Medeina,4 Nefrologia, Hospital de Mexico Federico Gomez, Mexico City, DF; Mexico; Transplantes, Instituto Nacional de Ciencias Medicas y la Nutricion Salvador Zubiran, Mexico City, DF, Mexico; Nefrologia, Instituto Nacional de Cardiologia Dr. Ignacio Chavez, Mexico City, DF, Mexico.

PURPOSE: Ethnic differences in CYP3A5 expression that contributes to tacrolimus requirements have been reported, the wild type allele CYP3A5*1 expresses the protein whereas the CYP3A5*3 allele is a Splice variant with a premature stop codon (non expressers).

The aim of the present study was to determine the frequency of CYP3A5*1 and CYP3A5*3 in Mexican renal transplant recipients and to compare the data with that of other populations.

METHOD: Renal transplant recipients from three transplant centers at Mexico City were invited to participate. Approval for this study was obtained by the IRB of each Center. Informed consent was signed in all cases. Genomic DNA was isolated from 5ml of whole blood using QIA Amp DNA kit. Genotyping of the CYP3A5*1 and CYP3A5*3 alleles was done by real time PCR.

The X1 test was used to compare the observed and reported genotype frequencies.

RESULTS: One hundred sixty seven patients were included. 57.41% were CYP3A1*3 (heterozygous expressers), 42% were CYP3A5*3*3 (non expressers homozygous) and 0.59% were CYP3A5*1*1 (expressers homozygous).

CONCLUSION: The distribution of CYP3A5 alleles varies across ethnic groups. The frequency distribution CYP3A1*3 in Mexico (58%) differs from the reported in other populations as in Blacks (85%), Caucasians (26%) and South Asians (41%).

ABSTRACT# 134
SHORT-TERM AND LONG-TERM EFFECTS OF DELAYED GRAFT FUNCTION (DGF) ON GRAFT SURVIVAL IN PEDIATRIC LIVE DONOR RENAL TRANSPLANTATION. Hasan Otkesh, Rozita Hoseini, Seyed Mohamad Forosheteh nejad, Naser Simforoosh, Abbas Basiri. Labafi Nejad Hospital, Shahed Behesht University, Tehran, Islamic Republic of Iran; Labafi Nejad Hospital, Shahed Behesht University, Tehran, Islamic Republic of Iran; Labafi Nejad Hospital, Shaheed Behesht University, Tehran, Islamic Republic of Iran; Labafi Nejad Hospital, Shaheed Behesht University, Tehran, Islamic Republic of Iran; Khan Hospital, Shahed Behesht University, Tehran, Islamic Republic of Iran.

PURPOSE: Delayed graft function (DGF) generally has early and long term consequences for allograft survival. Limited studies have been performed about DGF and its complications in pediatric renal transplantation.

METHOD: Therefore, 230 children who received transplants between 1985 and 2005 in Labafi Nejad hospital were included in this study. DGF was defined if the serum creatinine level increased, remained unchanged, or decreased by less than 10% per day immediately after surgery during three consecutive days in first week after transplantation. The children were divided in two groups: 183 children in group A (Non DGF) and 47 patients in group B (DGF).

RESULTS: The impact of DGF on graft survival and post transplantation complications were analyzed and compared using Logistic regression model and Kaplan–Meier survival analysis. The incidence of graft
failure at the end of follow-up period was significantly more common in DGF group (53.2% vs. 22.4%, P<0.001). The mean survival time was 134.20(±SEM=6.17) months in group A (Non DGF) and 76.52(±SEM=12.41) months in group B (DGF) (P<0.001). The graft survival rate was 94.9%, 91.9%, 83.9%, 79.2% and 72% at 1, 3, 5, 7 and 12 years after transplantation in children without DGF versus 75.6%, 53.2%, 47.2%, 40% at 1, 3, 5 and 7 years after transplantation in patients with DGF.

CONCLUSION: The results of our study showed that delayed graft function could remarkably affect graft survival and worsen both short-term and long-term transplantation outcomes. Thus, the prevention of DGF is one of the most important issues in graft survival improvement.

Abstract# 135
BONE MINERAL DENSITY FOLLOWING RENAL TRANSPLANTATION; Yelda Bilgicen,1 Ali Duzova,1 Nesrin Besbas,1 Seza Ozen,2 Fazil T. Akı,2 Ayşin Bakkaloglu.1 Pediatric Nephrology and Nephrology Unit, Hacettepe University Faculty of Medicine, Ankara, Turkey; 2Urology Dept., Hacettepe University Faculty of Medicine, Ankara, Turkey.

PURPOSE: To evaluate bone mineral density, treatment in patients with low BMD and outcome following renal transplantation in children.

METHOD: Medical records of 36 kidney recipients (23 M, 13 F; mean age 14.3 ± 4.3 years) in a single center were analyzed retrospectively. Bone mineral density was measured by DEXA within one year following renal transplantation. A repeat DEXA was obtained after 1 year.

RESULTS: Preemptive transplantation was performed in 36% of cases. The cause of ESRD was nephrological in 50%, urological in 47.2%, and was unknown in 2.8% of cases. Mean BMD z-score within one year following renal transplantation was -2.45 ± 0.90; it was less than -2.5 in 44% of cases. Patients with urological disorders had slightly better z-scores (-2.37 ±0.99 vs. -2.51 ± 0.84, p=0.10). Eleven patients with a z-score less than -2.75 received alendronate, and other patients received oral calcium and vitamin D. One year later, mean BMD z-score rose to -1.74 ± 0.79; it was less than -2.5 in only 15.4% of cases (4/26); p<0.001.

CONCLUSION: Osteoporosis is frequent in the first year following renal transplantation in children. A dramatic improvement was achieved in BMD z-score with appropriate treatment (alendronate or calcium plus vitamin D as indicated).

Abstract# 136
THE HABERAL'S “CORNER SAVING SUTURE TECHNIQUE” FOR URETERAL ANASTOMOSIS IN PEDIATRIC RENAL TRANSPLANTATION; ANALYSES OF 49 PATIENTS. Aydin Dalgic,1 Hakam Sozen,1 Ogu Izleyenozoglu,2 Necla Buyan,2 Sevce Bakalloglu,2 Kibriya Fidan,2 Enver Hasangoz,1 Gazi University, Ankara, Turkey; 2Pediatric Nephrology, Gazi University, Ankara, Turkey.

PURPOSE: The ureteral complications are far greater(up to 30%) in children than in adults. In this study, we retrospectively analyzed and compared our two different ureteral anastomosis technique in 47 pediatric recipients who underwent kidney transplantation.

METHOD: From 1996 to September 2008, 192 renal transplantsations were performed. Out of 192, 34(69 %) Living related and 15(31%) cadaveric, 49 pediatric kidney transplantation was performed in 48 pediatric patients(25 boys, 24 girls; age range, 4 to 17 years). “Carrel Patch” technique in cadaveric, standard technique in Living donors with Continuous 6/0 – 7/0 Propylene suture (end to side RA/V to Ext I/A,V;Abd aorta and IVC in small kids) were used for vascular anastomosis.Between 1996 and 2005(n=30) “Lich-Gregoir” anastomosis with ureteral stenting(Group-1), since 2005(n=19) Haberal’s corner saving” suture technique were used with ureteral stenting(Group-2) for ureteroneocystostomy.

RESULTS: Long-term follow-up revealed the following morbidities; in 37(75%) recipients(two of them in group I) lymphocele, in 1(2.5%) patients in group I, graft renal artery thrombosis and 1 patients in group II had no anastomotic graft renal artery stenosis. Three recipients were died with functioning graft, one fungal pneumonia and sepsis and one patient with aspiration pneumonia and other at accident. One-130 months follow-up. Four grafts (8 %) were failed (one immunological, 2 BK virus infection, one renal artery thrombosis).The overall 1, 5, 10 year graft and patients survival rates were 98%, 95%, 82% and 100%, 98%, 95% respectively. For cadaveric transplantsations, the overall 1, 5, 10 years graft and patient’s survival rates were 100%, 100%, 93% and 100%, 100%, 93% respectively.We analyzed no statistical differences about complications related to ureteroneocystostomy technique.

CONCLUSION: The Haberal’s corner saving suture technique gives better visualization and approach for both graft ureter and bladder mucosa for ureteral anastomosis with excellent result.

Abstract# 137
CAROTID AND AORTIC STENOSIS IN CHILDREN FOLLOWING RENAL TRANSPLANTATION. Seza Ozen,1 Ankara, Turkey; 2Pediatric Nephrology, Gazi University, Ankara, Turkey.

RESULTS: Haberal’s corner saving" suture technique were used with ureteral stenting(Group:2) and IVC in small kids) were used for vascular anastomosis.Between 1996 and 2005(n=27), renal artery thrombosis and 1 patients in group:2 had non anastomotic graft renal artery stenosis. One-130 months follow-up. Four grafts (8 %) were failed (one immunological, 2 BK virus infection, one renal artery thrombosis).The overall 1, 5, 10 year graft and patients survival rates were 98%, 95%, 82% and 100%, 98%, 95% respectively. For cadaveric transplantsations, the overall 1, 5, 10 years graft and patient’s survival rates were 100%, 100%, 93% and 100%, 100%, 93% respectively.We analyzed no statistical differences about complications related to ureteroneocystostomy technique.

CONCLUSION: The Haberal’s corner saving suture technique gives better visualization and approach for both graft ureter and bladder mucosa for ureteral anastomosis with excellent result.

Abstract# 138
mTOR-INHIBITOR THERAPY IN PEDIATRIC RENAL TRANSPLANT RECIPIENTS: LONG-TERM FOLLOW UP. Birgitta Kranz,1 Udo Vester,1 Anne M. Wingen,2 Juergen Treckmann,2 Peter F. Hoyer.1 Pediatrics II, Pediatric Nephrology, Children’s Hospital, Essen, Germany; 2Department of Transplant Surgery, Essen, Germany.

PURPOSE: Over the last 10 years mTOR-inhibitors have been accepted as alternative immunosuppressive therapy in special selected cases in pediatric renal transplantation, e.g. in patients with chronic allograft nephropathy (CAN) or PTLD.

METHOD: Evaluation of long-term efficacy and safety of mTOR inhibitor therapy in 20 children after kidney or combined liver/kidney (n=5) transplantation with (n=7) or without additional calcineurin inhibitor (CNI) therapy.

RESULTS: Twenty transplanted children received mTOR-inhibitors for a mean of 4.2 ± 1.9 years (1.3 – 8.1 year). Reasons for mTOR-inhibitors: primary immunosuppression (n=5), PTLD (n=5), CNI toxicity (n=5), CAN (n=2) and rescue therapy for primary non-function (n=3). The median glomerular filtration rate (GFR) increased from 48.1 to 65.1 ml/min/1.73m² within the first 3 months and remained stable until latest follow up with 60 ml/min/1.73m². All patients with primary non-functioning graft showed a GFR>60 ml/min/1.73m² at latest follow up. The cholesterol levels increased from 193 to 232 mg/dl within the first 3 months with a slight decrease to 205 mg/dl at latest follow up (triglycerides from 195 to 207 and in mg/dl). Two patients with CAN lost their grafts. Steroid sensitive acute rejections occurred in 2 patients. Hemoglobin increased from 9.9 to 10.4 within 3 months and to 11.8 at latest follow up. Side effects: lymphocele post-transplant (n=2), proteinuria >1 g/d (n=1), serious infection (n=3), aphthous lesions (n=2), severe anemia (n=1). Five patients reached adulthood with 4 patients with a regular puberty and one girl with Denys Drash syndrome who needed hormone therapy. Reasons for cessation of therapy were elective surgical interventions (n=4), acute rejection (n=1) and proteinuria (n=1).

CONCLUSION: mTOR-inhibitor therapy was safe in these selected pediatric renal transplant recipients. Side-effects, e.g. anemia and hyperlipidemia were often transient and of no clinical concern. The small number of patients who reached adulthood showed a normal puberty.

Abstract# 139
ANTIENDOTHELIAL CELL ANTIBODY: CAUSE OF HYPERACUTE REJECTION OF THREE CONSECUTIVE RENAL ALLOGRAFT IN THE SAME PATIENT. Agata Vazquez,1 Alvaro Madrid,2 Sara Chocron,1 Ramon Vilalta,1 Jose Nieto.1 Servicio Nefrologia Pediatrica, Hospital Universitari Vall d’ Hebron, Barcelona, Spain

PURPOSE: Rejection episodes with early graft loss occur in 1-3% of patients. The immunological rejection of kidney transplants with negative crossmatch tests suggests the presence of other possible non-HLA antigens that might play a role in transplant rejection.

METHOD: We report a case of a seven years old boy, with focal and segmentary glomerulosclerosis, underwent three consecutive cadaver renal transplantsations that were hyperacutely rejected despite intensive immunosuppressent treatment. HLA-specific antibodies were repeatedly negative. Transplantectomy performed because of malignant hypertension, showed necrosis and vasculitis with C4d staining negative and deposition of IgM and C3 in the vessels walls in all the grafts.
RESULTS: He was found to have Ig M antibody anti-endothelial cell antigens (AECA) but study for angiotension II type 1 (AT1) receptor-activating antibodies was negative.

CONCLUSION: Discussion: The role of T cell mediated response and anti-HLA antibodies in allograft rejection has been thoroughly investigated, nevertheless, it seems there are some patients who develop vascular rejection not mediated by anti-HLA antibodies. Recent studies report the possible contribution of antibodies against endothelium and AT1 receptor activating antibody in hyperacute rejection, and their relation with malignant hypertension. Our patient had hyperacute rejection with malignant hypertension in three consecutive occasions with no anti-HLA antibody, we speculate that Ig M AECA found after the third transplantation could be the responsible for graft loss in the tree occasions, nevertheless, we could not associate malignant hypertension with the presence of AT1 receptor antibody in our patient.

Abstract# 140

HYPERTENSION IN CHILDREN FOLLOWING KIDNEY TRANSPLANTATION. Mohammad Hossein Fallahzadeh,1 Ali Derakhsh,1 Mohammad Kazem Fallahzadeh,2 Ghamar Hashemi,1 S.A. Malekhossein.1 Shiraz Nephrourology Research Center, Shiraz, Islamic Republic of Iran; 1Shiraz Transplantation Center, Shiraz, Islamic Republic of Iran.

PURPOSE: Hypertension (HTN) is common following kidney transplantation (KT) and is a cause of decreased allograft survival. In this study prevalence of HTN is evaluated in children following KT.

METHOD: Clinical records of all children who had been transplanted in our center since 1992 were evaluated in their last referral to their in-charge nephrologist. HTN was defined by using new guidelines (NCT): children were considered hypertensive if they were on antihypertensive medications and or had blood pressure (BP) >90th percentile for age, height, and sex.

RESULTS: From 216 children who were ≤19 years old when kidney transplanted (1992 to 2007), 138 children were followed by pediatric nephrologists for mean of 59.2±39.3 months. Pre-transplant weight, height, and age were 29(57.2)%, boys with male to female ratio of 1.33. The age range at time of KT was 3-19 years with a Mean ± SD of 13.6±3.5 years. The minimum weight was 10 kg. Donor ages were 1 to 52 years with a mean of 24.6±12.5 years. Donors were: 41 parents, 9 siblings and other relatives, 67 deceased and 21 unrelated. Their primary renal diseases consisted of glomerular diseases, hereditary diseases, reflux-obstruction dysplasia, stone and unknown in 26(49%), 47(34%), 58(42%), 2(1.3%) and 5(3.5%) respectively. The mode of dialysis before transplantation was hemodialysis in the majority of cases (85.5%) and preemptive transplantation was done in 12.1%.

HTN was observed in 76 children (35%). Regarding primary renal diseases, HTN occurred in 16(61.5%), 26 (55.3%) and 31(53.4%) of the patients in glomerular diseases, hereditary diseases and reflux-obstruction group respectively. In 29 patients, more than one drug was used to control BP. Twenty one (67.7%) of 32 patients with a follow-up period of 6-63 months, 27(86%) of 45 patients with follow-up period of 37-72 months and 29(47.5%) of 61 with a follow-up period of more than 72 months were hypertensive.

CONCLUSION: Hypertension is very common following kidney transplantation in children and the rate of HTN is inversely related to duration of follow-up.

Abstract# 141

EVALUATION OF GROWTH AND BODY MASS INDEX IN CHILDREN FOLLOWING KIDNEY TRANSPLANTATION. Nima Derakhsh,1 Dorna Derakhsh,1 Ali Derakhsh,1 Mohammad Hossein Fallahzadeh,1 Mitra Basiratnia,1 Seyed Ali Malek-Hosseini.1 Shiraz University of Medical Sciences, Shiraz Nephro-Urology Research Center, Shiraz, Fars, Islamic Republic of Iran.

PURPOSE: Children with chronic kidney disease are often growth retarded. Most of the children have good weight gain after successful kidney transplantation but height gain is not satisfactory mostly for children who are transplanted in older age. This study was conducted for evaluation of growth and BMI in children following kidney transplantation.

METHOD: All children who had been transplanted in our center and had regular follow up were encountered in this study. Those with primary non-functioning grafts were excluded from the study. Weight and height at transplantation and at their last visit were recorded and for those with ages lower than 20 years WHO percentile curves of BMI were used for evaluation and those older than 20 were evaluated according to normal adult values. SPS/S1.5 soft ware and paired T-Test were used for comparison of means.

RESULTS: One hundred and thirteen children were involved in this study. Mean age at transplantation was 13.2±5.6 ranging from 3 to 22 years and age at last visit was 18.3±4 years. They had been followed from 6-180 months (Mean 61±38 months). The minimum weight was 10 kg. Donor ages were 1 to 52 years with a mean of 24.6±12.5 years. Donors were: 41 parents, 9 siblings and other relatives, 67 deceased and 21 unrelated. Their primary renal diseases consisted of glomerular diseases, hereditary diseases, reflux-obstruction dysplasia, stone and unknown in 26(49%), 47(34%), 58(42%), 2(1.3%) and 5(3.5%) respectively. The mode of dialysis before transplantation was hemodialysis in the majority of cases (85.5%) and preemptive transplantation was done in 12.1%.

HTN was observed in 76 children (35%). Regarding primary renal diseases, HTN occurred in 16(61.5%), 26 (55.3%) and 31(53.4%) of the patients in glomerular diseases, hereditary diseases and reflux-obstruction group respectively. In 29 patients, more than one drug was used to control BP. Twenty one (67.7%) of 32 patients with a follow-up period of 6-63 months, 27(86%) of 45 patients with follow-up period of 37-72 months and 29(47.5%) of 61 with a follow-up period of more than 72 months were hypertensive.

CONCLUSION: Hypertension is very common following kidney transplantation in children and the rate of HTN is inversely related to duration of follow-up.

Abstract# 142


PURPOSE: To assess the outcome of paediatric renal transplantations in Sri Lanka.

METHOD: Demographic and clinical data of patients under 18 years of age who received kidney transplantations and donors were studied. Donors were screened at an Adult Nephrology Unit. Immunosuppressant regime consists of cyclosporine A, mycophenolate mofetil and prednisolone. Follow up focused on surgical complications, renal function, acute and chronic rejections, survival, growth velocity, drug toxicity and compliance. Patients were followed up in the paediatric renal clinic for over 6 months were evaluated.

RESULTS: Twenty male and ten females have undergone live donor renal transplantations from July 2004 to September 2008. Age at transplantation ranged from 2.2 to 18.5years. (Median age 10.13 years). Nineteen (63.3%) had pre-emptive transplantations. Cause for ESRF was dysplastic kidneys (26.6%), posterior urethral valves (23.3%), reflux nephropathy (13.3%) and glomerulonephritis (10%). Parents donated the kidneys in 70.2%. Mean age of the donors was 40.77 years.

Only 24 were evaluated as 3 were being followed up at an Adult Nephrology Unit. Two others had a follow-up period less than 6 months. One patient died after 1 year and 10 months. Current creatinine values ranged from 31-170 mmol/l (mean 82.04). Current glomerular filtration rate ranged from 39.6-164.3 ml/min/1.73 m2 (mean 95.85). 58.3% patients had Antihypertensive drugs, 77% of patients used one drug. The overall infection rate was 0.99/ patient/ year. UTI was observed in 40%.

CONCLUSION: Short term outcome of patients is comparable with well established units in spite of the limited facilities available.

Abstract# 143

A PEDIATRIC CASE OF SPONTANEOUS, OPERATIONAL ALLOGRAFT TOLERANCE AFTER LIVING RELATED KIDNEY TRANSPLANTATION. Hee Gyung Kang,1 Hyun Jin Choi,1 Il Soo Ha,1 Hae Il Cheong,1 Myeong Huee Park,2 Sang Joon Kim,1 Yong Choi.1 Pediatrics, Seoul National University Children’s Hospital, Seoul, Korea; 2Laboratory Medicine, Seoul National University College of Medicine, Seoul, Korea; 3Surgery, Seoul National University College of Medicine, Seoul, Korea.

PURPOSE: Operational tolerance, stable and acceptable graft function without immunosuppression for years, is a rare event. Here, the authors present a pediatric kidney transplant case that showed spontaneous operational allograft tolerance.

METHOD: Case report

RESULTS: A seven-year-old boy visited outpatient clinic for evaluation of allograft kidney function. He was diagnosed as infantile nephrotic syndrome with pathology of FSGS at the age of 4 months and had the kidney function in six months and got allograft kidney from his mother at the age of 10 months. After 2 months of transplantation two-antigen mismatch. Allograft function had been well maintained with immunosuppression of cyclosporin and corticosteroid without an episode of rejection. One and a half year later he had become less compliant and was lost to follow-up at three years after kidney transplantation. At his last visit before lost, his blood chemistry showed BUN of 16 mg/dL, Creatinine 0.7 mg/dL. Since last visit he has not been on any medication for immunosuppression. On this visit, 6 years after transplantation, his renal function remained stable (BUN 16 mg/dL, Creatinine 0.9 mg/dL), urinalysis showed no abnormality, and Doppler ultrasonography of allograft kidney was normal. Antibody screening showed that he had HLA class I and class II antibodies against the mismatched HLA antigens (B51 and DR14). Immunological evaluation revealed microchimerism of donor cell (HLA DRB1*1403), which was also found retrospectively in pre-transplant sample. Further evaluation was yet to be done due to non-compliance.

CONCLUSION: To the authors’ knowledge, this is the first case report of spontaneous operational tolerance in pediatric kidney allograft case. This anecdotal case report can be another evidence supporting recent notion that allograft survival of infant recipients be better than that of any other age group of recipients.
Abstract# 145
EXPERIENCE OF A HIGH VOLUME CENTER FOR PEDIATRIC RENAL TRANSPLANTATION IN TURKEY. Mustafa Koyun,1 Sema Akman,1 Yunus Emre Baysal,1 Alihan Gürkan,2 Ayhan Dinçkan,2 Alper Demirbas,2 Ayfer Güür Güven.1
Pediatric Nephrology, Akdeniz University, Antalya, Turkey; 1General Surgery, Akdeniz University, Antalya, Turkey. PURPOSE: Renal transplantation is the most effective renal replacement therapy in children with end-stage renal disease. METHOD: Demographic and clinical data of 86 pediatric renal transplant recipients operated between July 1994 and September 2008 at Akdeniz University Transplantation Center were evaluated retrospectively. RESULTS: Mean age of the patients was 11.9 ± 3.9 years (range: 4–20); male/female ratio was 1.3/1. The most common primary diseases were chronic glomerulonephritis in 23 (26.7%), reflux nephropathy in 17 (19.8%) and congenital renal anomalies in 23 (26.7%). The most frequent etiologies were cadaveric. Median duration of hemodialysis (39 patients) and peritoneal dialysis (2) before transplantation were 4 and 1 months respectively. Mean (SD) duration of follow-up after transplantation was 4.2 (2.8) years. At last followup, weight and height SDs were -2.11 and -3.18 respectively. 10 episodes of acute rejection (24.4%) occurred; all were documented on graft biopsies; all responded to methylprednisolone pulses. Post-transplant complications included urinary tract infections in 11 (26.8%), CMV disease in 4 (9.8%), tuberculosis in 2 (4.8%); diabetes mellitus occurred in 2 (4.8%). PTLD in 1 (2.4%) and graft versus host disease in 1 (2.4%). Mean (SD) creatinine at last follow-up was 1.38 (0.69) mg/dL. Graft loss occurred in 8 (19.5%); causes were vascular complications in 4, chronic allograft nephropathy in 3 and hyperacute rejection in one. In 1 and 5 years graft survival were 87.8% and 85.4% respectively; corresponding patient survival rate was 94.7%. CONCLUSION: Renal transplantation is a feasible mode of renal replacement therapy even in a country with limited resources, and is associated with satisfactory longterm outcomes.

Abstract# 146
RENAI TRANSPLANTATION: EXPERIENCE FROM A DEVELOPING COUNTRY. Aditi Sinha,1 P. Hari,1 A. Gulati,1 S. Guleria,1 R.N. Srivastava,1 A. Bagga.1 Pediatrics, All India Institute of Medical Sciences, New Delhi, India; 1Surgery, All India Institute of Medical Sciences, New Delhi, India. PURPOSE: Retrospective analysis of characteristics and outcomes of renal transplantation at a single centre. METHOD: Records of patients who underwent renal transplantation at this centre during 1996-2008 were reviewed for cause of end stage renal disease, mode of dialysis, complications and outcome after transplantation. Post-transplant immunosuppression consisted of cyclosporine, azathioprine and prednisone during 1996-2003; tacrolimus, mycophenolate mofetil and prednisolone were used later. RESULTS: Of 38 patients (41 transplantations), 33 were boys. Mean (SD) age at transplantation was 13.8 ± 4.4 years; mean weight and height SDs were -2.25 and -3.52 respectively. Underlying etiology included reflux nephropathy (13 patients), chronic glomerulonephritis (10), hypoplasia/dysplasia (6), obstructive uropathy (5), and others in 4. Donors were living related in 36 (mother in 30), unrelated in 3, and 2 were cadaveric. Median duration of hemodialysis (39 patients) and peritoneal dialysis (2) before transplantation were 4 and 11 months respectively. Mean (SD) duration of follow up after transplantation was 4.2 (2.8) years. At last followup, weight and height

PURPOSE: To look into the surgical complications of pediatric renal transplants.

METHOD: The data of last ten years was collected and entered on SPSS version 15.0. Basic analysis of the data was done and the results are presented.

RESULTS: A total of 153 cases of pediatric renal transplants were done in the last 10 years. Out of these 97 were living related and 56 were from deceased donors. The minimum age was 18 months and the minimum body weight was 8.5 Kg. The male to female ratio was 2:1. The common causes of renal failure were obstructive uropathy in 14%, dysplastic kidneys 12%, FGSS 8% while unknown causes were 15%.

The surgical complications included ureteric stenosis 6 (3.9%), arterial stenosis 5 (3.3%), arterial thrombosis 2 (1.4%). These complications were diagnosed in time and were treated accordingly. The graft survival is 86.3% and the patient survival was 96.7% at ten years. Only one graft was lost due to surgical complication of arterial thrombosis.

CONCLUSION: Renal transplantation remains the treatment of choice as renal replacement therapy in pediatric patients. Surgical complications can be reduced by meticulous surgical technique. Early recognition and immediate management of the complication is the key to success.

Abstract# 150 EFFECTS OF HUMAN LEUKOCYTE ANTIGEN MATCHING ON GRAFT SURVIVAL. Mehmet Atilla Türkmen,1 Belde Kasap,1 Demet Alaygut,1 Alper Soylu,1 Sahil Kavukçu,2 Mehmet Ali Öktém,2 Zeynep Gülay,2 Seymen Bora,1 Hüseyin Gülay,1 Pediatrics, Dokuz Eylül University School Faculty of Medicine, Izmir, Turkey;2 Microbiology, Dokuz Eylül University School Faculty of Medicine, Izmir, Turkey;1 General Surgery, Dokuz Eylül University School Faculty of Medicine, Izmir, Turkey.

PURPOSE: There are plenty of factors effecting the long term graft survival in renal transplantation (rtx). Although human leukocyte antigen (HLA) match between the donor and the recipient has been known to be one of the most important factors, recently its importance has been shown to be decreased and it is thought that new algorithms are required for rtx.

METHOD: Data of patients who received rtx in Dokuz Eylül University Pediatric Nephrology Division between 1993 and 2008 were reviewed retrospectively. Patients were divided into two groups: Group A (≤3 match or haplotype), Group B (≥4 match or full match).

RESULTS: There were 34 patients (M:F: 21/13). Age at the time of rtx was 90-300 months. Follow-up duration was 83±49 (2-180) months. Mean serum creatinine (Scr) levels at the first, fifth and tenth years were 1.26±0.36 (0.8-2.1), 1.71±1.01 (0.8-5.1), 2.53±2.3 (1.7-7.2) mg/dl, respectively and these levels had an insignificant negative correlation with matching HLA numbers. Three of the patients received hemodialysis due to chronic allograft nephropathy at the end of 74, 123 and 156 months. Graft surveys at the end of the first, fifth and ten years were %60, %40 and %95 respectively. Both recipients have normal renal function, no systemic acidosis, hyperkalemia or hypercalciuria, and are on the same immunosuppressive medications. Neither of them have dietary predisposition to hypocitraturia, a history of urolithiasis, or urinary tract infections prior to developing ESRD. The donor was a 31 y.o. male with unknown past medical and FFH.

CONCLUSION: In recp. A, a 24-h urine collection showed hypocitraturia; 20.9 mg/g Creatinine (normal > 408 +/- 41 mg/g). Because of developmental disability, recp. B could not complete a 24-h urine collection, however a spot urine citrate concentration (16.2 mg/dl) was >1 SD below the normal value (mean 35.73 mg/dl).

CONCLUSION: Both recipients developed hypocitraturia after receiving a kidney tx from the same donor. This is the first description of hypocitraturia not related to classical risk factors acquired via a deceased donor kidney transplant. While virtually all our kidney tx recipients are on calcineurin inhibitors, recp. A is the first to present with urolithiasis. The fact that both recipients from the same donor have significant hypocitraturia implies an intrinsic renal role in citrate excretion, which is independent of diet, electrolyte, or acid/base abnormalities.

Abstract# 151 HYPOCITRATURIA AFTER KIDNEY TRANSPLANTATION – AN ACQUIRED TUBULAR DEFECT. Beatrice Goily,1 Howard Trachtman.1 1Department of Pediatrics, Schneider Children's Hospital, New Hyde Park, NY, USA.

PURPOSE: Urolithiasis in pediatric kidney transplant recipients is rare and is associated with urinary tract infection/obstruction, retained suture material, and metabolic disturbances. We report a kidney transplant (tx) recipient (recip. A) who presented with urolithiasis and was diagnosed with hypocitraturia. Evaluation of the recipient of the contralateral kidney from the same donor (recip. B) also revealed hypocitraturia.

METHOD: Recip. A is an 11 y.o. girl with end-stage renal disease (ESRD) of unknown etiology. No family history (FH) is available. Eleven months post tx, she presented with vomiting and graft pain. Sonographic evaluation revealed non-obstructing calculi in the tx. Recip. B is a 13 y.o. boy with ESRD of unknown etiology. He underwent a liver tx 1 yr prior to presenting with kidney failure. The FH was negative for urolithiasis. Recip. B had no clinical signs of urolithiasis and sonographic evaluation was not done. Both recipients have normal renal function, no systemic acidosis, hyperkalemia or hypercalciuria, and are on the same immunosuppressive medications. Neither of them have dietary predisposition to hypocitraturia, a history of urolithiasis, or urinary tract infections prior to developing ESRD. The donor was a 31 y.o. male with unknown past medical and FH.

RESULTS: In recp. A, a 24-h urine collection showed hypocitraturia; 20.9 mg/g Creatinine (normal > 408 +/- 41 mg/g). Because of developmental disability, recp. B could not complete a 24-h urine collection, however a spot urine citrate concentration (16.2 mg/dl) was >1 SD below the normal value (mean 35.73 mg/dl).

CONCLUSION: Both recipients developed hypocitraturia after receiving a kidney tx from the same donor. This is the first description of hypocitraturia not related to classical risk factors acquired via a deceased donor kidney transplant. While virtually all our kidney tx recipients are on calcineurin inhibitors, recp. A is the first to present with urolithiasis. The fact that both recipients from the same donor have significant hypocitraturia implies an intrinsic renal role in citrate excretion, which is independent of diet, electrolyte, or acid/base abnormalities.
CONCLUSION: Our experience may suggest the same beneficial effects on postoperative pain/analgesia and recovery that have been documented for a wide range of minimally invasive procedures. Minimal skin incision in the living kidney transplantation appears particularly attractive in selected transplant recipients (low BMI, young woman, soft and expandable abdominal wall etc) with significantly delayed wound healing which may be overcome with more careful wound care and delayed stitch out.

Abstract# 153
LONG-TERM OUTCOMES OF PEDIATRIC KIDNEY TRANSPLANTATION WITH PROSPECTIVE MULTICENTER TRIAL OF STEROID WITHDRAWAL. Atsushi Aikawa,1 Osamu Motoyama,2 Akira Hasegawa,3 Seiichiro Shishido,4 Masataka Honda,5 Kazuo Tsuzuki,2 Tsuneo Kinukawa,2 Motoshi Hattori,1 Osamu Ogawa,6 Toshio YanagiHara,2 Kazuhide Saito,1 Kota Takahashi,1 Shinichiro Oshima,1 1 Nephrology, Toho University, Tokyo, Japan; 2 First Department of Pediatrics, Toho University, Tokyo, Japan; 3 Urology and Nephrology, Tokyo Metropolitan Kyosse Children’s Hospital, Kyosse, Tokyo, Japan; 4 Pediatrics and Urology, Social Insurance Chuyuko Hospital, Nagoya, Aichi, Japan; 5 Pediatric Nephrology, Tokyo Women’s Medical College, Tokyo, Japan; 6 Pediatrics, Niigata Prefectural Yoshida Hospital, Yoshishida, Niigata, Japan; 5 Urology, Graduate School of Medical and Dental Sciences, Niigata University, Niigata, Japan; 6 National Center for Geriatrics and Gerontology, Ohu, Aichi, Japan.

PURPOSE: The purpose of this study is to investigate outcomes of pediatric kidney transplantation with steroid withdrawal 16 years after transplantation. Method: Ninety four children (53 boys and 41 girls, age 9.1±3.9 years old, living donor 88%) underwent kidney transplant between 1990 and 2003. Immunosuppression consisted of cyclosporine(Csa), mizoribine(MZ) and methylprednisolon(MPL). MPL was withdrawn in the patients without rejection after decreasing the alternate day dose 4mg/m². RESULTS: The living donors were 29 fathers, 50 mothers and 9 others. Eighty seven patients had the first transplantation. Follow-up period was 9.0±5.2 years. Original patients were successfully withdrawn steroid and 23 were given it alternate day. Ninety four children (53 boys and 41 girls, age 9.1±3.9 years old, living donor 88%) underwent kidney transplant between 1990 and 2003. Immunosuppression consisted of cyclosporine(Csa), mizoribine(MZ) and methylprednisolon(MPL). MPL was withdrawn in the patients without rejection after decreasing the alternate day dose 4mg/m². RESULTS: The living donors were 29 fathers, 50 mothers and 9 others. Eighty seven patients had the first transplantation. Follow-up period was 9.0±5.2 years. Original patients were successfully withdrawn steroid and 23 were given it alternate day. Mean height SDS in all patients and 20 with steroid withdrawal revealed -2.47 and -2.36 at transplantation and -2.34 and -2.07 on final observation, respectively. CONCLUSION: Patient and graft survival rates were excellent, however the final height was not satisfactory even in the patients with steroid withdrawal.

Abstract# 154
THE EVALUATION OF VIRAL INFECTIONS IN PEDIATRIC RENAL TRANSPLANTATION RECIPIENTS. Kibriya Fidan,1 Necla Buyan,1 Sevcan Bakkaloglu Ezgü,1 Bahar Büyükkaragöz,1 Aydin Dalgic,2 Enver Hasanoglu,1 Oguz Söylemezoglu,1 1 Pediatric Nephrology, Gazi University, Ankara, Turkey; 2 General Surgery, Gazi University, Ankara, Turkey.

PURPOSE: However the strong immunosuppressive therapies used for graft protection result in only the problems specific to the pediatric recipient group but they also cause viral infections with serious morbidity and even mortality. For this purpose herein we present the patients with posttransplant infections who are being followed in our clinics.

METHOD: We evaluated 50 children who had renal transplantation. From these 16 were performed from deceased donor, 34 from living related. The patients were given a protocol of immunosuppressive treatment including CNI or m-TOR inhibitors / MMF /Steroids. The IL-2 receptor blockers were added as the induction therapy in case of presence of a deceased donor. In cases of clinical suspect or during routine controls, serum and urine IgG, Ig M and PCR for CMV, EBV, ZVZ, HSV, measles, parvovirus and BKV were studied for viral infection scanning.

RESULTS: We had diagnosed CMV myocarditis in one patient, CMV encephalitis in one patient, BKV infection in five patients, measles in one patient, parvovirus infection in two patients, zona zoster in three patients. By decreasing the dose of the immunosuppressive treatment and with the antiviral treatment, the clinical and laboratory findings of CMV, ZVZ and parvovirus infections were completely relieved. One patient who had measles and who developed subacute measles encephalitis died despite supportive treatment. In the five cases of BKV infection immunosuppressive drug doses were reduced and cidofovir treatment were applied. Graft loss occurred in two of these patients who administered with high creatinine values.

CONCLUSION: We conclude that in the last few years, the new immunosuppressive treatments used for the graft protection can also result an increase infections which are very hard to control. As the early diagnosis and treatment of infections in this patient group is crucial. We believe that during routine follow-ups the frequent and regular evaluation of infection parameters can diminish the morbidity and mortality rates.

Abstract# 155
PREEMPTIVE RENAL TRANSPLANTATION IN A MEDITERRANEAN COUNTRY. Ali Duzova,1 Yelda Bilginer,2 Fazil T. Aki,3 Fatih Oraltin,4 Rezan Topaloglu,1 Aydin Dalgic,1 1 Pediatric Nephrology and Rheumatology Unit, Hacettepe University Faculty of Medicine, Ankara, Turkey; 2 Urology Dept., Hacettepe University Faculty of Medicine, Ankara, Turkey.

PURPOSE: To evaluate demographic features and outcome of renal transplantation in children; and to compare these parameters between preemptive transplantation and others (transplantation following a period of dialysis) in a Mediterranean country.

METHOD: Medical records of 46 kidney recipients (30 M, 16 F; mean age 14.1±4.1 years) in a single center, from 2000 to 2008, were analyzed retrospectively. Acute rejection episodes, GFRs based on creatinine clearance (calculated with on 24 hour urine collection) in 1-, 2-, 3-, and 5-year were compared between preemptive transplantation group and others.

RESULTS: Preemptive transplantation was performed in 37% of cases. Mean age was comparable among the groups. The frequencies of males (76.5% vs. 58.6%), living related donors (76.5% vs. 58.6%) and ureological disorders (58.8% vs. 44.4%) were slightly higher in preemptive group; however they did not reach statistical significance. The frequencies of acute rejection episodes were comparable. Mean GFR values in 1-year (107 ± 51 ml/min/m² vs. 111 ± 40 ml/min/m²; p<0.05), 2-year (75 ± 23 ml/min/ m² vs. 110 ± 33 ml/min/m²; p=0.05), 3-year (86 ± 31 ml/min/m² vs. 101 ± 31 ml/min/m²; p=0.05) and 5-year (71 ± 30 ml/min/m² vs. 106 ± 24 ml/min/m²; p<0.05) were lower in preemptive transplantation group; this difference reached statistical significance only for GFR in 3-year.

CONCLUSION: Almost one third of renal transplantation in children was preemptive. Increased frequency of ureological disorders might have resulted a slightly lower GFR in preemptive transplantation group. Increased frequency of male gender, ureological disorders and living related donors among preemptive transplantation merits further studies in larger groups.

Abstract# 156
USING OLDER DONORS FOR RENAL TRANSPLANTATION; GAZI UNIVERSITY EXPERIENCE. Aydin Dalgic,1 Hakan Sozen,1 Eminé Singin,2 Dilek Erer,2 Denet Coskun,4 Sukru Sindel.1 1 General Surgery, Gazi University, Ankara, Turkey; 2 Transplantation Center, Gazi University, Ankara, Turkey; 3 Cardio Vascular Surgery, Gazi University, Ankara, Turkey; 4 Anesthesiology, Gazi University, Ankara, Turkey; 5 Pediatric Nephrology, Gazi University, Ankara, Turkey.

PURPOSE: In the recent past, chronologic age was a contraindication both for organ donation and transplantation. But, the rapidly growing number of patients with end-stage renal disease are increasing everywhere in the world. Moreover the extreme organ shortage in Turkey has been leading us to use expanded living or diseased donor.

We
retrospectively analyzed Gazi University Medical Faculty, Transplantation registry and patient data to determine old donor’s outcome.

METHOD: Since 1996, totally 193 renal transplantations were performed to 191 renal recipients. Sixty out of 193 were from deceased, 133 were from living donor. Totally 25 (7.7%) out of 193 donors were at the age 55 years old or older.In this group 15 out of 25 donors were from 68 years old or older donor.

RESULTS: Mean cold ischemia time was 4.5 hours, range –1 to 24 hours. The immunosuppressive protocol consisted of induction therapy (Simulect 20 mg day 0 and 4) and triple immunosuppressives (calsineurin inhibitors, mycophenolic acid and steroids). Mean hospitalization time was 25 days (range, 9–35 days). Nine patients (3.6%) presented DGF requiring transitory hemodialysis. One patient lost her graft due to BK infection. None of the recipients nor the grafts were lost due to any surgical complications. We have seen 3 acute rejection episodes. All were reversed by pulse steroid. Although 4.2% of recipient had DGF, it did not effect graft outcome respectively. Mean creatine levels for 1 and 3 years were 2.1 and 2.3 respectively. Patient and graft survival for 1, 3, 5 years are 100%, 96%, 86% and 100%, 96%, 82% The use of old (≥55 years old) donor kidneys may associated with worsen renal function and reduced graft survival compared with standard donors.

CONCLUSION: Kidney transplantation from old donors should be considered as option for kidney transplantation.

Abstract# 157
POST TRANSPLANT COMPLICATIONS OTHER THAN REJECTION IN TURKISH CHILDREN: A MULTICENTER STUDY.

PURPOSE: To determine the survival rates and factors affecting outcome among transplanted pediatric patients at a transplant institute.

METHOD: Medical records of pediatric transplant patients from 1984 to 2006 were reviewed. Data was collected using a standardized database form. Extracted were age and sex, native kidney disease, type of RRT, year of transplant, HLA mismatches, cold ischemia time, immunosuppressive agents and acute rejection.

RESULTS: A total of 74 pediatric kidney transplant patients were reviewed from 1984 to 2006. The most common age group was between 11 to 16 years with male predominance. The over-all survival rate was 44.6% (33 out of 74) while a total of 35 patients (47.3%) died. There were six patients (8.1%) whose clinical status was unknown. Survival rate was higher in the latter years 2000-2006 of transplantation which accounted for 85%. A higher proportion of patients who survived had living non-related donors (27% versus 6%). Transplants done from 2000 and onwards was statistically correlated (OR=2.11, 95% CI 1.11-1.76.5, p<0.001). The type of kidney donor, i.e. those from living non-related donors was almost three times associated (OR=2.69, 95% CI 0.88-8.2, p=022) and the use of immunosuppressive agents, although no specific immunosuppressive agent was superior. (OR=0.62, 95% CI 1.10-40.1, p=042). Longer survival times were noted among living related donors, the use of cyclosporine, azathioprine and prednisone and if transplantation was done in 2000 to 2006 (p=0.028). The cumulative survival rate was 96%, 91.4%, 61.6%, 48.9% and 32.3% at 6-months, 1-year, 3-years, 5-years and 10-years respectively. Analysis was limited to complete and available records only.

CONCLUSION: Survival rates of renal transplantation among our pediatric patients had improved over the past 22 years. In our review, the three variables which seems to be associated with patient survival are the year of transplant, donor source i.e. from living non-related donors and immunosuppressive agents.

Abstract# 159
SURVIVAL RATES AND FACTORS AFFECTING OUTCOME AMONG PEDIATRIC KIDNEY TRANSPLANT AT A TRANSPLANT INSTITUTE FROM 1984-2006.

Pediatric Nephrology, National Kidney and Transplant Institute, Quezon City, Philippines.

PURPOSE: The objective of this study is to determine survival rates and factors affecting outcome among transplanted pediatric patients at a transplant institute.

METHOD: We retrospectively analyzed data related to 194 pediatric patients (2005-2006) from 16 institutions in Turkish Pediatric Kidney Transplantation Study Group.

RESULTS: Hypertension (51.6%) was the most frequent complication after renal transplantation. Post-transplant diabetes mellitus, hyperlipidemia and obesity were 2.1%, 23.9% and 9% respectively. Post-transplant infection rate was 26.2%. Overall surgical complication rate was 12.6%, including urological(4%), lymphocele(4%) and vascular (4.7%). Recurrence of primary disease developed in 2.1%. Post-transplant alopgraft loss and mortality rate were 9.9% and 1.6% respectively.

CONCLUSION: Hypertension, hyperlipidemia, infections and recurrence of primary disease continue to be major problems in pediatric transplant recipients.

Abstract# 158
DENGUE IN PEDIATRIC RENAL TRANSPLANT PATIENTS.
Regina Helena L.L. Novaes, 1 Deise B.M. Carvalho, 1 Tereza Matuck, 1 Modesto Alvaro, 1 Zagury Alberto, 1 Moraes Carlos Augusto, 1 Montalvao Jose Augusto, 1 S.A. Vinicius. 1 'Nephrology, Hospital Geral de Bonfim Concelho, Rio de Janeiro, Brazil.

PURPOSE: Dengue fever is poorly described in the renal transplanted population. Very few cases have been reported and they suggested a high mortality rate.

METHOD: We report two cases of dengue fever in pediatric renal transplant recipients during a Dengue outbreak in Rio de Janeiro - Brazil. On the first months of 2008 Rio de Janeiro presented the biggest outbreak of Dengue fever since 2002. More than 200.000 cases of the disease have been notified, and most of them coused like hemorrhagic Dengue fever.

RESULTS: Case 1: An 8 years old renal transplanted boy with 36 months after transplantation. The symptoms were high fever, muscular pain, malaise and headache. On presentation had thrombocytopenia (80.000). No bleeding phenomenon has been observed. The treatment was only paliative and hospital admission wasn’t necessary. He had an uneventful recovery with normalization of the platelet number in 10 days. The mean serum creatinine before Dengue was 0.9, during the disease the peak was 1.1 and return to baseline after recovery.

Case 2 – A 16 years old boy, with 4 years after renal transplantation were admitted to the hospital with high fever during 4 days, headache and muscular pain. The hemogram presented thrombocytopenia (32.000 platelets). No active bleeding was observed. The treatment was fluid support and platelet concentrate when the number of platelets reached 17.000. Evolution of the platelet counts: 31.000 – 20.000 – 17.000 – 45.000 – 81.000. The graft function did not alter during the disease. The platelet count was normal 15 days after the disease.

CONCLUSION: In 2008 we observed a great outbreak in Rio de Janeiro with more than 200.000 cases of infected persons with the Dengue virus. Many cases described in the pediatric population were hemorrhagic Dengue. Previous reports suggest a high mortality rate in the transplant population. We describe 2 cases of children with clinical and laboratory diagnostic of hemorrhagic Dengue (thrombocytopenia) with benign course. It did not cause abnormal graft function or death of the recipients.

Abstract# 156
HHV6 INFECTION IN A PEDIATRIC KIDNEY TRANSPLANTATION.
Foteini Koukourigami, Valérie Pichault, Aurelia Liukus, Yves Gillet, Bruno Ranchin, Guillaume Mestrillet, Pierre Cochat.

Hôpital Femme Mère Enfant, Université Lyon 1, Centre de Référence des Maladies Rânales Rares, Bron, France; Hôpital Femme Mère Enfant, Université Lyon 1, Service des Urgences et de Réanimation Pédiatrique, Bron, France.

PURPOSE: Human herpesvirus 6 (HHV6) infection can induce unusual complications in transplant patients such as interstitial pneumonia, encephalitis and marrow aplasia. We report on the clinical course of primary HHV6 infection during the early post transplantation period in a 2-year old child.

METHOD: Following uneventful transplantation procedure, immunosuppressive therapy was based on basiliximab, prednisone, cyclosporine and mycophenolate mofetil. Epstein-Barr virus (EBV) serology in the recipient was positive prior to kidney transplantation. One month after transplantation, an acute rejection episode was treated with methylprednisolone pulses with a good response. However the patient rapidly presented with diarrhea, poor feeding and weight loss. Fever occurred 1 week later and lasted for 3 weeks without evidence of inflammation but severe anemia and leukopenia. Post-transplant lymphoproliferative disorder was ruled out.

RESULTS: HHV6 was the only pathogen detected from PCR in both the serum and marrow aspiration. A transient increase in immunosuppressive drug dosage lead to successful recovery without recurrent rejection episode.

CONCLUSION: In the early post transplant period, HHV6 is the least known herpes virus in children since its prevalence and impact have not yet been estimated. In marrow transplant recipients, it has been associated with graft versus host disease but its potential role on acute kidney rejection has not yet been recognized.
Abstract# 161
A SINGLE CENTER 30 YEARS EXPERIENCE OF KIDNEY TRANSPLANTATIONS IN CHILDREN. Karel Vondrak,1 Jiri Dusek,1 Tomas Seeman,1 Eva Simkova,1 Pavel Dvorak,1 Jaroslav Spatenka,2 Jiri Moravek.3 1Dept. of Pediatrics, University Hospital Prague - Motol, Prague, Czech Republic; 2Transplant Centre, University Hospital Prague - Motol, Prague, Czech Republic; 3Dept. of Pediatric Surgery, University Hospital Prague - Motol, Prague, Czech Republic.

PURPOSE: Kidney transplantation (KTx) is the treatment of choice for children with ESRD. In a presented study data obtained from 189 children who underwent KTx during 30 years were analysed with respect to graft and patient survival. complications.

METHOD: In a retrospective study data obtained from 204 KTx performed between years 1977-2007 have been analysed. 198 Tx were from deceased donors, 6 from living related donors with preemptive, 15 retransplantations. The most common causes for ESRD were congenital kidney anomalies (62%), pyelonephritis and glomerulonephritis (23%). The immunosuppressive treatment chaged during the time:1988-2002 107 children (56,6%) were on triple regimen CyA+Prednisone+Aza; 1998-2007 60 children (31,7%) were on Tac+Prednisone+Aza/MMF. X1, Kaplan-Meier and Fisher’s exact test were used for statistical analysis.

RESULTS: In the CyA and Tac based immunosuppression groups the 5-year patient survival was comparable (93 and 95%), 10-year survival in CyA group was 92,6%, 1- and 5-year graft survival in CyA group was 87 resp. 67%, in Tac group 92 resp. 84% and reached statistical singificance. During the first 6 postTx months at least one rejection episode appeared in Tac group in 25% pat. and was statistically less often compared to CyA group with 53% (p=0,001). Significant difference was found in the incidence of corticosteroid resistant rejections (p=0,004) as well as in delayed graft function (p=0,01). The most common complication was hypertension in 87% pat. - more often in CyA group (p=0,09), infections in 85% pat. (n.s.). Diabetes and malignancies were rare (1-3%) without significant difference.

CONCLUSION: In our single center cohort of 189 kidney Tx children was in Tacrolimus based regimen significantly better graft survival and lower incidence of acute and corticosteroid resistant rejections compared to CyA based regimen. The patient survival was comparable. Safety profile was similar.

Abstract# 162
EXTRA-PYRAMIDAL NEUROTOXICITY IN A CHILD RECEIVING TACROLIMUS (FK 506) THERAPY. Abbas A. AlAbbad,1 Ibrahim A. Alhassoun,1 Eva Simkova,1 Pavel Dvorak,1 Jaroslav Spatenka,1 Jiri Moravek.1 1Department of Pediatrics, University Hospital Prague - Motol, Prague, Czech Republic; 2Department of Pediatric Surgery, University Hospital Prague - Motol, Prague, Czech Republic.

PURPOSE: Tacrolimus (FK 506) is a potent immunosuppressive agent used for renal and liver transplantation. Its incidence and time course of occurrence are known. However, to the best of our knowledge, extrapyramidal neurotoxicity (EN) is described only in association with Myasthenia gravis. A rare case of extrapyramidal neurotoxicity in a child receiving FK 506 therapy is described.

METHOD: A 7-year old male child was transplanted with a kidney from his deceased father. He presented with severe cordonal rejection that was treated with high dose methylprednisolone, plasmapheresis and daclizumab. Renal function improved to a creatinine of 41 umol/L. Electrolytes, calcium and magnesium were normal. He was kept on FK 506, CellCept and alternate day prednisone as maintenance immunosuppression drugs. FK toxicity was not observed.

RESULTS: 8 months after transplant, he was referred due to extrapyramidal symptoms. Brain MRI showed a small right cerebellar hemisphere atrophy which was not present on a previous MRI. A CT myelography of the lumbar spine was normal.

CONCLUSION: The occurrence of extrapyramidal neurotoxicity in a child receiving FK 506 therapy is described. The potential mechanisms for extrapyramidal neurotoxicity are discussed.

Abstract# 163
TODAY'S PEDIATRIC KIDNEY TRANSPLANTATION IN KOREA: CLINICAL OUTCOME STUDY OF A SINGLE CENTER. So Hee Lee,1 Hyun Jin Choi,1 Jong Won Ha,2 Il Soo Ha,3 Sang Joon Kim,1 Yong Choi,1 Hee Gyung Kang.1 1Pediatrics, Seoul National University Children’s Hospital, Seoul, Korea; 2Surgery, Seoul National University College of Medicine, Seoul, Korea.

PURPOSE: Kidney transplant (KT) is the ideal modality of renal replacement, especially for children. Recently the outcome of kidney transplantation has improved markedly, thus the authors reviewed pediatric cases of KT at our institution to assess today’s clinical outcome of pediatric KT in Korea.

METHOD: Medical records of 204 cases of pediatric KT between October 1979 and June 2004 were reviewed retrospectively. To assess clinical outcome of pediatric KT of recent 10 years, 136 cases since 1994 (< 4 years of follow-up) were analyzed in comparison with previous cases.

RESULTS: Of the 136 cases (M:F 89:57) of pediatric KT since 1994, ninety grafts were from living related donors and 46 were from cadaver donors. Etiologies of renal failure of recipients were glomerulonephropathy (57), reflux nephropathy (28), cystic renal disease / renal dysplasia (16) and others. For most of the cases, triple therapy of glucocorticosteroid, calcineurin inhibitor, and azathioprine or mycophenolate was used for immunosuppression. Forty six episodes of acute rejection were documented pathologically in 39 patients. Graft survival rates at 1, 5, and 10 years of cases since vs. after 1994 were 95.9% vs. 92.6%, 86.4% vs. 68.5%, 66.2% vs. 51.1%, respectively. Until now, three patients expired due to non-renal problem with functioning kidneys and 31 grafts were lost in survived recipients. The causes of graft loss were chronic allograft nephropathy in 19, recurrence of underlying renal disease in 7, renal vessel thrombosis in 3, acute rejection in 1, and acute tubulointerstitial necrosis in another. Long-term survival of allograft donated from living donors was significantly higher than that of cadaveric donors, and age of recipient (less than 5 years vs. above 5 years of age) did not affect graft survival.

CONCLUSION: Recent improvement of KT outcome was documented in pediatric KT of Korea as expected. Clinical outcome of pediatric KT in Korea was not different from those reported in other countries.
METHOD: Since Nov.2003 till May 2007 15 kidney transplants were performed in children aged from 7 months to 5 years (3.1±1.7 years). All Tx were first and from LRD. In all recipients native bilateral nephrectomy (at the time of transplantation). All transplants were extraperitoneal.

Abstract# 167

KIDNEY TRANSPLANTATION IN RECIPIENTS YOUNGER THAN 5 YEARS.

Michael M. Kaabuk, Nadezda N. Babenko, Alan K. Zokoyev.
Russian Scientific Center of Surgery RAMS, Moscow, Russian Federation.

PURPOSE: When ESRD is established, the results of kidney Tx in children are as better as earlier the operation is performed.

METHOD: Since Nov.2003 till May 2007 15 kidney transplants were performed in children aged from 7 months to 5 years (3.1±1.7 years). All Tx were first and from LRD. In all recipients native bilateral nephrectomy (at the time of transplantation). All transplants were extraperitoneally.

Table 1. Demography of transplanted patients.

<table>
<thead>
<tr>
<th>Age at Tx</th>
<th>0 – 1,5 years</th>
<th>1,5 – 3 years</th>
<th>3 – 5 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>N of patients</td>
<td>3</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Diagnosis</td>
<td>DMS 1, dysplasia 2</td>
<td>nephrotic</td>
<td>7, HUS 1, DMS 1, FSOS 4, Unknown 1</td>
</tr>
<tr>
<td>Duration of dialysis (months) (Mm)</td>
<td>2,9±3</td>
<td>10,7±8,8</td>
<td>13,3±13,6</td>
</tr>
<tr>
<td>Age at start of dialysis, years (Mm)</td>
<td>0,7±0,6*</td>
<td>1,2±1,1</td>
<td>4,2±1,1</td>
</tr>
<tr>
<td>Follow-up postTx, Mm, (min - max)</td>
<td>327,476 (44 – 867)</td>
<td>363,146 (90-842)</td>
<td>336,215 (36-643)</td>
</tr>
<tr>
<td>Height at Tx, cm (Mm)</td>
<td>84,7±8,9</td>
<td>86,0±10,7</td>
<td>91,2±12</td>
</tr>
<tr>
<td>Weight at Tx, kg (Mm)</td>
<td>11,1±3,4</td>
<td>11,5±3,7</td>
<td>13,7±4,4</td>
</tr>
<tr>
<td>Donor age, years (Mm)</td>
<td>30,5±8,1</td>
<td>33,1±8,4</td>
<td>32,8±10,2</td>
</tr>
</tbody>
</table>

RESULTS: Two patients died from the reasons not linked to graft function –. Both patients maintained on dialysis 24 and 13 months. All grafts in surviving patients have a good function at the moment.

Abstract# 168

MIGHT THE CARDIOVASCULAR CHANGES BE CRITERIA IN INITIATING RENAL REPLACEMENT THERAPY WITH CHRONIC RENAL FAILURE PATIENTS CARRYING eNOS GENE POLYMORPHISM? Orhan Deniz Kara, Betul Sozeri, Fatma Mutlubas, Sevgi Mir, Afig Berdeli.

Pediatric Nephrology Department, Ege University Faculty of Medicine, Izmir, Turkey.

PURPOSE: We aimed to compared functional and morphological changes in cardiovascular system between patients who carrying e-NOS gene polymorphism with chronic renal failure and control group.

METHOD: The functional changes were defined with Aortic stiffness. The morphologic changes were defined with carotis intima media thickness and left ventricule hypertrophy. The e-NOS gene polymorphisms (G984-T) were genotyped by PCR-RFLP method.

RESULTS: 56 patients and 29 healthy controls were included. The mean age was 13,3±3,5 years. Seventeen patients on predialysis (PreD), 10 on peritoneal dialysis (PD), 17 on hemodialysis, 12 after renal transplantation (Tx) were studied. The functional and morphological changes were found to be increased in PreD group than dialysis groups as in Tx group.

CONCLUSION: We showed that e-NOS gene polymorphism is predisposition to CVC in patients with CRF. We determined that functional and morphological changes in PreD group were decreased with dialysis therapy. Also, we showed that patients in Tx group had higher CVC. Consequently, before morphologic changes consist in predialysis period the decision of dialysis and transplantation therapies should be carried out.

Abstract# 169

AMBULATORY BLOOD PRESSURE MONITORING AFTER RENAL PEDIATRIC TRANSPLANTATION IN CHILE.

Marlene E. Aglyon,1 Maria S. Paredo,1 Andrea L. Vogel,1 Jaime R. Cerda,1 Viviana P.2 Pediatrics, Pontifica Universida Catolica de Chile, Santiago, Chile.

PURPOSE: Arterial hypertension (AH) is frequent in children with renal transplantation and a known risk factor for cardiovascular end-organ damage. The aim of this study was to evaluate the hypertensive state in renal transplant recipients with casual blood pressure (CBP) measurement and ambulatory blood pressure monitoring (ABPM).

METHOD: Cross-sectional study of 10 children (7 males) attending the renal clinic in our institution. CBP was measured with oscillometric technique (Dinamap) and ABPM with Spaces 90217.

RESULTS: All transplant recipients had stable renal function and 4 non-nephrotic proteinuria. Nine patients were eutrophic and 1 overweight. Patient data and immunosuppressive therapy are detailed.

Abstract# 166

PLASMAPHERESIS AND RITUXIMAB FOR RECURRENT POSTTRANSPLANT FOCAL SEGMENTAL GLOMERULOSCLEROSIS. A CASE REPORT.

Viola M. Pinto, Paulina C. Salas, Pedro Zambrano, Jean Grandy, Begoñia C. Corta, Ignacio Salgado, Rene Reyes.

Pediatic Nephrology, Exequiel Gonzalez Cortes Hospital, Santiago, Chile; Pediatric Nephrology, Exequiel Gonzalez Cortes Hospital, Santiago, Chile; Pediatric Nephrology Department, Ege University Faculty of Medicine, Izmir, Turkey.

PURPOSE: Recurrence of proteinuria after renal transplant is observed in 30% of Focal segmental glomerulosclerosis (FSGS). A circulating permeability factor has suspected to play a role in the recurrence of FSGS, and supported by the effectiveness of plasmapheresis (PP) on decreasing proteinuria. Successful treatment with rituximab, a chimeric anti-CD20 monoclonal antibody has been reported.

METHOD: We report the experience with a 3 year old patient with early recurrent FSGS dependent on plasmapheresis who received rituximab.

RESULTS: A 3 year old boy with FSGS, negative podocin mutation, underwent a first cadaver donor renal transplant. Immunosuppression with anti-thymocyte globulin, prednisolone, enicrine-coated mycophenolic sodium and tacrolimus. Experienced delayed graft function which required four hemodialysis sessions. Proteinuria recurred Day 1 post transplant, protein/creatinine ratio (p/c) 68.9, thus started PP at posttransplant Day 1, for 20 alternating days sessions. Nephrotic proteinuria persisted, rituximab was given at 375mg/m², weekly for 4 weeks. P/c ratio during this period the decision of dialysis and transplantation therapies should be carried out.

CONCLUSION: Remission of proteinuria was induced by the association of PP and rituximab. The optimal therapeutic approach to treat and prevent the recurrence needs controlled trials.
improves soon after KT. In this cross-sectional study, anemia is evaluated in kidney end stage kidney disease. Anemia which is very common in pre-transplanted children.

Kidney transplantation (KT) is the preferred modality of treatment in transplanted children. Thus, there is an urgent need to randomized and controlled studies with a higher number of patients.

RESULTS: There is no firmly established treatment and between 30-65% of patients with this diagnosis are reported to lose their graft within one year of diagnosis. A number of antiviral agents have been tried to help to reduce BK viral replication. However, no antiviral drug with leflunamide can be used together with a reduction in immunosuppression, the clinical effectiveness of these treatment strategies is quite questionable.

METHOD: leflunamide is no antiviral drug with use of patients. However, no antiviral drug with effectiveness of these treatment strategies is quite questionable.

PURPOSE: BK virus nephropathy in two pediatric renal transplant patients. Umut Selda Buyaraki, Esra Baskin, Esra Baskin, Anam Farah, 3 Mandisa Sebati, 4 Omer Ceyhan, 5 Bora Basaran, 6 Melih Haberal. 7 Pediatric Nephrology, Baskent University, Ankara, Turkey; 7 Pathology, Baskent University, Ankara, Turkey; 7 General Surgery, Baskent University, Ankara, Turkey.

PURPOSE: Viral nephropathies, particularly those caused by polyomaviruses of the BK-virus strain are serious complications following renal transplantation. To date, there is no firmly established treatment and between 30-65% of patients with this diagnosis are reported to lose their graft within one year of diagnosis. A number of antiviral agents have been tried to help to reduce BK viral replication. However, no antiviral drug with proven efficacy against the BK virus has been licensed yet. Though cidofovir and leflunamide can be used together with a reduction in immunosuppression, the clinical effectiveness of these treatment strategies is quite questionable.

METHOD: Here we present two patients with polyoma virus infection. Both of them have received renal transplantation from cadaveric donors. RESULTS: Although their graft function was well immediately after the transplantation, their serum creatinine level found to be increased during the 3rd months of follow-up. Renal biopsy and serologic studies revealed findings consistent with polyoma virus infection. Immunossuppressive treatment was reduced in both patients and they were treated with cidofovir, leflunamide and cyprofoflaxin. However, patient's renal functions did not respond to any treatment strategies and they both have lost their graft during follow-up.

CONCLUSION: After more than a decade, BK virus nephropathy remains a significant post transplant challenge. However, still there is a lack of adequate randomized controlled studies and no consensus view regarding appropriate antiviral therapy. Both cidofovir and leflunamide seem to have no effect on the prognosis of the BK nephropathy in our cases. Thus, there is an urgent need to randomized and controlled studies with a higher number of patients.

Abstract# 171 EVALUATION OF ANEMIA FOLLOWING KIDNEY TRANSPLANTATION IN CHILDREN. Mohammad Hossein Fallahzadeh, 1 Ali Derakshsh, 1 Mohammad Kazem Fallahzadeh, 2 Mitra Basiratnia, 2 S.A. Malekhosseini. 2 Shiraz Nephrology Research Laboratory, Shiraz, Islamic Republic of Iran; 2 Shiraz Transplantation Center, Shiraz, Islamic Republic of Iran.

PURPOSE: Kidney transplantation (KT) is the preferred modality of treatment in end stage kidney disease. Anemia which is very common in pre-transplanted children improves soon after KT. In this cross-sectional study, anemia is evaluated in kidney transplanted children.

METHOD: The latest hematologic data including hemoglobin (Hb), mean corpuscular volume (MCV) and mean corpuscular hemoglobin (MCH) of all children with KT who were under follow-up of pediatric nephrologists in Shiraz for months to 15 years (mean=59±23.9 months) was gathered during their last visit. SPSS15.1 software was used for Statistical analysis.

RESULTS: Of two hundred and sixteen children ≤19 years at the time of transplantation, 138 patients were followed by pediatric nephrologists in Shiraz and included in this study. One hundred and thirteen (81.8%) had functioning grafts and serum creatinine was ≤1.5 mg/dl in 88 patients (67.7%). The mean age at transplantation time was 13.6±3.5 years with age range of 3 to 19 years. The male to female ratio was 1.33. Their primary renal diseases were reflux-obstruction dysplasia (42%), hereditary-metabolic diseases (34%), glomerular diseases (19%), stone (1.5%) and unknown (5.5%). The kidney donors were deceased (47.8%), related (36.9%) with 80.3% parents, and unrelated (15.2%). Mean Hb level was 11.7±2.5gm/dl (range 7-18.6gm/dl) at 12 patients. In those with serum creatinine ≥1.5 mg/dl mean Hb level was 12.6±1.97gm/dl, while 15 patients (17%) including 11 boys and 4 girls had Hb ≤11gm/dl (range 7-10.9gm/dl), and two of them were known case of thalassemia minor. MCV ranged from 61 to 108 with mean of 84 (SD:8.5). MCV was less than 80 in 22 patients (16 had also Hb levels less than 11). Mean MCH was 27.6±6.4 (range 19-35).

CONCLUSION: After successful kidney transplantation, Hb level rose dramatically in majority of the patients, however, some were found to have unexplained anemia.

Abstract# 172 RENAL TRANSPLANTATION IN PATIENTS WITH CYSTINOSIS. Mostafa Sharifian, Reza Dalirani, Fatemeh Moshari, Hassan Otukesh, Nasrin Esfandiar, Abbas Basiri, Naser Simforoush. Pediatric Nephrology, Shaheed Beheshti Medical University, Tehran, Islamic Republic of Iran; Pediatric Nephrology, Shaheed Beheshti Medical University, Tehran, Islamic Republic of Iran; Pediatric Nephrology, Tehran, Islamic Republic of Iran.

PURPOSE: The aim of this study was to evaluate the outcome and complications of renal transplantation in patients with cystinosis.

METHOD: Between years 1996-2006 all patients with renal failure due to cystinosis who received renal transplantation, were followed for 43±1/1 months. Diagnosis was made by clinical manifestations and detection of corneal cystine crystals in these patients by slit lamp. Before operation, all patients were examined to determine if they are appropriate candidate for renal transplantation and after operation DPTA scan was performed to evaluate graft function and in later follow up necessary lab tests were done. In the presence of rejection symptoms such as fever and a rise in creatinine, graft rejection was confirmed by DPTA scan and sonography of transplanted kidney. All patients received triple immunossuppressive therapy including cyclosporine, prednisolone and mycophenolate mofetil (Cellcept).

RESULTS: Fifteen patients with cystinosis, received renal transplantation between years 1996-2006, in Labafinejad Hospital. Patient survival was %100 and 4 years and graft survival was %86.7. Mean creatinine level before operation was 5.44 ± 2.58 and post operation was 0.86 ± 1.03. Six (%40) patients were on dialysis before operation, 5 patients (%33) had acute rejection and 5 patients (%33) suffered from UTI. Patient survival was %100 and 4 years and graft survival was %86.7. Mean creatinine level before operation was 5.44 ± 2.58 and post operation was 0.86 ± 1.03. Six (%40) patients were on dialysis before operation, 5 patients (%33) had acute rejection and 5 patients (%33) suffered from UTI. Growth retardation was seen in all of patients. Fourteen patients (%86) were affected by CMV infection and 6 (%40) by CMV disease; that were treated successfully by Ganciclovir for 2 weeks.

CONCLUSION: Renal transplantation in patients with cystinosis has favorable outcome. In spite of growth retardation patients have effective graft function and long term survival.

Abstract# 173 PEDIATRIC RENAL IMMUNOSUPPRESSIVE REGIME: COMPARISION OF TWO DIFFERENT REGIMES OF IMMUNOSUPPRESSION IN ONE CENTER. Regina Helena L.L. Novais,1 Deise B.M. Carvalho,1 Tereza Matuck,1 Alvaro Modesto,1 Alberto Zagury,1 Carlos Augusto P. Moraes,1 Jose Augusto Montalvao,1 Vinicius Sa.1 Nephrology, Hospital Geral de Bonsucor, Rio de Janeiro, Brazil.

PURPOSE: Outcomes of transplantation have improved since the 1960s and much of this has been attributed to the introduction of calcineurin inhibitors (CNIs). Because of these new immunosuppressive drugs various protocols for kidney transplantation have been proposal. In our center the immunosuppressive regime used from 1987 till 1997 was azathioprin, cyclosporine and prednisone. And from 1998 to 2008 we change to mycophenolate mofetil, tacrolimus and prednisone and induction with basiliximab. This study will compare the graft survival on two regimes of immunosuppression used in our center in pediatric recipients.

METHOD: This is a retrospective study comparing the graft survival of all the pediatric renal transplants performed in our center. Number of transplants: 104 Group 1 n = 47: azathioprin, cyclosporine and prednisone. Living donors: 34 cadaveric donors: 13 Group 2 n = 57: mycophenolate mofetil, tacrolimus and prednisone Living donors: 37 cadaveric donors: 20

RESULTS: As we can see on graphic 1 the graft survival was statistically better on group 2, compared with group1.
Abstract# 174  
HEMOLYTIC ANEMIA ASSOCIATED WITH THE USE OF TRACROLIMUS IN A RENAL TRANSPLANT RECIPIENT. Regina Helena L.L. Novaes,1 Deise B.M. Carvalho,1 Tereza Matuck,1 Alvaro Modesto,1 Alberto Zagury,1 Carlos Augusto P. Moraes,1 Jose Augusto Montalvao,3 Vinicius M. Sa,1 1Nephrology, Hospital Geral do Bonsucesso, Rio de Janeiro, Brazil.  
PURPOSE: Hemolytic anemia after transplantation is often associated with hemolytic-uremic syndrome and the use of cyclosporine and tacrolimus.  
METHOD: We report a case of hemolytic anemia, without microangiopathy and thrombocytopenia.  
RESULTS: Case: An 8 years old boy, 90 days after renal transplantation (cadaver donor) came to the hospital and complained about tiredness and pale. One week before his hemogram presented a hematocrit of 30.8% and hemoglobin 10,2 g/dl. At admission the hematocrit was 18,8%, hemoglobin 6,2 g/dl and normal platelets. Clinically there was no sign of bleeding, no fever and no infections symptoms. The existence of severe anemia, hyperbilirubinemia (indirect), increased serum lactate dehydrogenase levels, reticulocytosis and presence of good graft function suggested a hemolytic anemia. Peripheric blood lamina didn’t show microangiopathy. It was necessarily 3 blood transfusions during the hospitalization because the fall of the hematocrit to critic levels. Study of hemoglobinopathies, glucose-6-phosphate dehydrogenase (G6PD) deficiency were negative. Coombs direct test was negative too. Reports of hemolytic anemia associated with tacrolimus are rare, but we decided to change the immunosuppressive regime. Tacrolimus was withdrawn and sirolimus was introduced. The Hematocrit and Hemoglobin became stable after withdraw tacrolimus and the patient recover the levels of Hb he had before the hospitalization. The graft function was normal during all time.  
CONCLUSION: Hemolytic-uremic syndrome is always associated with the use of calcineurin inhibitor like cyclosporine and tacrolimus. Hemolytic anemia is uncommon and immune-mediated hemolytic anemia has been reported in some cases. We report a case of hemolytic anemia that was associated with the use of tacrolimus, and when it was withdraw the hemolysis was controlled and the patient recovers his levels of Hemoglobin and hematocrit.
CONCLUSION: Better outcomes for renal transplantation in children may be obtained by strict adherence to precise surgical techniques, better immunosuppressive management, and early diagnosis and effective treatment of complications.

Abstract# 178

NPHRITIC-NEPHROSYNDROME AS A PRESENTATION OF BK VIRUS INFECTION. Nima Derakhshan,1 Ali Derakhshan,1 Dorna Derakhshan.1 Shiraz University of Medical Sciences, Shiraz Nephro-Urology Research Center, Shiraz, Islamic Republic of Iran.

PURPOSE: Nephrotic syndrome as an unusual manifestation for BK virus allograft nephropathy.

CASE REPORT: Here we report a 12 year old boy a case of end stage renal disease due to nephronophthisis who was transplanted from a 16 years old cadaver and after an 18 month of uneventful transplantation on triple immunosuppressive therapy (MMF, corticosteroid and azathioprine) presented with nephrotic feature(edema, heavy proteinuria, hyperalbuninemia and hyperlipidemia).

Reduction of immunosuppressive dose and IVIG (high dose intravenous immunoglobulin) administration was ineffective and he had progressive loss of graft function and became dialysis-dependent within 3 weeks.

RESULTS: Kidney biopsy revealed edematous interstitial with marked mononuclear infiltration and tubular cells containing typical viral intranuclear hyperchromatic inclusions in favor of BK virus.

CONCLUSION: BK virus allograft nephropathy can rarely manifest as Nephritic-Nephrotic Syndrome.

Abstract# 179

DELAYED GRAFT FUNCTION IN CHILDREN UNDER KIDNEY TRANSPLANTATION. (A REPORT FROM A NEW FOUNDED CENTER IN ISFAHAN/IRAN). Alaleh Gheissari, Afshin Azhir, Alireza Meriki, Sharareh Fadace. Pediatric Nephrology, IUMS, Isfahan, Islamic Republic of Iran; Pediatric Nephrology, IUMS, Isfahan, Islamic Republic of Iran; Pediatric Nephrology, IUMS, Isfahan, Islamic Republic of Iran; Transplantation, IUMS, Isfahan, Islamic Republic of Iran.

PURPOSE: Kidney transplantation is the best and the final solution for ESRD children. Owing to the fact that we need to improve our transplanted centers, we evaluated the frequency of delayed and slow graft function (DGF &SGF respectively) , and the final short term outcome of kidney transplanted children in a new established center in Isfahan, Iran.

METHOD: The data of 24 children under 18 years, whom were kidney transplanted from February 2002-September 2008 were collected from their hospital files. A phone call was made for each patient to confirm demographic data.

RESULTS: Thirteen patients (54.2%) were male and 11 patients (45.8%) were female. The mean age was 14.16±2.72 years. FSIG was the most frequent cause of ESRD followed by renal hypodysplasia and SLE. The mean duration of dialysis before transplantation was 19.95±18.82 months. Eighteen kidneys(75%) were extracted from living donors (mostly unrelated)and 25% from cadavers. About 45% of patients experienced some degrees of delayed graft function mostly due to ATN followed by acute humoral rejection. Five of them had slow graft function (starting kidney function in less than 7 days) and 4 patients had delayed graft function. Three patients had no graft function leading to nephrectomy. Only one of the nephrectomized kidneys was donated to a girl with SLE from cadaver and the etiology of DGF was renal vein thrombosis. Two kidneys were nephrectomized due to technical problems. Kidney function of all patients with DGF or SGF improved in a mean time of 3.66±1.1 days. The final glomerular filtration rate of these patients was 88.54±6.83 ml/min/1.73 m².

CONCLUSION: Assessment of kidney transplanted patients is a main part of evaluating transplanted centers. It seems that a further revision of transplantation protocol and fluid therapy during surgery should be done.

Abstract# 180

PEDIATRIC KIDNEY TRANSPLANTATION EXPERIENCE IN THREE DIFFERENT CENTERS. Sevgi Sahin,1 Alp Gurkan,1 Serdar H. Kacar,2 Cezmi Karaca,3 Dorna Derakhshan.1 Shiraz University of Medical Sciences, Shiraz Nephro-Urology Research Center, Shiraz, Islamic Republic of Iran; Pediatric Nephrology, IUMS, Isfahan, Islamic Republic of Iran; Pediatric Nephrology, IUMS, Isfahan, Islamic Republic of Iran; Transplantation, IUMS, Isfahan, Islamic Republic of Iran.

PURPOSE: To report our pediatric transplant results with regard to small number of patients, kidney transplantation should keep in mind as a first renal replacement modality for this group.

CONCLUSION: Although our pediatric transplant results were inferior than the adults' with regarding to small number of patients, kidney transplantation should keep in mind as a first renal replacement modality for this group.

Abstract# 181

HEPATORENAL TRANSPLANTATION AS A CURATIVE TREATMENT IN PRIMARY HYPEROXALURIA. Agata Vazquez,1 Zaira Ibarz,1 Enrique Lara,1 Ramon Vilalta,1 Jose Nieto,1 Servicio Nefrologia Pediatrica, Hospital Universitari Vall d’Hebron, Barcelona, Spain.

PURPOSE: Primary Hyperoxaluria (PHI) is a rare genetic (inherited) disorder caused by the deficiency of a liver enzyme. Patients typically present kidney stones, that might lead them to the end-stage renal failure, usually in childhood. Oxalosis is the infiltration of major organs that occurs after the kidneys fail and oxalate builds up in blood. In absence of enzymatic function, liver-kidney transplantation is often required for definitive cure.

METHOD: We report two patients with primary hyperoxalurias and their follow up after hepatorenal transplantation.

RESULTS: Patient features

<table>
<thead>
<tr>
<th>Sex</th>
<th>Male</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age of diagnosis</td>
<td>7 years</td>
<td>6 years</td>
</tr>
<tr>
<td>Urinary oxalate (N=3-50 mol/ mmolCr)</td>
<td>750 mol/ mmol Cr</td>
<td>620 mol/ mmol Cr</td>
</tr>
<tr>
<td>Nephrolithiasis/Nephrocacinosis</td>
<td>Yes/Yes</td>
<td>Yes/Yes</td>
</tr>
<tr>
<td>GFR (ml/min/1.73m²)</td>
<td>&lt; 10</td>
<td>Acute renal failure</td>
</tr>
<tr>
<td>Treatment</td>
<td>Haemodialysis</td>
<td>Haemodialysis/Lithotripsy</td>
</tr>
<tr>
<td>Enzyme defect/Activity</td>
<td>AGA/Abcent</td>
<td>AGA/Abcent</td>
</tr>
<tr>
<td>Age Hepatorenal transplantation</td>
<td>9 years</td>
<td>7 years</td>
</tr>
<tr>
<td>Follow up</td>
<td>8 years</td>
<td>5 years</td>
</tr>
<tr>
<td>Urinary oxalate / glycolate</td>
<td>62/44</td>
<td>33/10</td>
</tr>
<tr>
<td>GFR (ml/min/1.73m²)</td>
<td>64</td>
<td>62</td>
</tr>
</tbody>
</table>

Nowadays both patients have normal liver function and are asymptomatic.

CONCLUSION: The prognosis of primary hyperoxalurias (with absent enzymatic activity) depends on early treatment and management of hyperoxaluria and associated renal deterioration. In this situation, combined liver-renal transplantation is necessary for cure and should be performed as early as possible to achieve the outcome and avoid oxalosis.

Abstract# 182

BILATERAL FIBROADENOMA OF BREAST IN RENAL TRANSPLANTATION PATIENT USING IMMUNSUPRESSIF TREATMENT OF CYCLOPSORIN. Ebru Yilmaz,1 Sevgi Mir,1 Ipak Kaplan Bulut,1 Ahmet Keskinoglu.1 Pediatric Nephrology, Ege University, Izmir, Bornova, Turkey.

PURPOSE: Effects of immunosuppressif treatment especially cyclopsorin A on development of benign and malign breast lesion is still a subject of debate.

METHOD: Breast fibroadenomas are the most common solid lesions found in young women but bilateral fibroadenoma development is very rare. We report on patient who underwent renal transplantation and developed bilateral fibroadenomas while on cyclosporine (CsA).

RESULTS: Case: 19-year-old female had living related renal transplantation because of ESRD as a result of vesicoureteral reflux was under the triple immunsupressif treatment of prednisolone, mycophenolic acid, cyclosporin A. Cyclosporin dosage was arranged in between 150-200 mg/day according to serum level of cyclosorin and renal function. There were no cyclosporin side effects in patient as hirsutism and gingival hyperthrophy. Her menstrual cycles were regular. In follow up period at thenth month after the renal transplantation she had an ultrasound of breast because the bilateral palpable mass. It revealed bilateral mammary fibroadenoma (17x10 mm mass on left inner lower quadrant, 8 mm on right lower outer quadrant). Although her serum estradiol and progesteron levels were normal, prolactin level was borderline high. Her endocrinological examination was revealed no pathology. Her right mammari
lesions were surgically excised and pathological examination of the specimens revealed fibroblastoma. Her immunosuppressive treatment was modified according serum cyclosporin levels and renal function and decided to switch immunosuppressiv treatment if change in old mass size or development of new mass occurs. In her ninth month follow up there was no any new mass and a change was observed in size of left mammary mass.

CONCLUSION: Its reported for the improvement of knowledge of association of cyclosporin and breast lesions and to remind it again. We should remember the risk of fibroblastoma development in patients using cyclosporin as an immunosuppressive treatment and patients with benign mammogram masses must be followed up carefully.

Abstract# 183
6 YEAR EXPERIENCE IN PEDIATRIC KIDNEY TRANSPLANT IN UAE (UNITED ARAB EMIRATES). Mohsien A. Farreed, Arthur G. Clark, Omar Almasri, Ihsan El Shihabi. Pediatric Nephrology Division, Sheikh Khalifa Medical City, Abu Dhabi, United Arab Emirates.

PURPOSE: Comparing the outcome of pediatric kidney transplant in UAE to international outcomes.

METHOD: Retrospective review of 26 children who required living none related kidney transplant outside UAE and followed up at Sheikh Khalifa Medical City (SKMC), Pediatric Nephrology Division, Abu Dhabi, UAE. From January 2002 to January 2008; within two weeks post-transplantation.

RESULTS: Total number of patients 26. 14 males and 12 females.

Age of transplant between 4-12 years

Cause of ESRD: 2 - Obstructive uropathy, 9 - Hypoplastic kidneys, 3 - FSOS, 4 - Congenital Nephrotic Syndrome, 5 - ARPKD, 6 - Cystinosis, 7 - HUS, 8 - Others.

Induction Therapy = 16; No information = 10.

Protocol: Tacrolimus + Mycophenolate + prednisone. Weaning off steroids at two year post-kidney transplant.

Acute rejections = 2 patients.

First year graft survival = 100%.

Five year graft survival = 93%.

Five year patient survival rate 100%

Graft loss: one due to CMV infection and two lost due to none compliance with immunosuppressive therapy.

CONCLUSION: 1- Causes of ESRD in UAE children are similar to NAPRTCS (The North American Pediatric Renal Trials and Collaborative Studies)

2- The one year and five year graft survival rate is similar, if not better, to NAPRTCS results

3- The classic combination of Tacrolimus + Mycophenolate + steroids is still the preferred therapy in pediatric kidney transplantation.

4- Weaning off steroids at two year post-transplant has no adverse effect on the five year graft survival rate.

Abstract# 184
PRELIMINARY EXPERIENCE WITH GENERIC TACROLIMUS (T-INMUN) IN PEDIATRIC RENAL TRANSPLANT RECIPIENTS IN CHILE. Maria S. Peredo,1 Marlene E. Aglon,1 Andrea L. Vogel,1 Viviana P. Perez,1, 2Pediatric Nephrology, Pontificia Universidad Católica de Chile, Santiago, Chile.

PURPOSE: Tacrolimus has long been used for prevention and treatment of acute rejection episodes in solid organ transplantation. Its efficacy and safety in children has been proved. We report our experience in pediatric renal transplantation using a generic formulation (T-Inmmun).

METHOD: Report of the outcome of 3 patients receiving T-Inmun as part of their immunosuppressive therapy for renal transplantation.

RESULTS: Three patients are reported (2 males), age range between 14 and 19 years.

Induction Therapy = 16; No information = 10.

Protocol: Tacrolimus + Mycophenolate + prednisone. Weaning off steroids at two year post-kidney transplant.

Immunosuppressive therapy

<table>
<thead>
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<th>Patient ID</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary renal disease</td>
<td>FSGS</td>
<td>Alport</td>
<td>Unknown</td>
</tr>
<tr>
<td>Donor source</td>
<td>LD</td>
<td>LD</td>
<td>CD</td>
</tr>
<tr>
<td>Time since transplant (mo)</td>
<td>16</td>
<td>25</td>
<td>29</td>
</tr>
<tr>
<td>Immunosuppressive therapy</td>
<td>Ti-Sep-Pred</td>
<td>Ti-MMP-Pred</td>
<td>Ti-MMP-Pred</td>
</tr>
<tr>
<td>Estimated creatinine (ml/min/1.73m²)</td>
<td>114</td>
<td>104</td>
<td>81</td>
</tr>
<tr>
<td>T1 Plasma levels (µg/mL)</td>
<td>1.8</td>
<td>7.1</td>
<td>9.4</td>
</tr>
<tr>
<td>T1 Dosis (mg/kg)</td>
<td>0.06</td>
<td>0.16</td>
<td>0.12</td>
</tr>
</tbody>
</table>

LD living donor; CD, cadaveric donor; Ti: T-Inmun; Sir: sirolimus; MMF: mofetil mycophenolate; Pred: prednisone
Abstract# 187

**EPIGONOMIC DIAGNOSIS OF URETHRAL OBSTRUCTION IN MALE CHILDREN: ALBANIAN EXPERIENCE.** Omela Xhango, Rezar Xhepa. Pediatrics, University Hospital Center “NENE TEREZA”, Tirana, Albania. 

**PURPOSE:** Congenital urethral obstruction causes a series of alteration to the urinary tract, including damage of renal parenchyma and smooth muscle of ureter and bladder. Such alteration can persist apart from elimination of primary obstruction, particularly, the posterior urethral valves, an important cause of chronic renal failure. Precocious diagnosis of this congenital abnormality is determinant for the prognosis of renal function. 

**METHOD:** During a period of time of 8 months from November 2000 till June 2001, we realized several diagnostic echographic examinations of urinary tract in infants and children of male gender (age: 1 month-2 yrs), presented in our clinic because of presence of symptomatic urinary tract infections, failure to thrive and/or voiding disorders. In all patients we tried to visualize the urethra during voiding time and with a special attention we studied all of them that presented the following echographic signs: 

| Echostatus abnormalities of bladder partition, as thickening of mucosa (>5mm when filled bladder), or presence of disorders as pseudodiverticulum or parareurethric Hutch diverticulum, increase or decrease of bladder capacity in relation with age. 

**RESULTS:** From all patients with anomalies of excretory ways, 4 of them, presented typical characteristics of urethral obstruction. Their age varied between 2 months and 2 yrs. In the 4 of cases, the children had signs of urinary tract infection, voiding disorders, failure to thrive. In the renal ultrasonography: considerable bilateral hydronephrosis. In the transurethral ultrasonography we saw dilatation of distal portion of ureter with bilateral megaloureter, dilatation of prostatic urethra. In three cases renal function was compromised. 

**CONCLUSION:** By this experience, we may say the ultrasonography of urinary tract performed after the transperineal method described by Dr. M. Bosio we can identify the obstruction of posterior urethra during the voiding time.

Abstract# LB 4

**THIRTY YEARS OF PEDIATRIC RENAL TRANSPLANTATION IN A SINGLE DUTCH CENTRE.** Elisabeth A.M. Cornelissen,1 Nicole C.A.J. Kar van de1,1 Linda Koster-kamphuis,1 Jacqueline Knoll.1 *Pediatric Nephrology, Radboud University Medical Centre, Nijmegen, Netherlands. 

**PURPOSE:** Recently we performed the 250th pediatric renal transplantation in our centre. Between 1977 and 2007 250 renal transplantations were performed in 198 children. 43 were a second transplant, 9 a third. The first living donor transplantation was done in 1979. We experience an increase in living donor transplantations because of shortage of postmortem kidneys, the possibility to avoid dialysis and a better graft survival. What are the results of these 250 transplantations? 

**METHOD:** The data of all 250 transplants were analysed retrospectively. 

**RESULTS:** Mean age of the recipients was 6 years (3.5-15 yrs). 200 (80%) kidneys were cadaveric and 50 (20%) were living kidney, as half were performed in the last 5 years. Of the latter 26 (52%) were without prior dialysis and 44 (88%) with dialysis. Usually the parents are the donor. In total there were 26 preemptive procedures: 2 (8%) cadaveric and 24 (92%) living. In the last 2 years 47% was preemptive. Patient survival is excellent: 96%. Mean survival of all grafts surviving the first months is 11.7 years (range 0-30 yrs). Survival is significantly better in living donors: 13.2 years (median 19, range 0-28 yrs) than in postmortem donors: 11.1 years (median 10, range 0-30 yrs), p=0.03. Over the time 5 year graft survival improves: 1980-1989: 50% (n=61), 1990-1999: 72% (n=99), 2000-2007: 87% (n=65). With induction by IL2 receptor blocker graft survival was better: 90% (n=40) than without: 65% (n=210). Fewer acute rejections occur. Better graft survival: n=65, 2000-2007: 87% (n=65). With induction by IL2 receptor blocker graft survival was better: 90% (n=40) than without: 65% (n=210). Fewer acute rejections occur. Better graft survival. What are the results of these 250 transplantations? 

**CONCLUSION:** By this experience, we may say the ultrasonography of urinary tract performed after the transperineal method described by Dr. M. Bosio we can identify the obstruction of posterior urethra during the voiding time.

Abstract# LB 5

**THE IMPACT OF SIZE MISMATCHED RENAL TRANSPLANTATION ON POSTOPERATIVE HAEMODYNAMIC PARAMETERS IN LOW WEIGHT PEDIATRIC RECIPIENTS.** Paul Goldsmith,1 Daniel Ridgway,2 Sonal Asthana,3 Maggie Fitzpatrick,2 Eric Finley,2 Attila Magdy,1 Pollard Stephen,1 Ahmad Niaz,1 Department of Organ Transplantation, St James’s University Hospital, Leeds, West Yorkshire, United Kingdom; 2Paediatric Nephrology, St James’s University Hospital, Leeds, West Yorkshire, United Kingdom. 

**PURPOSE:** Renal transplant in low weight children conventionally requires a graft well matched to recipient size. Low rate of organ donation from pediatric donors has prompted interest in use of adult sized grafts. Such transplantations are challenging and potentially complicated by graft hypoperfusion. It is imperative that graft perfusion is maintained using adequate intravascular volume and perfusion pressure. This study examined perioperative changes in haemodynamic parameters of recipients of size matched and mismatched renal transplants. 

**METHOD:** All paediatric transplants <20kg were included. Recipients were stratified into 2 groups; high and low donor:recipient weight ratios based on a median value. Primary outcomes were systolic blood pressure at reperfusion, 1 hour post perfusion and on day 1; central venous pressure at reperfusion and 1 hour post perfusion; and recipient body weight on the first 3 post-operative days. Secondary outcomes were volumes of infused fluid and inotropic/vasopressor therapy in the first 2 days. 

**RESULTS:** 23 recipients weighed less than 20kg. 12 patients had low donor:recipient weight ratios and 11 high ratios that the median value (4). 

**CONCLUSION:** Low weight paediatric recipients of renal allografts have comparable postoperative cardiovascular parameters irrespective of graft size. Further requirements for fluid and vasoactive therapy is equivalent to maintain such parameters.

Abstract# LB 6

**DONOR:RECIPIENT SIZE DISCREPANCY IN PAEDIATRIC TRANSPLANTATION – COMPARABLE OUTCOMES USING SIZE MISMATCHED DONORS.** Paul Goldsmith,1 Daniel Ridgway,2 Sonal Asthana,3 Maggie Fitzpatrick,2 Eric Finley,2 Attila Magdy,1 Pollard Stephen,1 Ahmad Niaz,1 Department of Organ Transplantation Unit, St James’s University Hospital, Leeds, West Yorkshire, United Kingdom; 2Paediatric Nephrology, St James’s University Hospital, Leeds, West Yorkshire, United Kingdom. 

**PURPOSE:** Outcomes of paediatric renal transplantation are unfavourable compared to adults. Small children are disadvantaged from lack of donors matched for size. Transplantation of adult kidneys into paediatric recipients is technically difficult and associated with complications such as longer warm ischaemic times, abdominal compartment syndrome and graft hyperperfusion. We studied outcomes in small paediatric recipients of large and small grafts. 

**METHOD:** All paediatric transplants in low-weight recipients (<20kg) were included. Recipients were stratified into two groups comprising ‘high’ and ‘low’ donor:recipient weight ratios based on the median value. Primary outcomes were rates of primary non function(PNF), delayed graft function(DGF), acute rejection(AR) and 1 year graft survival. Secondary outcomes were serum creatinine and body weight. 

**RESULTS:** 23 transplants were performed in recipients <20kg. 12 had low donor:recipient weight ratios and 11 high ratios about the median value (4). There were no significant difference in rates of the primary outcomes; 1 graft was lost at 2 months in the low ratio group. Secondary outcomes [Table 1] were comparable between groups. 

**CONCLUSION:** Donor:recipient weight ratio doesn’t impact on rates of PNF, DGF, AR and 1 year graft survival. Size mismatched grafts from large donors have comparable outcomes to conventional size matched grafts in small paediatric recipients.

**Comparison of groups based on donor:recipient weight ratio**

<table>
<thead>
<tr>
<th>Size:weight ratio&lt;4</th>
<th>Size:weight ratio&gt;4</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creatinine 3 months(µmol/L)</td>
<td>61±14</td>
<td>68±21</td>
</tr>
<tr>
<td>Creatinine 6 months(µmol/L)</td>
<td>61±14</td>
<td>73±19</td>
</tr>
<tr>
<td>Creatinine 12 months(µmol/L)</td>
<td>57±13</td>
<td>76±13</td>
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<tr>
<td>Creatinine 24 months(µmol/L)</td>
<td>52±13</td>
<td>84±33</td>
</tr>
<tr>
<td>Body weight 3 months(kg)</td>
<td>20±5</td>
<td>17±3</td>
</tr>
<tr>
<td>Body weight 6 months(kg)</td>
<td>20±5</td>
<td>17±4</td>
</tr>
<tr>
<td>Body weight 12 months(kg)</td>
<td>22±6</td>
<td>17±4</td>
</tr>
<tr>
<td>Body weight 24 months(kg)</td>
<td>27±8</td>
<td>22±4</td>
</tr>
</tbody>
</table>

(Figs are Means±SD)

Abstract# LB 7

**SUCCESSFUL RENAL RETRANSPLANTATION IN A CHILD WITH CONGENITAL CHLORIDE LOSING DIARRHEA.** Abbas A. Alabbad. 1Pediatrics, King Faisal Specialist Hospital, Riyadh, Saudi Arabia. 

**PURPOSE:** To elucidate the benefit of gastrostomy tube (GT) nocturnal hydration to prevent allograft failure in a very troublesome lifelong congenital chloride losing diarrhea (CLD). 

**METHOD:** In a child with congenital chloride losing diarrhea (CLD) the use of gastrostomy tube (GT) for continuous nocturnal hydration who had a previously failed renal transplant due to recurrent and severe dehydration. In addition, replacement of electrolytes over night and other medications as needed (GT) for prevention of hypokalemic metabolic alkalosis.
RESULTS: Preservation of renal allograft function and prevention of dehydration and recurrence of hypokalemic metabolic alkalosis was very essential to keep the graft in this child well over 32 months as compared to his initial renal allograft which was lost shortly after transplant due to recurrence of dehydration and severe hypokalemic metabolic alkalosis episodes. Serum sodium, potassium, chloride and bicarb were kept in normal ranges all times since the transplant date. He was induced with thymoglobulin and prednisolone and maintained on alternate days prednisone and daily tacrolimus.

CONCLUSION: This case illustrates the success of renal transplant in difficult cases of congenital chloride losing diarrhea. In such disorders, native kidneys are lost due to late diagnosis and inadequate hydration and replacement of the essential electrolytes which are lost in the watery stools to great extents. So the importance of gastrointestinal tube insertion to ensure good hydration and replacing the ongoing wasted electrolytes on continuous bases has resulted in favourable outcome.

Abstract# LB 8 LONG-TERM OUTCOME OF PEDIATRIC RENAL TRANSPLANTATION. Gurkan Telioglu,1 Ibrahim Berber,1 Serdar Demiral,1 Melih Kara,1 Ethem Unal,1 Mustafa Canbakan,1 Mesut I Tiriz.1

METHOD: Demographic data, duration and type of renal replacement therapy prior to renal tx, donor type, complications, immunosuppressive treatment, acute rejection episodes, patient and graft survival were evaluated retrospectively. All data are expressed as medianSEM.

RESULTS: Forty-one pediatric renal tx was performed. Mean age was 147±0.3 years, M/F ratio was 1. Hemodialysis and peritoneal dialysis were performed preoperatively in 32 and 8 patients, respectively. Four patients received cadaveric grafts. Immunosuppressive regimens included cyclosporine (CyA) (n=16) or tacrolimus (FK) (n=20) or sirolimus (n=4), as well as steroids and azathioprine or mycophenolate mofetil. One patient needed retransplantation due to primary nonfunction. Complications were arterial hypertension (n=12), anemia (n=6), urinary tract infection (n=15), hypercholesterolemia (n=8), and cytomegalovirus infection (n=1). An acute rejection episode (ARE) occurred in five patients. ARE rates were increased in sirolimus based immunosuppressive regimens (p=0.05). Posttransplant hypertension rates were similar in all patients. The length of pretransplant dialysis was longer among patients with graft failure (p=0.05). Noncompliance resulted in an ARE in one patient and graft loss in three patients. Two patient died with a functioning graft as result of cardiovascular event. Primary disease remained in one patient. The mean follow-up time was 54 months (range: 6 to 171 months). Mean serum creatinine level at the last follow-up was 1.28±0.09mg/dl. One and 5-year graft and patient survival rates were 90% and 80%, 98% and 98%, respectively. Twenty five patients (62.5%) continued their education after the transplantation, while 6 started working.

CONCLUSION: Renal transplantation in pediatric patient population can achieve excellent results by making them productive individuals. The mainstay of successful outcome is the patient and family compliance as well as intensive posttransplant rehabilitation.

Abstract# LB 11 OUTCOME AFTER RENAL TRANSPLANTATION FOR FOCAL SEGMENTAL GLomerulosclerosis (FSGS) IN CHILDREN. Hamad Al Mojalli,1 Azize Al Shehbat, Essam Al Sabban, Ibrahim Al Hassoun, Abbas Al Abbad.1 Pediatrics, King Faisal Specialist Hospital & Research Centre, Riyadh, Saudi Arabia; 2Pediatrics, King Faisal Specialist Hospital & Research Centre, Riyadh, Saudi Arabia; 3Pediatrics, King Faisal Specialist Hospital & Research Centre, Riyadh, Saudi Arabia; 4Pediatrics, King Faisal Specialist Hospital & Research Centre, Riyadh, Saudi Arabia; 5Pediatrics, King Faisal Specialist Hospital & Research Centre, Riyadh, Saudi Arabia.

METHOD: We followed 153 pediatric patients done at our center for 10 years (1-10 years, 98 M and 55F; 97 LR (63%), 56 cadaveric (37%). The most common cause of graft failure was posterior urethral valves 14%, dysplastic kidney 12%, FSGS 8%, reflux 7%, post-transplantation infection 6%, rejection 5%, cyclosporine nephrotoxicity 4% LR, 2% cadaver, PTLD 1% LR, 7% cadaveric, CMV 3% LR, 12.15% cadaver.

CONCLUSION: Graft survival after 10 years 96 LR, 70% cadaver, patient survival 97% for both. Cause of graft loss: 1 death with functioning graft, 1 vascular thrombosis, 1 urologic complications, 2 recurrent kidney diseases, 9 rejections, 3 chronic allograft nephropathy, 2 BK virus, 1 sickle cell.

3. The best transplant for pediatric patient is living-related.

Abstract# LB 12 GRAFT LOSS IN PEDIATRIC RENAL TRANSPLANT – SINGLE CENTER EXPERIENCE. Ahmed Chaballout,1 Ibrahim Al Ahmadi,2 Syed Raza,1 Shahid Khan.1 Surgery, King Faisal Specialist Hospital & Research Centre, Riyadh, Saudi Arabia.

PURPOSE: Renal Transplant is the best treatment for renal failure more in pediatric to assure normal growth and schooling. We are trying to see graft survival between living-related and cadaver transplant in children.

METHOD: We followed 153 pediatric patients done at our center for more than 10 years (1-10 years), compare graft loss between living and cadaveric transplant. Plus, rejection rate, surgical complication, and other complication.

RESULTS: The Transplant Center of King Faisal Specialist Hospital in Riyadh, Saudi Arabia, performed 150 renal transplants yearly; 100 LR, 50 cadavers, between 15-25 pediatric patients under 14 years old are done per year. The last patient weight was 8.5 kg. In the last 10 years, 153 pediatric transplants done. Of 960 cases done in 10 years, 98 M and 55F; 97 LR (63%), 56 cadaveric (37%). The most common cause of renal failure are posterior urethral valves 14%, dysplastic kidney 12%, FSGS 8%, reflux 7%, post-transplant infection 6%, rejection 5%, cyclosporine nephrotoxicity 4% LR, 2% cadaver, PTLD 1% LR, 7% cadaveric, CMV 3% LR, 12.15% cadaver.

CONCLUSION: Graft survival after 10 years 96 LR, 70% cadaver, patient survival 97% for both. Cause of graft loss: 1 death with functioning graft, 1 vascular thrombosis, 1 urologic complication, 2 recurrent kidney diseases, 9 rejections, 3 chronic allograft nephropathy, 2 BK virus, 1 sickle cell.

Abstract# LB 13 ASSESSMENT OF BIOMARKERS OF ENDOTHELIAL INJURY AND BLOOD OXYGEN LEVEL DEPENDENT MAGNETIC RESONANCE IMAGING IN PAEDIATRIC RENAL TRANSPLANTATION. Stephen D. Marks,1 Ijsky Gordon,2 Ka Lao,3 Marica Cutajar,4 Paul A. Brogan.2 1Department of Paediatric Nephrology, Great Ormond Street Hospital for Children NHS Trust, London, England, United Kingdom; 2Radiology and Physics Unit, UCL Institute of Child Health, London, England, United Kingdom; 3Department of Rheumatology, UCL Institute of Child Health, London, England, United Kingdom.

PURPOSE: Interest is growing on the advantages of non-invasive monitoring of renal allografts. Our aim was to examine the feasibility of undertaking non-invasive testing of stable renal allografts with markers of endothelial injury and blood oxygen level dependent (BOLD) magnetic resonance imaging (MRI), which obviates the need for gadolinium.

METHOD: Renal transplant recipients (RTR) with stable renal allograft function underwent biomarker assessment of MRI BOLD imaging and endothelial markers (with circulating endothelial cells (CEC) and endothelial microparticles (EMP)) compared to controls.

RESULTS: Six paediatric RTR (83% male) aged 9.9-18.4 (median 14.5) years at 1.1-12.7 (median 5.2) years post-rentenal transplantation (50% living related) with plasma creatinine levels of 74-285 (median 136)umol/l and estimated glomerular filtration rates (eGFR) of 20-59 (median 39)mls/min/1.73m2 were assessed. There was no statistical difference between MRI BOLD values of intra-renal oxygen bioavailability between RTR and healthy controls imaged twice on different days, although low cortical R2* values were seen in two RTR with the lowest eGFR. RTR had significantly higher CEC counts than compared to 8 healthy adults (p < 0.02), although the number of CEC and EMP values in RTR were similar to those in 23 children with inactive vasculitis and 25 healthy children (who had lower EMPs compared with other controls). However, CEC were higher in 32 children with active vasculitis and 25 healthy children (with lower EMPs compared with other controls).

CONCLUSION: These results show that MRI BOLD and endothelial markers are non-invasive biomarkers that are feasible and reproducible in young RTR. This pilot data provides a basis for future studies to investigate the correlation between eGFR and CEC counts in RTR.
Abstract# 188
PRE-OPTERATIVE CHARACTERISTICS OF PATIENTS SUCCESSFULLY TREATED WITH SERIAL TRANSVERSE ENTEROPLASTY. Brian A. Jones,1 Melissa Hull,2 Margaret McGuire,2 Shinae C. Fitzgeralds1, Y. Avery Ching,1 Christopher Duggan,1 Tom Jaksic,1 Heung Bae Kim.1,2 Center for Advanced Intestinal Rehabilitation, Children’s Hospital Boston, Boston, MA, USA; Pediatric Transplant Center, Children’s Hospital Boston, Boston, MA, USA.
PURPOSE: The International Serial Transverse Enteroplasty (STEP) Data Registry was created in 2004 to gather data on patients undergoing this procedure. Our goal was to identify pre-operative variables that may be used to select patients who would benefit most from this therapy.

METHOD: After IRB approval, patient data was entered into an online password-protected database. Pre- and post-operative data were analyzed using the paired t-test.

RESULTS: From September 1, 2004 to July 31, 2008, 85 patients were registered in the database. Patients were excluded if they underwent neonatal STEP (n=10), were fully enterally fed prior to surgery (9), or had no follow-up (5). Of the remaining 61 patients, 6 died and 5 required small bowel transplantation. After a median follow-up of 9 months (range 1 to 60 months), 32 patients (52.5%) had progressed to full enteral tolerance. Overall, there was no significant difference between pre-operative small bowel length (73.8±13.0 cm versus 54.6±34.8 cm, p = 0.5) or width (5.7±2.1 cm versus 5.6±2.1 cm, p = 0.5) in patients who reached full enteral nutrition compared to those who did not.

CONCLUSION: Over half of the patients who underwent STEP successfully transitioned to full enteral nutrition. Those patients who died or progressed to small bowel transplant had significantly shorter pre-operative bowel lengths and widths than those who survived. However, bowel length and width were not predictors of postoperative tolerance of full enteral nutrition. Those patients with extremely short or less dilated bowel may not benefit from STEP and consideration of earlier referral for transplantation may improve survival in this cohort.

Abstract# 189
LONG-TERM OUTCOMES FOR 32 CASES OF WILSON’S DISEASE AFTER LIVING-DONOR LIVER TRANSPLANTATION. Elena Y. Yoshitoshi,1 Yasutugu Takada,2 Fumitaka Oike,1 Seisuke Sakamoto,1 Hiroyuki Kanazawa,1 Yukihide Yonekawa,1 Kohei Ogawa,1 Yasuhiro Ogura,1 Shin’ya Okamoto,2 Hirohito Haga,2 Mikiko Ueda,1 Haro Egawa,1 Muroe Kasahara,1 Koichi Tanaka,1 Shintaro Uemoto,2 Surgery, Kyoto University Hospital, Kyoto, Japan; 2Transplantation Surgery, National Center for Child Health and Development, Tokyo, Japan.
PURPOSE: Long-term outcomes after living donor liver transplantation (LDLT) in Wilson’s disease (WD) with heterozygous donors for WD gene are unknown.

METHOD: LDLT was performed for 32 WD patients (15 males, 17 females; mean age 16 y; range 6-40 years) at Kyoto University Hospital from 1992 to 2006. The mean follow up time from LDLT was 6.7 +/- 4.0 years (0.04 to 15.0 years). Donors were mainly parents (90.6%), who were obligatory carriers of the WD mutation. The present study examined retrospectively the copper metabolism, recurrence of WD, survival rate and neurological outcomes after LDLT.

RESULTS: Mean ceruloplasmin at the time of LDLT was 9.7± 7.3 mg/dl and increased to 22.3± 5.3 mg/dl (normal, 18-37 mg/dl). Urinary copper decreased from 2,704 ± 901 µg/day to 73.7 ± 5.2 µg/day (normal, <50 µg/day). Serum copper improved from 72.9 ± 33.9 mg/dl to 81.0 ± 14.9 mg/dl (normal, 78-131 mg/dl). Although 6 patients died and 2 received re-transplantation, the remaining 24 remain alive without recurrence, with overall survival rates of 90.6%, 83.7% and 79.9% at 1, 5 and 10 years, respectively. Patients with chronic liver failure had a poorer prognosis (p<0.05).

CONCLUSION: Use of liver grafts from heterozygous donors has been considered safe. Good improvements in copper metabolism were obtained without evidence of recurrence in long-term follow-up. Neurropsychological presentation (T WD) improved or remained unchanged. Indications for liver transplantation in WD patients with neurological symptoms must be considered carefully based on the stage of neurological damage and its reversibility.

Abstract# 190
ANALYSIS OF CLINICAL VARIABLES ASSOCIATED WITH TOLERANCE IN PEDIATRIC LIVER TRANSPLANT RECIPIENTS. A. Talisetti,1 K.L. Cox,1 M.M. Sarwal,1 M. Hurwitz,1 R.O. Castillo,1 W.E. Berquist,1 D. Bass,1 C. Waldo,1 C.O. Esquivel.1 Stanford University, Palo Alto, CA, USA.
PURPOSE: Data of 369 pediatric liver transplant (LT) patients were reviewed to examine demographic differences that may have a predictive value (PV) of tolerance. Attempts are often made to minimize IMS. Tolerance has been defined as stable graft function off IMS for > 1 year.

METHOD: Included were pediatric LT between 1988 and 2007. Excluded were multi-organ transplants, those performed within the last one year, and deaths. The majority 65% were stable patients on single IMS. 18 patients were noted to be tolerant (TOL). 27 patients were taking minimal immunosuppression (MIS) with undetectable blood levels. All 45 had normal liver enzyme levels for > 1 year. The third group included 41 patients with history of one or more biopsy proven rejections (REJ) > 1 year post-transplant.

RESULTS: Average age (years) at transplant was 1.37 for TOL, 1.16 for MIS and 2.87 for REJ. T-test comparing TOL and REJ was not significant (p = 0.12). Age difference of TOL/MIS versus REJ was significant (p = 0.01). Average age of ABO mismatches at transplant was 0.6 in TOL and 1.9 in REJ (p = 0.09). Percentage of biliary atresia, whole liver, history of EBV, gender, gender m/m and ABO m/m were not significant.

CONCLUSION: The research trend in transplantation has been towards minimizing IMS and assessing tolerance. Age at transplant was a significant predictor of tolerance. Donor age was younger in TOL, but not significant. Age at transplant in tolerant ABO m/m patients were < 6 months indicating acceptance of mismatched grafts at a younger age. These variables need to be examined in large numbers.

92

ConCurrent Session III: Organ Specific: Liver, Small Bowel and Pancreas 3
Abstract# 191
LONG TERM OUTCOME OF BILIOENTERIC STRICTURES TREATED SUCCESSFULLY WITH PERCUTANEOUS TRANSEPTIC BALLOON DILATATION AFTER PEDIATRIC LIVER TRANSPLANTATION. Javier Bueno,1 Mercedes Pérez,2 Carla Venturi,1 Jesus Quintero,1 Juan Ortega,1 Ramón Charco,1 Antonio Segarra,2 1Pediatric Liver Transplantation Unit, Hospital Valle de Hebron, Barcelona, Spain; 2Interventional Radiology, Hospital Valle de Hebron, Barcelona, Spain.

PURPOSE: Advantages of transhepatic percutaneous balloon dilatation (THBD) over surgery is its minimal invasiveness. The purpose of this study has been to evaluate the long-term outcome of bilio-enteric anastomosis strictures after pediatric liver transplantation treated successfully with percutaneous THBD.

METHOD: Between 1995-2006 20 children with liver grafts and complications of the bile duct underwent interventional radiology procedures. 16/20 developed bilioenteric anastomosis strictures, of whom 10 were treated successfully with THBD. One patient required stent placement. Mean age at treatment was 6.6 years and the mean time after transplantation was 2.6 years. Type of grafts include: whole (n=4) and partial liver (n=6) (3 splits, 3 reduced). THBD were performed at a mean of 2.6 years of transplant. The mean follow-up after the procedure was 24 months (range 4 mo-11 years).

RESULTS: All patients are alive. Currently, 5/10 (50%) remain with a bilioenteric anastomosis of normal characteristics by MRI cholangiogram. But 2 of them have signs of sclerosant cholangitis, and had episodes of cholangitis. In the other 5 (50%) patients the stricture recurred (2 of them with normal ultrasounds). Of those, 3 developed biliary stricture 1 month post-transplant. One patient required stent placement. Mean age at treatment was 6.6 years and the mean time after transplantation was 2.6 years. Type of grafts include: whole (n=4) and partial liver (n=6) (3 splits, 3 reduced). THBD were performed at a mean of 2.6 years of transplant. The mean follow-up after the procedure was 24 months (range 4 mo-11 years).

CONCLUSION: THBD in the treatment of bilio-enteric anastomosis strictures after pediatric liver transplantation is effective in the short-medium term follow-up, avoiding surgery. However, the stricture recurrence in the long term follow-up is high, particularly in segmentary livers in which surgical correction sometimes is not possible. MRI is the method of choice in the follow up of this complication.

Abstract# 192
SEVERE HYPERTROPHIC OSTEOARTHROPATHY IN INTESTINAL TRANSPLANT RECIPIENTS. Margaret M. McGuire,1,2 Daniel Kamin,3 Shadpour Dehebrei,1 Paul Kleinman,3 Heung B. Kim,1,2 1Surgery, Children’s Hospital Boston, Boston, MA, USA; 2Pediatric Transplant Center, Children’s Hospital Boston, Boston, MA, USA; 3Gastroenterology & Nutrition, Children’s Hospital Boston, Boston, MA, USA.

PURPOSE: Hypertrophic Osteoarthropathy (HOA) is seen in a variety of conditions, including patients with intestinal disease. We report three patients with peristomal new bone formation consistent with HOA, in the context of intestinal allograft rejection.

METHOD: Retrospective review of the patients’ medical records and radiographic images.

RESULTS: A 33 month old girl with pseudoobstruction received an isolated small intestine transplant. Severe acute cellular rejection (ACR) developed during her second postoperative week. Radiographic evaluation demonstrated peristomal new bone formation, initially sparing the ulna, becoming progressively more exuberant in the long bones, ribs and scapula, resembling the changes seen in infantile cortical hyperostosis (Caffey’s disease).

CONCLUSION: This is the first case series of HOA associated with intestinal ACR. We speculate that these changes result from altered inflammatory mediator production and/or tissue responsiveness. Further inquiry will help establish if HOA is related to transplant status, intestinal inflammation, or allograft rejection in general.

Abstract# 193
LIVING-RELATED DONOR LIVER TRANSPLANTATION FOR CHILDREN WITH FULMINANT HEPATIC FAILURE IN ISRAEL. Dror S. Shouval,1 Yaron Avitzur,1 Nathan Bar Nathan,2 Ziv Ben Ari,2 Raanan Shamir,1 Bergreen Rachel,1 Eitan Mor,2 Rivka Shapiro.1 1Institute of Gastroenterology Hepatology and Nutrition and Department of Pediatrics “C”, Schneider Children’s Medical Center of Israel, Petach Tiqva, Israel; 2Department of Organ Transplantation and Liver Institute, Rabin Medical Center, Petach Tiqva, Israel.

PURPOSE: Fulminant hepatic failure (FHF) in children is associated with high mortality rates when treated conservatively, and today liver transplantation has become the treatment of choice. Living-related donor liver transplantation (LDLT) has been suggested as an alternative to cadaver liver transplantation in order to overcome the global shortage of organ donors. However, experience with LDLT in children with FHF is limited in the western world.

OBJECTIVE: To present the experience of a major tertiary medical center in Israel with LDLT for children with FHF.

METHOD: The files of all children who underwent primary LDLT for FHF at our center from 1996 to 2007 were reviewed for demographic data, clinical and laboratory parameters before and after transplantation.

RESULTS: The study group included 13 children with median age of 4 years (range 0.75-14 years). The cause of FHF was acute hepatitis A in 4 children and unknown in 9. Short-term complications, documented in 11 children, included mainly hepatic artery thrombosis which warranted retransplantation in 3 cases and biliary leak. Three patients died during the first month after LDLT of uncontrolled intraoperative bleeding, sepsis and multiorgan failure (1 each). Patient survival rate was 65% at 1 year and 55% at 5 years.

CONCLUSION: Although the outcome of LDLT in children with FHF is inferior to that in children after elective transplantations for chronic liver diseases, the procedure is timely, life-saving and could reduce the dependence on cadaveric livers in this setting.
Abstract# 194
THE RESULTS OF ARTERIAL RECONSTRUCTION TECHNIQUE FOR PEDIATRIC LIVING-DONOR LIVER TRANSPLANTATION. Mehmet Haberal,1 Sinasi Sevnis,1 Hamdi Karakayali,1 Gokhan Moray,1 Sema Pehlivan,1 Adnan Torgay,1 Gulnaz Arslan.1 General Surgery, Baskent University, Faculty of Medicine, Ankara, Turkey; 2Anesthesiology, Baskent University, Faculty of Medicine, Ankara, Turkey.
PURPOSE: The arterial reconstructions required in Living donor liver transplantations (LDLT) are technically difficult because of the small diameters of the vessels in the partial liver graft. In this study, we present our hepatic arterial reconstruction technique.
METHOD: Between September 2001 and August 2008, we performed 190 LDLT at our center. After December 2005, we changed hepatic arterial reconstruction technique. Since this time, we performed 114 LDLT and 60 of them were pediatric recipients whom were analyzed retrospectively. In this technique, native and graft hepatic arteries are spatulated from both the anterior and posterior walls for a wider anastomosis. Twenty-eight of these 60 recipients weighed less than 10 kg or was under the age of 1 year. Of all recipients, 1 received a right lobe, 24 received a left lobe, and remaining 35 received left lateral segment grafts. Computed tomography (CT) angiography was used to evaluate both the vascular anatomy and the diameter of graft hepatic arteries. Hepatic arterial reconstruction was performed with microvascular technique using a surgical loop (2.5x).
RESULTS: Fifteen grafts had 2 hepatic arteries. In 11 grafts with double arteries, we create a single orifice at the back-table. In 4 grafts with double arteries, 2 separate anastomoses were performed between the graft hepatic arteries and the recipient hepatic artery branches. Mean diameter of the hepatic arteries was 2.3±0.5 mm, and 26 of them were less than 2 mm. The mean recipient follow-up was 16.9±3 months (range, 1 to 32 months). Six of the 60 recipients died and the remaining 54 (90%) were still alive with good graft functions. HAT was encountered in 2 (3.3%) recipients in this series. All of them were treated with interventional radiologic approaches.
CONCLUSION: Our new arterial reconstruction technique enabled the construction of smaller arteries, multiple arteries and arteries with caliber differences even for the very small pediatric recipients.

Abstract# 195
IMPACT OF CENTER EXPERIENCE ON PEDIATRIC LIVER SEGMENTAL GRAFT OUTCOMES – A 12 YEAR EXPERIENCE. Adam J. Kaye,1 Paige M. Porrett,1 Binita Kamath,2 Elizabeth Rand,1 Kim M. Otholt.1 Department of General Surgery, Hospital of the University of Pennsylvania, Philadelphia, PA, USA; 2Liver Transplant Program, Children’s Hospital of Philadelphia, Philadelphia, PA, USA.
PURPOSE: Segmental liver grafts increase organ availability for pediatric recipients. UNOS data suggest that best outcomes are achieved with whole (W) grafts in children >3y and living donor (LD) grafts in children <3y, with split liver (SL) grafts having the poorest outcome. These data do not account for individual center experience with segmental transplantation, which may eliminate outcome discrepancies.
METHOD: A retrospective review was performed of all recipients <18 of age receiving liver transplants (7/95-12/07) with the same surgical team at a children’s hospital affiliated with a large adult transplant center. Recipients were assigned to groups according to graft type [W, SL, LD]. Patient (P) and graft (G) survival by graft type and age were assessed, as were complications requiring retransplantation or reoperation. Kaplan-Meier, and Chi-square analyses were performed.
RESULTS: 146 recipients of 162 grafts (W 69.75%; SL 23.46%; LD 6.79%) were transplanted, 51.85% of whom were listed as Status 1 or PELD 30 or with an exception score. There was no significant difference in either P or G survival between graft types at 6 months (P: 94%, SL: 95%, LD: 82%; G: 88%, SL: 88%, LD: 73%) or at study follow-up (P: W 88%, SL 89%, LD 82%; G: W 81%, SL 84%, LD 82%). P and G survival between graft types did not differ after age stratification with children <3yrs having similar outcome to older children. Incidence of complications was significantly higher in younger children receiving whole grafts (age <3, 17%; ≥3: 3% P<0.02). Vascular thrombosis was also significantly greater in children <3 receiving a whole graft (5% vs 0% P<0.03).
CONCLUSION: Pediatric recipients at high-volume experienced centers can achieve similar outcomes regardless of graft type, unlike national data reflecting poorer outcomes with split liver grafts. The use of smaller whole grafts in young children may contribute to vascular complications.

Abstract# 196
MORE RAPID PROGRESSION OF PSC IN ADULTS THAN CHILDREN, BUT WITH A NEED FOR TRANSPLANTATION IN BOTH. Thomas H. Casswell,1 Bo Lindberg,2 Bjorn Fischer,1 Antal Nemeth,1 Annika Bergquist.1 1Pediatrics, CLINTEC, Karolinska Institutet, Stockholm, Sweden; 2Radiology, CLINTEC, Karolinska Institutet, Stockholm, Sweden.
PURPOSE: Retrospective study of long-term natural course of primary sclerosing cholangitis (PSC) in children as compared to adults.
METHOD: Consecutive patients (20 children, mean age 13 years; SD ± 3.5 and 20 adults, mean age 40 years; SD ±15.1) with PSC, diagnosed either by cholangiography (ERC or MRCP) or liver biopsy, were compared at diagnosis and after 10 years. One adult was lost during the follow-up (fu) interval. Cholangiographic findings were reevaluated and classified according to extent and severity (scoring 0-3) of strictures.
RESULTS: Inflammatory bowel disease (IBD) was seen in 18 out of 20 (90%), and 16 out of 19 (84%), respectively. The time from the 1st pathological liver test to PSC-diagnosis was 1.5 years for the children as compared to 6.8 years (p<0.01) in adults. At diagnosis the adults had more pronounced extrahepatic (EH) strictures as compared to the children, mean score (1.75 ± 0.77) and 0.67 ± 0.91 (p<0.01) respectively, while the extent of the intrahepatic (IH) changes was similar. After 10 years’ fu 42 % of the adults had IH progression compared to 5% of the children (p<0.01). The progression of EH changes was not significantly different (32 vs. 16%). Eight adults (42%) and none of the children had received stent due to strictures. Three adults (16%) and no child developed bile duct cancer. After 10 years 20/20 children were alive, however 1 was liver transplanted. For comparison 18/19 adults were alive, 2 were transplanted; 1 of them dead.
CONCLUSION: Most cases of juvenile PSC seem to have a more benign natural course during the first decade than adults, with slower progression, less EH strictures and no risk for malignancy. This might be explained either with different clinical nature or with longer presymptomatic duration in adults leading to later diagnosis. However, patients needing transplantation, are seen both among children and adults.

Concurrent Session III: Organ Specific: Kidney 3

Abstract# 197
MALIGNANCY INCIDENCE AFTER RENAL TRANSPLANTATION IN CHILDREN: A 20-YEAR SINGLE CENTER EXPERIENCE. Foteini Koukourgianni, Bruno Ranchin, Jerome Harambat, Sylvie Euvrard, Raymonde Bouvier, Pierre Cochat. Service de Pédiatrie - Centre de Référence des Maladies Rénales Rares, Hopital Femme Mère Enfant, Université de Lyon, Bron, France; Service de Dermatologie, Hopital Edouard Herriot, Lyon, France.
PURPOSE: An increased incidence of cancer is a well recognized complication of organ transplantation (Tx). The pattern of malignancies occurring in the pediatric Tx population is different from both the general pediatric population and the population of adult Tx recipients. The purpose of this study was to estimate the malignancy pattern and incidence after pediatric renal Tx at our center.
METHOD: Between April 1987 and March 2007, 240 renal Tx were performed in 219 patients under 20 years of age at the time ofTx. Medical records were retrospectively reviewed with a mean follow-up of 5.3 years [0.7-17.5]. Data of patients who have been transferred into adult units were extracted from the French registries of dialysis and transplantation.
RESULTS: 16 children (7.3 %) had a diagnosis of malignancy within 30 years of age for the elder. 7 of them suffered from post-Tx lymphoproliferative disease (PTLD). Other cancers included Hodgkin lymphoma (N=1), Burkitt lymphoma (N=2), renal papillary carcinoma (N=1), thyroid papillary carcinoma (N=1), recurrent ovarian seminoma (N=1, Frasier syndrome) and skin cancers (N=3). The cumulative incidence of cancer was 4.0, 6.9 and 10.2 % at 5, 10 and 15 years post Tx, respectively. The 10-year incidence of PTLD was 4.5 %. Skin cancers occurred at a mean age of 24 years and within a mean interval of 10.6 years to Tx. 4 patients have died: one patient has died from EBV-related encephalitis and respiratory failure; another one from acute thromboembolism while on hemodialysis; another death was due to severe hypercalcemia; and the last death was due to metabolic complications of maculopapular activation syndrome soon after diagnosis of PTLD.
CONCLUSION: Early detection of cancer is a major issue in pediatric organ Tx recipients. A routine screening for EBV-DNA in patients at risk for developing PTLD is recommended. The occurrence of skin cancer is extremely low during childhood but it is delayed until adulthood.

Abstract# 198
RITUXIMAB INDUCTION IN HIGH RISK PREDOMINANTLY PEDIATRIC KIDNEY TRANSPLANT RECIPIENTS MAY DECREASE THE INCIDENCE AND SEVERITY OF RECURRENCE OF FOCAL SEGMENTAL GLOMERULOSCLEROSIS. George W. Burke III,1 Junichiro Sageshima,1 Alessia Fornoni,1 Linda Chen,1 Carolyn Abitbol,1 Jayanthi Chandar,1 Warren Kupin,1 Giselle Guerra,1 David Roth,1 Sherry Shariatmadar,1 Gaston Zilleruelo,1 Gaetano Ciancio.1 1University of Miami Miller School of Medicine, Miami, FL, USA.
PURPOSE: Disease recurrence is a major obstacle of kidney transplant for focal segmental glomerulosclerosis (FSGS). Anti-CD20 antibody (rituximab) has been used for nephrotic syndrome of native kidney. We hypothesized that rituximab induction could alter the posttransplant course of FSGS recipients, particularly in those pediatric patients with rapid progression to end-stage renal disease who are higher risk of recurrence.
METHOD: From Jan. 2000 to Dec. 2003, 11 FSGS patients (6-21 y) received renal allografts along with our immunosuppression, consisting of tacrolimus, mycophenolate, corticosteroids, antithymocyte globulin and/or daclizumab. From Jan. 2004 to Dec. 2007, 18 other FSGS recipients (7-24 y) received rituximab in addition to this immunosuppression. A human podocyte cell line was assayed by flow cytometry for membrane markers including CD20.

RESULTS: The overall incidence of posttransplant proteinuria was significantly lower in recipients with rituximab induction (p < 0.05). Four recipients treated with standard immunosuppression developed massive proteinuria (<protein/creatinine <100 mg/mmol Cr) in 28/56 patients (50%). Only 9/56 patients (16%) had mild to moderate proteinuria. With a median follow-up of 26 months, there was no significant difference in graft survival. In preliminary work, a subpopulation of CD20+ podocytes has been identified by flow cytometry on a human podocyte cell line (14.6±1.2%) and CD20 expression is increased by inflammatory cytokines (22.1±1.64%) (IL-1, TNFα, INFγ) but not by lypopolysaccharide (LPS) (13.4±23%).

CONCLUSION: While the mechanism of action is unclear, rituximab induction may decrease the incidence and severity of recurrence of FSGS following kidney transplantation.

Abstract# 199 GENETIC TESTING IN FOCAL SEGMENTAL GLOMERULOSCLEROSIS (FSGS) IS MANDATORY BEFORE RENAL TRANSPLANTATION: AN UPDATE FROM THE ECoFTS (EUROPEAN COLLABORATIVE FSGS TRANSPLANTATION STUDY) Therese C. Jungraithmayr,1 Pierre Cochat,2 Philipp Pagel,1 Tanja Kneuepel,1 Gerard Cortina,1 Thomas Neuhaus,5 Tomas Seeman,6 Burkhard Zuerich, Switzerland; 6Pediatrics, University Prague, Czech Republic; 1on lipid-modifying therapy), 4) triglycerides >95th percentile (or on lipid-modifying (BP >95th percentile or on antihypertensive medication), 3) HDL-C <5th percentile (or <21 years at time of transplant. Metabolic syndrome was defined by meeting any three

METHOD: To estimate prevalence of the metabolic syndrome and its association with renal transplantation.

PURPOSE: Renal transplantation (RTx) in steroid resistant FSGS is complicated by hypertension and proteinuria. Angiotensin-converting enzyme inhibitors (ACEI) can reduce proteinuria in children with proteinuric chronic kidney disease. The efficacy and safety of ACEI in adults after renal transplantation (RTx) is proven, however data on effectiveness of ACEI in transplanted children are rare. The aim of the present study was to investigate the effect of ramipril on proteinuria in children after RTx.

METHOD: Twelve transplanted children (median age 15.3, range 9.3–18.9 years, median time after RTx 4.5, range 1.1–10.2 years) with persistent proteinuria with or without hypertension were prospectively treated with ramipril for 6 months. Proteinuria was measured as protein excreted ≥96 mg/m2/24h. Office blood pressure was evaluated using a standard sphygmomanometer and hypertension was defined as BP ≥95th percentile for healthy children. BP index (patients BP value/BP value of the 95th centile for healthy children) was calculated. Graft function was assessed by Schwartz formula. The starting dose of ramipril was 1.5 mg/m2/24h once daily. Ten children have already received other antihypertensive drugs at the start of this study (no ACEI or antinogesin receptor blockers).

RESULTS: Proteinuria decreased in 92% of children, it dropped significantly from 305 to 201 mg/m2/24h (p<0.01) by a median of 65 mg/m2/24h. The median decrease of proteinuria reached 22% of the initial values. No significant correlation was noted between the amount of proteinuria in children before RTx and ramipril treatment. The prevalence of hypertension did not change significantly (50% initially vs. 33% after 6 months, NS), nor did the office BP (122/73 mmHg vs. 122/72 for absolute BP values and 0.97/0.89 vs. 0.96/0.90 for systolic/diastolic BP index, both NS). Graft function and serum potassium level did not change significantly, two children developed mild hyperkalemia (5.1 and 5.6 mmol/l). No child developed a cough or other clinical adverse event.

CONCLUSION: Ramipril can reduce proteinuria in most transplanted children; its antiproteinuric effect is exhibited even without blood pressure lowering effect.

Abstract# 200 TUBULAR PROTEINURIA IN CHILDREN AFTER RENAL TRANSPLANTATION – FREQUENT AND DANGEROUS? Tomas Seeman,3 Jiri Dusek,1 Pavel Dvorak,1 Karel Vondra,1 Jakub Zieg,3 Jaroslav Spatenska,2 Jan Janda,1 1Department of Pediatrics, University Hospital Motol, Prague, Czech Republic; 2Department of Pediatrics, Children’s Hospital of Eastern Ontario, Ottawa, ON, Canada.

PURPOSE: Proteinuria is a common complication after renal transplantation (RTx). In adults, tubular proteinuria is a predominant finding that is associated with impaired graft survival. In the absence of studies on proteinuria profiling in transplanted children, we are interested at analyzing the type of proteinuria in children after RTx.

METHOD: All children (>6 months post RTx) followed in two pediatric transplant centers were retrospectively analyzed (cross-sectional study). Morning urine was tested for total protein (PROT), albumin (ALB) and alpha-1-microglobulin (AMG), all as mg/mmol Cr. The type of proteinuria was assessed by AMG/ALB ratio (AA) and AA∗AMG∗100 (AMG/ALB). AAA >15% = tubular proteinuria, AAA <15% = glomerular proteinuria). Schwartz GFR (ml/min/1.73m2) was calculated from serum creatinine (Cr).

RESULTS: In 35/56 patients (62%) > 17 years of age and in 21/56 patients (37%) > 11 years of age, proteinuria was detected (p < 0.001). Pathological proteinuria (>22 mg protein/mmol Cr) was found in 28/56 patients (50%). Only 5/56 patients (16%) had glomerular proteinuria, whereas the majority (84%) had tubular proteinuria. Two of nine children with glomerular proteinuria had a recurrence of FSGS and four had biopsy proven chronic allograft nephropathy. Median AMG was significantly higher (15.2 mg/mmol Cr) compared to children with the GFR >60 (3.89), p=0.029. AMG negatively correlated with the GFR (r = -0.36, p=0.007),
but no significant correlation was found between AMG and BMI, hypertension and the tacrolimus dose.

CONCLUSION: Tubular proteinuria is present in more than 80% of children post renal transplantation and is associated with impaired graft function.

Abstract #203
PRE-TRANSPLANT CONDITIONING WITH PLASMAPHERESIS AND CYCLOSPORINE INFUSION REDUCES RECURRENCE OF FOCAL SEGMENTAL GLOMERULOSCLEROSIS (FSGS) IN CHILDREN. Michael J. Somers, Michelle A. Baum. Division of Nephrology, Children's Hospital Boston/Harvard Medical School, Boston, MA, USA.

PURPOSE: FSGS is the most common glomerular disease causing ESRD in children. In children with FSGS, since recurrent disease is a significant cause of graft loss, therapeutic regimens reducing recurrence and graft dysfunction are sought.

METHOD: We reviewed retrospectively all FSGS children transplanted in our center since 1985, comparing 33 consecutive transplants (txs) receiving no pre-tx conditioning to 19 consecutive pts treated since 2003 with a pre-tx conditioning regimen of plasmapheresis and IV cyclosporine (CYA). All pts received oral CYA post-tx as part of maintenance immunosuppression.

RESULTS: In the 52 FSGS children (median age 12.5 yrs, median time from FSGS diagnosis to ESRD 3 yrs, 50% boys, 85% white, 42% living donor tx) recurrence occurred in 23 (44%) in a median of 2 days (range 1-105). 10/23 pts with recurrence developed ATN in post-tx period; 9 required dialysis; 10 remitted their recurrent FSGS with post-tx therapy; and 11 suffered eventual graft loss from FSGS. Recurrence was unrelated to race, gender, tx type, or time to ESRD, but was significantly related to young age at tx (p=0.002) and pre-pubertal development (p=0.01). In comparing pts receiving pre-tx conditioning with pheresis/CYA to unconditioned pts, there was no difference in age, gender, race, tx type, or time to ESRD between the groups. Children receiving pheresis/CY A pre-tx were less likely to recur (26% vs 55%, p=0.04), less likely to suffer ATN with recurrence (0 vs 55%, p=0.04), and there was a greater propensity for younger pts to recur. Children receiving deceased donor (DD) txs with pre-conditioning were also less likely to recur than unconditioned DD pts (17% vs 56%, p=0.02), though no difference was seen with living donors.

CONCLUSION: We conclude that in FSGS children 1) pre-tx conditioning with pheresis and CYA infusion reduces FSGS recurrence; 2) conditioning reduces rates of post-tx ATN; 3) conditioning blunts the propensity for young FSGS pts to recur; 4) conditioning affects recurrence rates in DD recipients more than living donor recipients.

Abstract #204
RENAL TRANSPLANTATION IN CHILDREN WITH BARDET-BIELD SYNDROME. Metin Cetin, Udo Vester, Peter F. Hoyer. Clinic of Pediatric Nephrology, University of Duisburg-Essen, Essen, Germany.

PURPOSE: Bardet-Biedl syndrome is a mostly autosomal recessive (at least 12 gene) inherited disease. Most of the genes encode for proteins in the basal body of primary cilia. Main clinical features are retinal degeneration, limb abnormalities (polydactyly, brachydactyly), obesity (hyperphagia), developmental delay, reproductive anomalies and renal/ urinary tract abnormalities that may lead to renal failure.

METHOD: The German society of Pediatric Nephrology (GPN) initiated the search for children with BBS in Germany and neighbouring countries. Detailed questionnaires have been sent to the attending pediatricians and received data have been analyzed. BBS in these children was mainly diagnosed clinically by fulfilling at least 5 of the 10 major diagnostic criteria. Main complications of BBS were chronic renal failure, renal/ urinary tract abnormalities and retinal degeneration. Complications were observed in 22, 19, and 18% respectively. Median age of first renal transplantation was 10.3 ± 4.3 years. Median GGT level was 14 (range: 9-43 u/L).

RESULTS: We retrospectively analyzed 44 (80%) of them with abnormalities of the kidney (e.g. cysts, dysplasia) or the urinary tract (vesicoureteral reflux, voiding dysfunction). 21 (38%) of this collective had an impaired renal function, 18 (18%) required dialysis, median age of first dialysis was 9.5 ± 4.8 years (range: 1-15 yrs). All of them underwent renal transplantation, in one case preemptive transplantation was performed. Medium age of first renal transplantation was 11.5 ± 4.5 years (range 3.5-18). Graft failure occurred in 4 cases (vascular occlusion [2], acute rejection [1], unknown [1]), 2 underwent retransplantation. Nearly all children with BBS were obese (53 of 55: SDS BMI range +1 to +5), chronic renal failure was associated with lower BMI compared to the collective, but after renal transplantation BMI increased significantly.

CONCLUSION: Renal abnormalities are common in children with BBS, 2 of 5 develop renal failure in childhood, every 5th infant requires renal replacement therapy. Renal transplantation can be performed successfully. Existent obesity worsen after transplantation, steroid-free immunosuppression should be considered. Voiding dysfunction may endanger renal function after transplantation. Enhanced genetic analysis will improve knowledge about risk factors in BBS developing renal failure.

Abstract #205
THE VALUE OF GAMMA-GlutamylTRANSFERASE AS CARDIOVASCULAR RISK PREDICTION IN PEDIATRIC RENAL TRANSPLANT RECIPIENTS. Esra Baskin, Kaan Gulleroglu, Umut Selda Bayrakci, Nihat Uslu, Erdem Altun, Nurcan Cengiz, Hamdi Karakayali, Mehmet Haberal. Pediatric Nephrology, Baskent University, Ankara, Turkey; Radiology, Baskent University, Ankara, Turkey; General Surgery, Baskent University, Ankara, Turkey.

PURPOSE: It has been recently suggested that gamma-glutamyltransferase (GGT) is associated with cardiovascular mortality, atherosclerosis and hypertension. Aim: To evaluate whether GGT is an additional marker of arterial stiffness and if there is a relation between GGT and lipid profile in renal transplanted patients.

METHOD: Twenty-three renal transplanted patients (F/M: 12:11) aged 6-21 years (median: 13) were enrolled in the study. Patients had chronic renal failure (CRF) for 4.5±3.1 years. All patients had calciurn inhibitors; 9 tacrolimus and 14 cyclosporin A. Serum GGT, homocystein, lipoprotein-a, triglyceride (TG), cholesterol levels as well as renal function tests were studied. Carotid intima media thickness was measured with ultrasonography in all patients.

RESULTS: The mean period of post-transplant follow-up was 2.7±2.1 years (range: 0.8-9 years). Median GGT level was 16 (range: 9-43 u/L). Patients with GGT level higher than 16 were found to have significantly high levels of homocystein (16.6±8.5 vs. 9.8±3.9, p=0.037) and TG (174.3±79.9 vs 102±49.2, p=0.004). There was a positive correlation between GGT level and homocystein and TG levels (r=0.61, and r=0.5, p<0.01 respectively). Patients with dyslipidemia were found to have significantly higher mean GGT level (14.2±3.6 u/L vs. 19.2±6.2 u/L, p=0.016) as well as homocystein (10.4±3.4 vs. 16.4±9.3 p=0.04). Lipoprotein-a level did not differ significantly between patients with GGT level higher than 16 u/L and lower ones. We couldn't find any correlation between GGT and intima media thickness of carotid. Patients with GGT level higher than 16 u/L did not differ from those with lower GGT level in terms of post-transplant follow-up, duration of CRF, primary disease, donor status and renal function tests.

CONCLUSION: Our data has suggested that, even within its normal range, serum GGT concentrations are closely associated with dyslipidemia and the presence of cardiovascular risk factors.
TRANSPANTATION. Valeriya Zarkin,1 Li Li,1 Neeraja Kambham,1
Tara Sigdel,1 Oscar Salvatierra,1 Minnie M. Sarwal.1 (Stanford University, Stanford, CA, USA.

PURPOSE: Recent studies of acute rejection in pediatric and adult renal transplant recipients showed an incidence of 22–33% of acute rejection episodes being associated with intragraft CD20+ B-cell clusters. The inability to target this cell pool with standard immunosuppressive agents may result in a recalcitrant rejection with poor graft function recovery.

METHOD: Twenty consecutive pediatric patients (13.9 ± 5.9 y.o.) with biopsy-proven acute rejection (AR) and demonstration of one or more B-cell-infiltrating clusters with at least 1- (p = 0.0003) and 6-month (p < 0.0001) follow-up biopsies. Reappearance of C4d deposition was not seen on follow-up biopsies after Rituximab therapy, but was seen in 30% of control patients. There was no change in DSA in either group, independent of graft function (p = 0.026) and improvement of biopsy rejection scores at both the 1- and 6-month follow-up biopsies. Rituximab therapy resulted in complete tissue B-cell depletion and rapid peripheral B-cell depletion. Peripheral CD19+ cells were detected in 30% of control patients. There was no change in DSA in either group, independent of rejection resolution.

CONCLUSION: This study reports safety and suggests further investigation of Rituximab as an adjunctive treatment for B-cell-mediated graft rejection in pediatric transplant patients.

Abstract# 208

PEDIATRIC LIVING DONOR KIDNEY TRANSPLANTATIONS USING ALEMTUZUMAB PRETREATMENT AND TACROLIMUS MONOTHERAPY: 4-YEAR EXPERIENCE. Henkie P. Tan,1 Joseph Donaldson,1 Demetrius Ellis,2 Michael Moritz,1 Amit Basu,1 Claire Morgan,1 Abhay N. Vats,1 Elif Erkan,1 Ron Shapiro,1 Starzl Transplantation Institute, University of Pittsburgh Medical Center, Children’s Hospital of Pittsburgh, Pittsburgh, PA, USA.

PURPOSE: We extend our adult experience to the first 42 pediatric consecutive living donor kidney transplantations (LDKT) under alemtuzumab pretreatment with tacrolimus monotherapy and subsequent tapered weaning.

METHOD: In this retrospective review, we focused especially on the causes of recipient death, graft loss, and the characteristics of rejection.

RESULTS: Laparoscopic live donor nephrectomy (LLDN) was associated with a mortality of 2.4% and delayed graft function (DGF). The actuarial 1-, 2-, 3- and 4-year patient survival was 97.6%, 97.6%, 93.5%, 85.4%, 93.5%, 93.5%, 93.5% and 85.4%, respectively. The incidence of acute cellular rejection (ACR) at 1, 2, 3, and 4 years was 0%, 2.4%, 4.8%, and 4.8%, respectively. The mean serum creatinine (mg/dL) and glomerular filtration rate (GFR, mL/min/1.73m2) at 1, 2, 3, and 4 years were 0.4±0.2, 0.36±0.2, 0.32±0.2, 0.30±0.2 and 0.4±0.4, 0.36±0.4, 0.32±0.4, 0.28±0.4, respectively. Two (4.7%) recipients had ACR and both Banff 1a ACRs were steroid-sensitive. No patients had antibody-mediated rejection (AMR). Weaning to spaced dose (qd or less) tacrolimus monotherapy was attempted in 16 (38%) but was successful in 12 (26%) patients. All patients are currently steroid-free. There was no tissue invasive Cytomegalovirus (CMV) disease, no BK-polyoma viral nephropathy (BKVN), and no post-transplant proliferative disease (PTLD).

CONCLUSION: This experience confirms the 4-year safety and efficacy of this approach in pediatric recipients.

Abstract# 209

SINGLE NOCTOLYTE POLYMORPHISMS OF CYP3A45, BUT NOT OF OTHER GENES, INFLUENCE THE EXPOSURE TO TACROLIMUS IN PAEDIATRIC RENAL TRANSPLANT RECIPIENTS: A PHARMACOGENETIC SUBSTUDY OF THE TWIST STUDY. R. Feneberg,1 H. Billing,1 B. Hoecker,1 R. van Damme-Lombberts,2 S. Franjima,1 J. Jaray,1 K. Vondrak,1 E. Savvary,1 D. Strollo,2 V.W. Armstrong,3 M. Oellerich,1 B. Toenshoff,1 N. van Ahsen.1 1Univ. of Heidelberg, Heidelberg, Germany; 2Univ. of Goettingen, Goettingen, Germany.

PURPOSE: The pharmacokinetics (PK) of Tacrolimus (TAC) and mycophenolic acid (MPA) are highly variable. An impact of single nucleotide polymorphisms (SNPs) of the genes coding for enzymes and transporters involved in the PK of TAC and/or MPA is intuitively conceivable. We sought to analyze the influence of different SNPs on TAC and MPA exposure in pediatric patients after renal transplantation.

METHOD: A subpopulation of 42 patients (age 12.1, range 2.2 - 17.8 yrs) participating in the TWIST study was included into our analysis of SNPs of CYP3A5, MDR1 (ABCB1), SLCO1B3 (coding for OATP1B3), and ABCG2 (coding for cMOAT). Tacrolimus trough concentrations and abbreviated MPA-AUCs were measured on day 7, 28, 91, and 183 after renal transplantation. Both of these were adjusted to the dose the patient received. Real-time, rapid-cycle PCR methods were used for genotyping.

RESULTS: The allele frequencies were comparable to those reported previously for Caucasian populations. Dose-adjusted trough concentrations of TAC were approximately 24% lower in patients with the CYP3A45 C-T allele as compared to CC. Adjusting for randomization group of the TWIST study, this difference remained significant (p = 0.0467). No other investigated SNP in studied enzymes or transporters was significantly associated with TAC trough concentrations. There was no apparent relationship between SNPs and graft function or the incidence of acute rejection episodes. As for MPA, the genetic variability of transporters or enzymes had no impact on dose-adjusted MPA-AUC.

CONCLUSION: Genetic variability of CYP3A45 accounts partly to the variability of TAC exposure, while other SNPs are no direct determinants of TAC exposure. No SNP was a significant predictor of MPA exposure. Therefore, adjusting TAC dosing to the genotype of CYP3A45 might be of benefit to paediatric patients after renal transplantation.

Abstract# 210

INFLUENCE OF MDR1 AND CYP3A45 SINGLE NOCLEOTIDE POLYMORPHISMS ON PHARMACOKINETICS AND CLINICAL PARAMETERS IN PEDIATRIC KIDNEY TRANSPLANTATION. Mirco Belingheri,1 Silvia Tirelli,1 Stefano Turolo,2 Mariano Ferreresso,2 Valentina Martina,1 Paolo Grillo,2 Luisa Berardinelli,1 Alberto Edefonti,1 Luciana Ghio.1 1U.O.C. Pediatrics Nephrology, IRCCS, Fondazione Ospedale Maggiore Policlinico, Milan, Italy; 2Laboratory of Clinical Pharmacology, IRCCS, Fondazione Ospedale Maggiore Policlinico, Milan, Italy; 3Surgical Science, IRCCS, Fondazione Ospedale Maggiore Policlinico, Milan, Italy; 4Epidemiology Unit, IRCCS, Fondazione Ospedale Maggiore Policlinico, Milan, Italy.

PURPOSE: Cyclosporine (CsA) and Tacrolimus (TAC) are the most important immunosuppressive drugs in kidney transplantation (KTx) although their clinical use is complicated by a narrow therapeutic window and a highly interindividual pharmacokinetics (pK) variability. We evaluated the effects of CYP3A5 and MDR1-3435 polymorphisms on the pK and clinical parameters of CsA and TAC in 44 young KTx recipients (CsA n=26 or TAC n=18).

METHOD: CYP3A5 (AA+AG and GG) and MDR1-3435 (CC or CT or TT) genotyping was correlated with pK (Dose/kg, C0 and Cn: n. dose/kg norm) and clinical parameters (Renal and hepatic function, Hematopoietic and Lipid profile, blood pressure, acute rejection and infectious episodes and conversion to a different immunosuppressive therapy) during the first years after KTx.

RESULTS: CYP3A5: AA+AG group had lower TAC C0 (POD30 22.8±4.7 vs. 50.2±18.6; POD60 32.2±4.1 vs 94.0±32.7; POD180 29.4±12.8 vs 87.5±32.8; POD360 41.9±23.5 vs. 88.2±50.5; p<.05) and a higher incidence of AR than GG group, receiving higher TAC dose (POD30 0.38±0.14 vs. 0.25±0.09; POD180 0.25±0.09 vs. 0.13±0.06; POD360 0.19±0.08 vs. 0.11±0.06; p<.05). AA+AG group (TAC) showed higher mean blood pressure values and received more antihypertensive drugs than GG. GG group had glycyclates values higher than AA+AG group in all PO D. The interesting evidence of PK or clinical consequences has been highlighted between MDR1 and CT at treatment and between CYP3A5 and CsA.

CONCLUSION: A pre-Tx evaluation of CYP3A5 polymorphism may be suggested to optimize therapy with TAC, reduce AR, hypertension incidence and alteration of lipid profile.

Abstract# 211

PHARMACOGENETICS OF MYCOPHENOLATE MOFETIL IN PEDIATRIC KIDNEY TRANSPLANT RECIPIENTS. Jens Goebel,1 Tsuyoshi Fukuda,2 Susan E. Prausa,1 Denise Maseck,1 Kejjan Zhang,3 Todd Nick,1 Chunyan Liu,1 Sander Vinks.3 1Nephrology, Children’s Hospital Medical Center, Cincinnati, OH, USA; 2Clinical Pharmacology, Children’s Hospital Medical Center, Cincinnati, OH, USA; 3Pharmacy, Children’s Hospital Medical Center, Cincinnati, OH, USA; 4Biostatistics, Children’s Hospital Medical Center, Cincinnati, OH, USA.

PURPOSE: Leucopenia and diarrhea are the predominant side effects of mycophenolate mofetil (MMF) and dose reduction or discontinuation is needed in children. Polymorphisms of the drug’s main metabolizing enzyme, uridine glucuronyl transferase (UGT), confer altered drug exposure. We studied the incidence of these polymorphisms in pediatric kidney transplant recipients experiencing MMF-associated leucopenia and diarrhea.

METHOD: A chart review of all pediatric kidney transplant recipients at our institution was performed to identify eligible subjects. UGT genotypes of 16 affected children who recovered after MMF dose reduction or discontinuation were compared with those of
Abstract # 212
LIMITED SAMPLING STRATEGIES FOR TACROLIMUS MONITORING IN PEDIATRIC LIVER TRANSPLANT RECIPIENTS. Jean-Romain Delaloye,1 Nastya Kassir,1 Catherine Litalien,1 Yves Théorêt,1 C4 CONCLUSION: Our data implicate UGT polymorphisms associated with altered drug exposure as potential predictors of MMF toxicity, especially leucopenia. Diarrhea, on the other hand, may be more related to local effects of the drug within the GI tract.

Abstract # 213
A PHASE II EXPLORATORY STUDY TO EVALUATE THE SAFETY OF INDUCTION THERAPY WITH CAMPATH-1H®, COMBINED WITH CHRONIC IMMUNOSUPPRESSION WITH MMF AND SIROLIMUS: A STUDY OF CCTPT. William Harmon,2 Kevin Meyers,3 Robert Mathias,4 Anthony Portale,5 David Ikle,6 Yvonne Morrison,1 Nancy Bridges.1

Purpose: Despite excellent short-term outcomes, long-term success is compromised by complications of chronic immunosuppressive medications and CAN. Calcineurin inhibitors and steroids can be individually avoided in pediatric renal transplantation. We designed this study to optimize short and long-term renal allograft function with minimal chronic immunosuppression using a steroid-free, calcineurin-inhibitor withdrawal protocol.

Method: Unsensitized recipients of a first living donor kidney transplant received 2 doses of Campath-1H® (0.3 mg/kg), 1 day pre- and post-transplant. Subjects received tacrolimus and MMF until week 8-12 when they underwent protocol renal biopsy and were changed to sirolimus and MMF if rejection free. The planned 35 subjects were changed to sirolimus and MMF if rejection free. The planned 35 subjects

CONCLUSION: Minimization of immunosuppression using a steroid-free, calcineurin-withdrawal protocol in low risk pediatric renal transplant recipients appears to be well tolerated with acceptable rates of clinical AR and no serious infections 12 months after transplantation.

Abstract # 214
BAFF MONITORING AFTER B-CELL DEPLETION THERAPY FOR ACUTE RENAL TRANSPLANT REJECTION. Valerya Zarkhin,1 Li Li,1 Minnie Sarwal.1

Purpose: To investigate the interaction between B-cell activation factor of the TNF family (BAFF) level and circulating B-cell repopulation in pediatric patients with acute kidney transplant rejection treated with the B-cell-depleting agent Rituximab.

Method: 10 pediatric patients (3-23 yrs) with biopsy proven B-cell positive AR were treated with steroids and Rituximab (4 x 375 mg/m²/dose/week). All patients were followed up for 12 months. Peripheral blood CD19 cells and donor specific antibodies (DSA) were monitored monthly. Serum level of BAFF was measured by ELISA at AR, 1, 3, 6, and 12 months post-AR treatment and correlated with clinical outcomes.

Results: Complete depletion of circulating and intragraft B-cells was observed with Rituximab, with improvement in AR grade in all patients. The median time of peripheral B-cells repopulation was 5 months (range 3-12 months, Fig 1). No correlation was found between pre-treatment peripheral B-cell number and the B-cell repopulation time (r=0.59, p=0.09). BAFF levels rose significantly with B-cell depletion with maximum values at 3 months post-treatment (7.5 fold increase, p<0.0001) and had trend to normalization with B-cells recovery at 12 months (Fig 1). Serum BAFF levels correlated positively with B-cell depletion >6 months (r=0.91, p=0.004, Fig1B). A lack of depletion of DSA I, but not DSA II correlated with higher BAFF levels (r=0.99, p=0.007). High BAFF is associated with rapid serum Rituximab clearance.

CONCLUSION: The timing of B-cells repopulation is dependent on serum BAFF, which may support survival and/or repopulation of DSA priming cells. Patients with incomplete B-cells depletion and high DSA level may benefit from blocking BAFF signal in addition or prior to administration of a B-cell depleting reagent.

Abstract # 215
GENERATION OF EPSTEIN BARR VIRUS SPECIFIC CYTOTOXIC T LYMPHOCYTES (EBV-CTLs) RESISTANT TO THE IMMUNOSUPPRESSIVE DRUG FK506. B. De Angelis,1 G. Dotti,1 C. Quintarelli,1 L. Huye,7 H. Heslop,1 M. Brenner,1 C. Rooney,1 B. Savoldo.1 CAGT, Baylor College of Medicine, Houston, TX, USA.

Purpose: Adoptive transfer of autologous EBV-CTLs to stem cell transplant and solid organ transplant recipients is safe and effective for prevention and treatment of EBV+ post transplant lymphoproliferative disorders (PTLD). However, CTLs expansion, persistence and efficacy can be limited by immunosuppressive drugs, which can often be tapered in patients developing PTLD, but not completely withdrawn due to the risk of graft rejection. One of the most used immunosuppressive agents is FK506 whose effects are highly dependent on binding of FKBP12 proteins.

Method: To generate CTLs resistant to FK506 we knocked down the FKBP12 expression in CTLs. We then generated 2 retroviral vectors encoding for siRNA4/GFP. After transduction of CTLs with these vectors, we found that siRNA4+CTLs increased over time not only as % of GFP+ cells remaining, but also siRNA4+CTLs (41±4%). Then, when CTLs were stimulated with autologous EBV-LCL with or without FK506(5ng/ml) and low IL-2 (20U/mL), we found that siRNA4+CTLs increased over time not only as % of GFP+ cells from (46±2%) to (55±27%), but also numerically (median fold expansion: 34.3, range 5-60). Control CTLs showed no selection in culture (% of GFP+ cells remained unchanged from 56±27% to 57±23%)

CONCLUSION: Minimization of immunosuppression using a steroid-free, calcineurin-withdrawal protocol in low risk pediatric renal transplant recipients appears to be well tolerated with acceptable rates of clinical AR and no serious infections 12 months after transplantation.

Abstract # 216
THE IMMUNOSUPPRESSIVE DRUG FK506. B. De Angelis,1 G. Dotti,1 C. Quintarelli,1 L. Huye,7 H. Heslop,1 M. Brenner,1 C. Rooney,1 B. Savoldo.1 CAGT, Baylor College of Medicine, Houston, TX, USA.

Purpose: Adoptive transfer of autologous EBV-CTLs to stem cell transplant and solid organ transplant recipients is safe and effective for prevention and treatment of EBV+ post transplant lymphoproliferative disorders (PTLD). However, CTLs expansion, persistence and efficacy can be limited by immunosuppressive drugs, which can often be tapered in patients developing PTLD, but not completely withdrawn due to the risk of graft rejection. One of the most used immunosuppressive agents is FK506 whose effects are highly dependent on binding of FKBP12 proteins.

Method: To generate CTLs resistant to FK506 we knocked down the FKBP12 expression in CTLs. We then generated 2 retroviral vectors encoding for siRNA4/GFP and irrelevant siRNA/GFP and transduced 7 EBV-CTL lines.

TRANSDUCTION: Transduction efficiency was 46±22% and 55±27%, respectively. Using a thymidine uptake assay we found that proliferation was significantly inhibited in control (74±2%) but not siRNA4+CTLs (41±3%). Then, when CTLs were stimulated weekly with EBV-LCL with or without FK506(5ng/ml) and low IL-2 (20U/mL), we found that siRNA4+CTLs increased over time not only as % of GFP+ cells from (46±2%) to (89±4.5%) but also numerically (median fold expansion: 34.3, range 5-60). Control CTLs showed no selection in culture (% of GFP+ cells remained unchanged from 56±27% to 57±23%)

RECONCILIATION: Minimization of immunosuppression using a steroid-free, calcineurin-withdrawal protocol in low risk pediatric renal transplant recipients appears to be well tolerated with acceptable rates of clinical AR and no serious infections 12 months after transplantation.
CONCURRENT SESSION III: INFECTIOUS DISEASE: PTLD AND MALIGNANCY 1

Abstract# 216

**IMMUNE RESPONSE TO POLYMOLVIRUS BK AFTER PEDIATRIC KIDNEY TRANSPLANTATION.** Patrizia Comoli,1 Michela Cioni,2 Hans H. Hirsch,3 Sabrina Basso,1 Iris Fontana,4 Angelica Parodi,1 Antonella Gurrado,1 Franco Locatelli,1 Fabrizio Ginevri.2

1Pediatric Hematology/Oncology, Fondazione IRCCS Policlinico S. Matteo, University of Pavia, Pavia, Italy; 2Pediatric Nephrology, Istituto G. Gaslini, Genova, Italy; 3Division of Infectious Diseases, University Hospitals Basel, Basel, Switzerland; 4Dept. Transplant Surgery, S. Martino Hospital, Genova, Italy.

**PURPOSE:** Polymavirus BK (BKV)-associated interstitial nephritis (BKVN) is a relevant infectious cause of graft failure after kidney transplantation (KTx). Among the risk factors contributing to BKVN, a central role seems to be played by failure to mount virus-specific immunity.

**METHOD:** In 43 pediatric allograft recipients prospectively monitored for BK by q-PCR, we evaluated body response, measured by enzyme immunosassay, and cell-mediated immunity, reported as frequency of IFNγ secreting cells in a ELISPOT assay and as specific cytotoxicity, after 9-day stimulation with BKV large T (LT) and VP1 antigen-derived peptides.

**RESULTS:** After KTx, both specific IgG levels, and BKV-specific T cells increased according to the degree of viral exposure. BKV-seropositive patients who never reactivate the virus (group 1, n=11) did not show significant increase in IgG levels, while patients with urinary shedding alone (group 2, n=17) or with concomitant viremia (group 3, n=15) significantly increased antibody levels. In the case of cellular immunity, VP1-specific T-cells increased in the three groups. Conversely, levels of LT-specific T-cells, which were higher and remained unchanged throughout the follow-up period in group 1 patients, had a significant increase in recipients belonging to both group 2 and 3. Moreover, cytotoxicity towards LT was found essential for the control of viremia. Interestingly, group 2 patients show a median 3-fold increase in LT-specific T-cell levels at peak viruria, compared to no increase observed in group 3 patients. At peak viruria, viremic patients already show an 8-fold rise in specific IgG.

**CONCLUSION:** Our study suggest that inability to reach protective levels of BKV LT-directed T cells, rather than specific IgG, predispose KTx recipients to BKVN replication.

Abstract# 217

**CRITICAL ROLE OF NK CELLS IN THE EBV IMMUNE-SURVEILLANCE FOLLOWING PEDIATRIC HEART TRANSPLANTATION.** Silke Wiessmayr,1 Steven A. Weber,1 Louise Smith,1 Iulia Popescu,1 Camilla Macedo,2 Michael Greens,2 Diana Metes,1 Surgery, Thomas E Starzl Transplantation Institute, Pittsburgh, PA, USA; 2Cardiology, Children’s Hospital of Pittsburgh, Pittsburgh, PA, USA.

**PURPOSE:** Post-transplantation lymphoproliferative disorders (PTLD) are life-threatening complications of solid organ transplantation (Tx), caused by Epstein-Barr Virus (EBV) infections and the use of chronic non-specific immunosuppression (IS). Thus far little is known about the role of NK cells, as mediators of innate immunity, on the surveillance and control against PTLD.

**METHOD:** The aim of the current study was to perform a Flow cytometry based phenotypical analysis on the NK cells in peripheral blood in patients with acute PTLD (n=4), as compared to pediatric HTx patients that control well EBV infection (n=8) or healthy subjects (n=11).

**RESULTS:** Our results show that overall, NK cells from PTLD patients demonstrated a complete loss in the expression of the activating receptor NKGD2 (2%±2% as compared to 30%±19% in EBV controllers and 53%±14% in healthy subjects respectively), while significantly up-regulated PD-1 expression (41%±31% vs 2%±4% in the EBV controllers vs 2%±3% in the healthy subjects). Further analysis on the two main NK cell subsets CD56dimCD16+ (mediating cytotoxicity) and CD56brightCD16- (mediating IFN-Y production) confirmed the NKGD2 loss and PD-1 up-regulation in peripheral blood from PTLD patients as opposed to the other groups studied. In addition the CD56dimCD16 NK cells from PTLD patients down-modulated the CD69 expression (52%±17% vs. 93%±8% in EBV controllers and 93%±5% in healthy), while the CD56-CD16- subset display a significant reduction in the CXCR1 expression (10%±3% vs 31%±22% in EBV controllers and 78%±7% in healthy subjects respectively).

**CONCLUSION:** These results propose for the first time NK cell exhaustion, associated with the loss of important activating and chemokine receptors as possible NK cell-mediated mechanisms of tumor evasion in PTLD pediatric HTx patients.

Abstract# 218

**SURVIVAL AFTER PTLD IN PEDIATRIC KIDNEY TRANSPLANT RECIPIENTS IS VERY GOOD: A SPECIAL STUDY OF THE NAPRTCS.** Vikas R. Dhamdikarha,1 Karen L. Martz,2 Mark R. Benfield.3

1University of Florida, Gainesville, USA; 2Emmes Corporation, Rockville, USA; 3University of Alabama at Birmingham, Birmingham, USA.

**PURPOSE:** Post-transplant lymphoproliferative disorder (PTLD) has traditionally been reported to lead to high mortality. In a prior North American Pediatric Kidney Trials and Cooperative Studies (NAPRTCS) questionnaire analysis of pediatric kidney transplant recipients from the mid-1990s, 33% of patients with PTLD had died. However, recent anecdotal survival appeared better.

**METHOD:** We performed a special questionnaire study of NAPRTCS participating centers to determine the recent outcomes after PTLD and to determine prognostic factors, especially with availability of anti-CD20 antibody therapy. As of February 2008, the NAPRTCS registry, active since 1988, had 223 registered PTLD cases, all based on individual center definition. We sent a 25-point questionnaire to the centers with the most recent 150 cases to obtain additional follow up data not collected in master registry.

**RESULTS:** We received 84 completed responses. PTLD was within lymph node in 58%, allograft in 10%, in central nervous system (CNS) in 6%. When known, PTLD was mostly polymorphic (46%) and predominantly of B-cell origin (80%). Therapies employed included reduction of immunosuppression (92%), anti-viral agents (58%), anti-CD20 antibody (27%), surgical reduction (27%) and chemotherapy (49%). Of these 84 patients, only 11 (13%) are reported to have died, 2 from non-medical causes. Kaplan-Meier calculated patient survival was 91.3% at 1-year and 87.8% at 2-, 3-, 4- and 5-years post-PTLD. Due to the low frequency of death events, no significant results were obtained by Cox regression for putative good prognostic factors such as more recent transplant year, presentation within 1-year post-transplant, absence of CNS disease, use of anti-viral agents, early post-transplant use of sirolimus or post-PTLD anti-CD20 antibody use.

**CONCLUSION:** Overall, PTLD in the pediatric kidney transplant recipient does not appear to be the dreaded diagnosis as once believed. These results may contrast with the higher impact of PTLD in children with other organ transplants.

Abstract# 219

**HOST GENE EXPRESSION IN EPSTEIN-BARR VIRUS (EBV) INFECTION AFTER PEDIATRIC ORGAN TRANSPLANTATION.** Upton Allen,1 Michelle Barton,1 Joseph Beyene,2 Pingzhao Hu,1 Nasser Khanlian-Booran,2 Diane Hébert,1 Anne Dipchand,1 Vicki Ng,1 Melissa Solomon,1 David Grant.1 Paediatrics, SickKids Transplant Centre, Toronto, Canada; 2Research Institute, Hospital for Sick Children, Toronto, Canada.

**PURPOSE:** We questioned if aspects of the virus-host interaction could be measured to help predict if EBV infection of B lymphocytes will result in post-transplant lymphoproliferative disorder (PTLD). Thus, we examined host genes that were differentially expressed in children with different levels of EBV loads after transplantation.

**METHOD:** We enrolled children with different levels of viral loads (VL): undetectable, low, intermediate and high. Gene expression was measured by microarray analysis of RNA from CD19+ B lymphocytes using the Human Genome U133 Plus 2.0 GeneChip. Moderated t-statistics were computed for each gene in different comparisons using a local pooled error (LPE) test. The false discovery rates (FDR) of the differentially expressed genes were evaluated and validation done using RT-PCR. Using clustering-based analysis, a set of genes with the largest variation, as measured by coefficient of variation, was used to explore the patterns of VL.

**RESULTS:** Among 27 samples from 26 transplant recipients, the VL categories were: low or undetectable loads (L), N = 14; high or intermediate loads (HI), N = 13. There were 7 healthy EBV-seropositive (P) and -seronegative controls (N). Median age of transplant patients = 12.1 yrs (range 1-16.9); Organ groups: kidney (n=13), liver (n=9); heart (n=3); lung (n=1). Median time post-transplant 0.5 yr (range 0.1-3.8). Using the LPE test, we identified 24-54 differentially expressed genes with FDR<=0.1 in each of four comparisons of HI vs P, LU vs PH, HI vs LU and P vs N. Using average-linkage hierarchical clustering with correlation as the similarity measure in unsupervised analyses, we identified patterns of 563 gene expressions, creating 5 clusters aligned with levels of VL.

**CONCLUSION:** This proof-of-concept study indicated varying degrees of alignment between levels of VL and gene clusters. Analyses for differential expression of genes showed genes that could be implicated in the pathogenesis of EBV PTLD.

Abstract# 220

**THE IMPACT OF VALGANCICLOVIR ON EBV-PCR IN PEDIATRIC LIVER TRANSPLANTATION.** Carla Venturi, Javier Bueno, Teresa Tortola, Leonor Pou, Joan Gavalda, Gemma Codina, Jesus Quintero, Albert Pahissa. Pediatric Liver Transplant Unit, Hospital Valle de Hebron, Barcelona, Spain.

**PURPOSE:** To analyze the efficacy of Valganciclovir in pediatric liver transplant through the monitoring of EBV-PCR and VGC blood levels.
METHOD: Between 2005-2007, we have tested 979 EBV-P/C patients in 80 pediatric liver transplant recipients. 21/80 PCR were tested from the date of transplantation and 59/80 belonged to the historical cohort (7/59 had prior history of PTLD). We considered a negative PCR if viral load < 5000. Patients were divided in 2 groups depending if they received VGC treatment (n=22) or not (n=16). The response to VGC was considered complete if the PCR was negative at 30 days, partial at 30-60 days treatment and partial if PCR decreased at least 50%. Also VGC blood levels were tested in 109 instances, including the recommended dose of VGC (30 mg/kg) if it was low and were correlated with the EBV-P/C.

RESULTS: A total of 369 (33%) positive PCR were detected in 36 out of 80 patients with a value of 75.000 copies (5000-4.200.000). The PCR in blood was negative in 3/8 biopsied patients with presence of EBV (EBER). Four patients were long-term treated because of persistent high viral load, one of them developed PTLD 2 months after stopping VGC. From the 22 episodes treated for 30 days, 34% had a complete response, 41% partial and 23 % no response. In the treated group it was 6%, 25% and 68% respectively (p<0.001). However, we did not find differences in those episodes treated during 60 days. No patients reached the recommended VGC therapeutic levels at 2 hours (C2) (8 mg/L), however mean viral load was lower with VGC C2 blood levels > 4 mg/L (p=0.03).

CONCLUSION: There is a response to VGC after 30 days of treatment showed by EBV-P/C negativization. Presence of EBV in tissue can occur with negative EBV-P/C. There is a high intra and interpatient variability of VGC levels in children suggesting the need of pharmacokinetic monitoring to optimize treatment.

Abstract# 221
PROSPECTIVE MULTICENTRE REGISTRY OF FEBRILE URINARY TRACT INFECTIONS AFTER PEDIATRIC RENAL TRANSPLANTATION. F. Weigel,1 A. Lehnhardt,2 L. Pape,3 E. Kuwertz-Brókig,4 B. Hoppe,1 L.B. Zimmerhackl,5 B. Toenoff,6 M.J. Kemper,7 U. Jochum,7 Universitäts-Kinderklinik, Innsbruck, Austria; 5Universitäts-Kinderklinik, Heidelberg, Germany; 6Universitäts-Kinderklinik, Hannover, Germany; 7Universitäts-Kinderklinik, Münster, Germany; 8Universitäts-Kinderklinik, Köln, Germany; 9Universitäts-Kinderklinik, Innsbruck, Austria; 10Universitäts-Kinderklinik, Heidelberg, Germany.

PURPOSE: Retrospective data suggest that febrile urinary tract infections (UTI) occur frequently after renal transplantation (RTx) and contribute to morbidity and graft loss. This first prospective multicenter registry evaluates the prevalence, risk factors and outcomes of UTI in children with ESRD after pediatric RTx.

METHOD: In 2003 the registry was started with participation of 15 centres. Data of patients are collected from the date of listing with a two year follow-up after RTx. Currently, 157 patients (male=84, female=73) are included. 96 Patients (n=51; F=45) were transplanted at age 12 years (range 1-18 years). At least one UTI occurred in 19% (n=18), independent of gender (9 boys, 9 girls). The underlying diagnoses were: urinary tract malformation (UTM) 22% (21), renal dysplasia 22% (21), glomerular disorder 16% (15), nephronophthisis 12% (12), nephropathy 8% (8), HUS 5% (5), ARPKD 5% (5), metabolic disorder 2% (2) and other 7% (7). 33% of the patients with UTI suffered from UTM. The prevalence of UTI after RTx at 1, 6 and 12 months was 20%, 45% and 35%, respectively, with increase of serum-creatinine from baseline 0.91±0.36 mg/dl to 1.37±0.52 mg/dl and C-reactive protein to 147 ± 88 mg/l during infection. 40% (n=7) of the patients received no chemophrophylaxis at the time of their first infection.

CONCLUSION: As UTI's after RTx are frequent, and are not restricted to the early post transplantation phase, further recruitment of patients and a follow-up is ongoing.

Abstract# 222
IMPACT OF UNIVERSAL IMMUNIZATION AGAINST HEPATITIS A IN CHILDREN HOSPITALS IN ARGENTINA. Mariana N. Espina Peña,1 Carlos Carabajal,2 Gabriela Ensinc,3 Hugo Galdeano,4 Ricardo Jarra,1 Alejandro Santillan,1 Graciela Saiég,1 Judith Armoni,1 Roberto Debbag,1 Daniel Stamboulian,1 Centro de Estudios Infectológicos, Ciudad Autonoma de Buenos Aires, Buenos Aires, Argentina; 2Hospital de Niños Eva Peron, Santiago de Estero, Argentina; 3Hospital de Niños V.J. Filela, Rosario, Santa Fe, Argentina; 4Programpa Provincial de Inmunizaciones, Mendoza, Argentina; 5Hospital de Niños Jesus de Praga, Salta, Argentina; 6Hospital Interventum, La Paz, Bolivia; 7Hospital Interventum, Iquitos, Peru; 8NMC, Buenos Aires, Argentina; 9Hospital Notti, Mendoza, Argentina; 10Sanofi Pasteur, Buenos Aires, Argentina.

PURPOSE: In Argentina, official reported data had revealed an increase of HAV incidence rate in 2003-2004. Thus HAV vaccination was included as universal immunization (UI) with one dose at 12 month of age in July 2005.

OBJECTIVES: This study was designed to measure the impact of UI on the incidence of HAV and its complications.

METHOD: Hospital records of hepatitis cases clinically diagnosed or serologically confirmed as HAV were reviewed and collected retrospectively from ambulatory and hospitalized children from five hospitals in the interior cities of the country. Data about FHF and Liver transplant (LT) due to HAV was also collected. Study period included data collection before UI, January 2002-December 2005, and after UI January 2006 to August 2008 to measure the impact.

RESULTS: Before UI 4,397 cases of HAV form the ambulatory setting, and 217 cases of children hospitalized were collected, mostly clinically diagnosed. Also 14 FHF were collected, 9% were by HVA; 50% of them died and 5 patients required LT. After UI started 395 ambulatory cases, and 30 hospitalized cases were recorded without cases of FHF. None presented complications. Only one of the patients in the second period was vaccinated. On children in the second period were older than in the first one (p<0.001).

CONCLUSION: UI reduced 91% the cases of ambulatory and 86% hospitalized cases of HVA; but a greater and most important reduction was seen on the FHF cases (100%).
CONCURRENT SESSION IV: ORGAN SPECIFIC: LIVER, SMALL BOWEL AND PANCREAS

Abstract# 225
LIVING-DONOR LIVER TRANSPLANTATION FOR METHYLMALONIC ACIDEMIA: IS IT A CURATIVE OPERATION? Mureco Kasahara,1 Reko Horikawa,2 Akinari Fukushima,1 Atsuko Nakagawa.1 1Transplant Surgery, National Center for Child Health and Development, Tokyo, Japan; 2Dept. Endocrinology and Metabolism, National Center for Child Health and Development, Tokyo, Japan.

PURPOSE: Methylmalonic acidemia (MMA) is a rare autosomal recessive genetic disorder caused by complete (mut0) or partial (mut-) deficiency of methylmalonyl-CoA mutase or by defects in the synthesis of adenosylcobalamin (cblA, cblB). These errors result in metabolic acidosis, developmental delay and failure to thrive, and often carry a poor prognosis. Liver transplantation (LT) may offer a complete cure for genetically acquired errors of metabolism in the liver. We have indicated living-donor liver transplantation (LDLT) for 10 cases of MMA.

METHOD: A total of 10 patients who received LDLT in our institution were included in this study. 6 males and 4 females with a median age of 40.1 months (range 7 months to 7.2 years). Postoperative median follow-up period was 18 months. All cases were diagnosed by urine/serum organic acid analysis, methylmalonyl-CoA mutase activity in cultured fibroblasts during the neonatal period, or genetic analysis. Indication of LDLT were refractory metabolic decompensation (n=10) and developmental delay (n=8).

RESULTS: Nine patients are currently doing well without refractory metabolic decompensation. One patient was died from severe acidosis following acute cellular rejection on day 40 post-LDLT. Postoperative progressive renal insufficiency was seen in one patient. Pre- and postoperative concentrations of serum, urine, CSF-MMA showed a decrease in postoperative concentrations. Brain MRI findings showed significant improvement of atrophy in several cases. All the patients showed improvement of oral food intake.

CONCLUSION: Significant improvement of neurological decompensation was not seen in this study population, however, the benefits of an improved quality of life with abolition of episodes of decomposition must be weighed against the potential for renal and neurologic injury. LT does not cure the disease, but may decrease the disease severity.

Abstract# 226
PROSPECTIVE STUDY OF ADHERENCE IN ADOLESCENT LIVER TRANSPLANT RECIPIENTS. Rebecca Bergquist,1 Carlos Esquivel,1 Kenneth Cox,1 William Berquist,1 Iris Litt.1 LPCH Pediatric Liver Transplant Program, Stanford University, Palo Alto, CA, USA.

PURPOSE: To conduct a prospective study to evaluate the prevalence, etiologies, demographic variables and adverse outcomes associated with non-adherence in adolescent liver transplant recipients.

METHOD: We recruited all liver transplant patients ages 12-21 greater than 1 year post-transplant. Participants completed a questionnaire about their adherence rate and reasons for non-adherence to their immunosuppressive medicine either in clinic or by mail. An adherent patient was defined as one who reporting taking medication all of the time without missing any doses the previous week. Late acute rejection was defined as any biopsy-proved episode that occurred more than 1 year post-transplantation. Descriptive, categorical and continuous variables were analyzed using the GraphPadPrism software.

RESULTS: Of the 73 patients enrolled, 49 (67.1%) were adherent and 24 (32.9%) were non-adherent. Of the non-adherent group, 5 patients took medicine “all the time” but admitted missing occasional medication doses. 2 patients did not take any medication. The majority of the 16 (69.6%) non-adherent patients listed forgetfulness as the reason. Non-adherent patients were more likely to be male, from a single parent home and of low SES. Non-adherence was significantly associated with a greater number of years post-transplant (p=0.0227) but not older age (p=0.9991) or single parent home (p=0.5771). Of those 11 patients with late acute rejection, 7 (63.7%) had a history of non-adherence. 11 patients previously non-adherent became adherent while 9 patients became non-adherent who were previously adherent in 2005.

CONCLUSION: Non-adherence continues to be a prevalent problem in adolescent liver transplant patients with the risk increasing over time. Furthermore, forgetfulness was the main reason cited for non-adherence and therefore interventions should target improved reminder systems. Further research into demographic risk factors and the efficacy of interventions should address this issue to improve the health outcomes for adolescents.

Abstract# 227
RENA L FUNCTION IN CHILDREN AFTER SMALL BOWEL TRANSPLANTATION. Cristian Noto,1 Olivia Boyer,1 Florence Lacaille,1 Frédérique Sauvat,1 Natacha Patey,2 Patrick Niaudet,1 Olivier Goulet,3 Akinari Fukuda,1 Rebecca Berquist,1 Carlos Esquivel,1 Kenneth Cox,1 William Berquist,1 Iris Litt.1 1Pediatric Hepatogastroenterology-Nutrition, Necker-Enfants Malades, Paris, France; 2Paediatric Nephrology, Necker-Enfants Malades, Paris, France; 3Paediatric Surgery, Necker-Enfants Malades, Paris, France.

PURPOSE: to assess renal function after small bowel transplantation (SBTXs) in children, and evaluate the incidence of renal failure (RF).

METHOD: Among 33 children surviving more than one year with a functioning graft, renal function was measured by inulin clearance (measured Glomerular Filtration Rate, mGFR) in 25. They had received a SBTx between 1989 and 2007 (10 isolated SBTxs, 15 combined liver-SBTxs), with a median follow-up of 6 years. Immunosuppression was tacrolimus, steroids, ± azathioprine or basiliximab. RF was defined as a mGFR <80 ml/min/1.73 m². Nine patients underwent a renal biopsy.

RESULTS: Eleven patients presented RF at some point (median mGFR 60 ml/min/1.73 m²). The median tacrolimus level was 8 mg/ml in the whole group. RF was correlated with a high tacrolimus trough level. All renal biopsies, 1-18 years after SBTx, showed tacrolimus-induced toxicity; its severity did not correlate with mGFR, nor with the delay from Tx. There was neither difference in pre- nor in post-Tx renal risk factors, such as hypovolemia or use of other nephrotoxic drugs. mGFR normalized in 4 patients following a decrease in tacrolimus dosage while adding mycophenolate mofetil.

CONCLUSION: RF is frequent after SBTx. Renal function seemed to depend more on tacrolimus levels than on duration of treatment. Histological lesions were constant and found early. The decrease of mGFR was reversible when lowering the doses of tacrolimus, but we did not yet perform control biopsies. Renal-sparing protocols should be developed in SBTxs.

Abstract# 228
ACUTE CELLULAR REJECTION IN PEDIATRIC INTESTINAL TRANSPLANTATION. Raffaele Girlanda,1 Cal S. Matsumoto,1 Stuart S. Kaufman,1 Chirag Desai,1 Cheryl A. Little,1 Lynnt B. Johnson,3 Thomas M. Fishbein.1 1Pediatric Liver and Intestinal Transplantation, Georgetown University Hospital, Washington, DC, USA.

PURPOSE: Acute cellular rejection (ACR) continues to be a significant source of morbidity in intestinal transplantation (ITx). We sought to evaluate the nature of ACR in our pediatric population.

METHOD: Induction immunosuppression consisted of steroids and Basiliximab. Thymoglobulin was utilized in lieu of Basiliximab for sensitized recipients. Maintenance immunosuppression was with steroids, tacrolimus, and sirolimus. Graft biopsies were concerted on a protocol basis. RESULTS: 43 pediatric ITxs were performed in 43 recipients (22 male, 21 female) from December 2003 to July 2008. 1 case was a retransplant of a patient transplanted at another center. Average age was 2.84 ± 3.74 years (range: 5 months ~ 17 years and weight 12.17 ± 7.59 kg (range: 4 – 45 kg). Diagnosis was Gastrochisis (12), NEC (9), Pseudoobstruction (9), Atresia (5), Volvulus (5), Micoviolis Inclusion (2), and chronic rejection (1). Graft types were: liver/intestine (L/I, n=25), Multivisceral (MVxTs, n=10), isolated intestine (ITxTs, n=8). Average follow-up time was 725 days. Average number of biopsies per patient: 20.98 ± 9.24. 11/43 (26%) had at least one episode of ACR. 5/11 (45.5%) had the first ACR episode within the first 6 months (57.2%) within the first 6 months. 7/11 had a single episode of ACR and 4/11 had 2 episodes. Average duration of first ACR episode was 18.64 ± 18.01 days (range 4-68 days). First ACR episodes were: severe (n=4), moderate (n=3), and mild (n=4), 1 death, a 14 month-old 8.6 kg infant who received a L/I graft is attributed to a severe exfoliating rejection occurring POD 12. Subsequent aggressive ACR treatment resulted in disseminated CMV, multiorgan failure and death on POD 48. ACR occurred in 5/25(20%) L/I; 2/10 (20%) MVxTs; and 4/8 (50%) ITxTs (p=ns). Freedom from rejection at 1 year was 74% and 5 years 64%.

CONCLUSION: ACR continues to be a significant source of morbidity in pediatric intestinal transplantation with the majority occurring within 6 months post transplant. Graft type does not appear to be a contributing factor.

Abstract# 229
HEPATOCELLULAR CARCINOMA IN INFANTS WITH PROGRESSIVE FAMILIAL INTRAHEPATIC CHOLESTASIS: OUTCOME WITH LIVER TRANSPLANTATION. Wael A. O’Haili,1 Mohamed Hamshoiv,1 Khalid O. Abdullah,1 Abdaal Kahn,1 Abdulmajeeed Al-Abdulkareem.1 1Hepatology Biologies Sciences and Transplantation, King Abdulaziz Medical City, National Guard Hospital, Riyadh, Saudi Arabia.

PURPOSE: Hepatocellular carcinoma (HCC) is a rare malignancy in childhood estimated at 0.5% of all childhood malignancies. An association with progressive familial...
intrahepatic cholestasis (PFIC) has been reported. Orthotopic liver transplantation (OLT) is a curative option for HCC. Selection of pediatric OLT candidates based on the Milan criteria is debatable. The purpose of this paper is to report a single center experience in the management of infants with PFIC and HCC treated with OLT.

METHOD: A retrospective review of pediatric HCC cases transplanted between 09/2002 and 09/2008. Clinical, PELD score, biochemical, radiological and pathological data was collected.

RESULTS: 2 infants with HCC were identified. Case #1 is a 15 month old female diagnosed with PFIC with a PELD of 40. Serum α-fetoprotein (AFP) was 5636 ng/mL. At 1 year follow up she was doing well. A PELD of 26. AFP was 7271 ng/mL. CT abdomen showed HCC (2.4cm and 1cm). She underwent living donor liver transplantation with segment 2+3 graft. Explant pathology showed cirrhosis with diffuse multinodular HCC throughout the liver. Tumour sizes 12-10mm with no lymphovascular invasion (TNM Stage IVA). With 25 month follow up, there is no evidence of recurrence on imaging or AFP with normal graft function.

Case #2 is a 12 month old female with PFIC and a PELD of 26. AFP was 7271 ng/mL. CT abdomen showed 2 HCC (2.4cm and 1cm). She underwent living donor liver transplantation with segment 2+3. Explant pathology showed cirrhosis with 3 HCC (3.5cm+1cm+0.5cm) with no lymphovascular invasion (Stage III). On 7 months follow up, there is no evidence of recurrence on imaging or AFP with normal graft function.

CONCLUSION: Infants with PFIC and HCC beyond the Milan criteria can undergo liver transplantation and have a good outcome.

Abstract# 230

HYponatRemia increases mortality in pediAtric paInts listed for liver transplantation. Rebecca G. Carey,1 John C. Bucuvalas,2 William F. Balistreri,2 Todd G. Nick,2 Nada A. Yazigi,3 Pediatrics, Maine Medical Center, Portland, ME, USA; 2Pediatrics, Liver Care Center, Cincinnati Children’s Hospital Medical Center, Cincinnati, OH, USA.

PURPOSE: To evaluate hyponatremia as an independent predictor of mortality in pediatric patients with end-stage liver disease listed for transplantation.

METHOD: We performed a single-center retrospective study of children listed for liver transplantation. We defined hyponatremia as a serum sodium concentration <130 mEq/L that persisted for at least 7 days. The primary outcome was death on the waiting list.

RESULTS: Ninety-four patients were eligible for the study. The prevalence of hyponatremia was 26%. Kaplan-Meier survival analysis demonstrated that patients with hyponatremia had decreased pretransplant survival compared to patients who maintained a serum sodium >130 mEq/L (P=0.001). Univariate analysis demonstrated death on the waiting list was also associated with higher median PELD scores at listing (P<0.01), non-white race (P=0.02) and age less than one year (P=0.001). Logistic regression analysis identified hyponatremia and non-white race as independently associated with pretransplant mortality (OR=8.0 [95%CI, 1.4 to 45.7], P=0.02 and OR=6.3 [95%CI, 1.25 to 33.3], P=0.03). When hyponatremia was added to the PELD score, it was significantly better in predicting mortality than the PELD score alone (c-statistic=0.79, P=0.03).

CONCLUSION: Hyponatremia identifies a subset of pediatric patients with increased risk of pretransplant mortality and improves the predictive ability of the current PELD score.

Abstract# 231

pEdiatric fulminant hepAtic Failure and liver transplantation: single center 15 yearS experIence. Maria C. Fernandez,1 David Bes,2 Guillermo Cervo,2 Natalia Tamburri,2 Carlos Cambaceres,2 Susana Lopez,3 Oscar Imventazra,2 1Pediatría, Hospital Garrahan, Buenos Aires, Argentina; 2Trasplante Hepático, Hospital Garrahan, Buenos Aires, Argentina; 3Hepatología, Hospital Garrahan, Buenos Aires, Argentina.

PURPOSE: To analyze the characteristics and outcome of a population with fulminant hepatic failure (FHF)/acute hepatic failure with criteria for liver transplantation admitted to a Pediatric Hospital.

METHOD: Retrospective, descriptive, observational and longitudinal analysis. We included all the patients (p) admitted to our institution with FHF from November 1992 to December 2007 who fulfilled King’s College criteria for liver transplantation. We analyzed etiologies of FHF, gender, age, presence of encephalopathy, hepatitis A global immunization and outcome: recovery rates and deaths on the waiting list, number of transplants, retransplants, living-related transplants (LRT), immediate and long term post-operative outcome. Hepatitis A diagnosis was based on a positive anti-HAV IgM serology. Autoimmune hepatitis was based on positive autoimmune markers: ANA, ASMA, and LKM 1.

RESULTS: During the 15 year period, 433 transplants were performed to 401 pediatric patients. Of these, 136 p (36%) were transplanted for FHF. In our institution, the total number of patients with FHF listed for liver transplantation were 186. Etiologies of FHF were: hepatitis A: 104 p (56%), autoimmune: 8 p (4%), indeterminate: 74 p (40%). The average age was 5 years 8 months (Range 10 months-16 years 10 months). Gender: 55% males, 45% females. 136 p (73%) were transplanted, 35 p (19%) died while on the waiting list and 15 p (8%) recovered, LRT: 19 p (14%). Until global immunization in 2005, hepatitis A accounted for 49% of FHF transplantations. One year post-transplant survival rate was 75%. Global 15 year survival rate was 67%.

CONCLUSION: Long-term outcome of liver transplantation for FHF is good. In our hospital, the incidence of HAV FHF was high until global immunization. The high incidence of indeterminate FHF mandates further investigation.

Abstract# 232

Liver transplantation for fulminant hepatic failure in infancy: a single center experience. Annette Strauss,1 Enke F. Grabhorn,1 Marijke Sornsakrin,1 Andrea Briem-Richter,1 Lutz Fischer,1 Bjorn Nashan,1 Rainer Ganschow,1 1Department of Pediatrics, Pediatric Gastroenterology and Hepatology, University Medical Center Hamburg-Eppendorf, Hamburg, Germany; 2Department of Hepatobiliary Surgery, University Medical Center Hamburg-Eppendorf, Hamburg, Germany.

PURPOSE: Fulminant hepatic failure (FHF) is characterized by a high percentage of unknown causes leading to acute liver failure and furthermore by an increased morbidity and mortality prior and post liver transplantation (Ltx). In different transplant centers all over the world reasons leading to FHF differ significantly as well as outcome. We here report our German single center experience with 30 pediatric patients receiving a liver transplant for FHF.

METHOD: We here report our German single center experience with 30 pediatric patients receiving a liver transplant for FHF.

RESULTS: The time to transfer patients to transplant centers after having diagnosed FHF was quite long, with a median of 14 days. In nearly half of the patients (n=14) we were not able to publish an exact diagnosis prior to Ltx, 50% suffered from encephalopathy, and 13 patient were treated in the Intensive Care Unit prior to transplant. Because of the availability of different surgical techniques, all children received a timely transplant (Split n=18, living donation n=9, whole organ n=2, reduced liver n=1).

Patient survival was 93.4%, and graft survival 83.4% for at least one year follow-up. Severe complications following Ltx include 3 cases with aplastic anemia and one child suffering from systemic mitochondrial depletion syndrome.

CONCLUSION: We conclude from our retrospective study that a strong focus should be made on early referral to a specialized center and on improvement of diagnostic tools to timely detect underlying reasons for FHF.

Abstract# 233

Immigrant paInts are increased at risk of acute renal transplant rejection after transition to the adult nephrology unit. Marta de van den heuvel,1 Hanneke van der lee,2 Marlies Cornelissen,2 Frederike Bemelman,4 Andries Hoistama,1 Tonny Bouts,1 Jaap Groothoff1 1Paediatric Nephrology, Emma Children’s Hospital AMC, Amsterdam, Netherlands; 2Paediatric Nephrology, UMC St Radboud, Nijmegen, Netherlands; 3Clinical Epidemiology in Children, Emma Children’s Hospital AMC, Amsterdam, Netherlands; 4Renal Transplantation, Academic Medical Centre, Amsterdam, Netherlands; 5Renal Transplantation, UMC St Radboud, Nijmegen, Netherlands.

PURPOSE: Transition of adolescent renal transplanted patients from the pediatric to the adult nephrology unit often goes with a decrease of medical supervision. There is concern that this sudden appeal on mature behavior of the patient may lead to more non-compliance with medication and subsequently to more transplant rejection.

METHOD: To analyze the effect of transition on the acute rejection frequency, we performed a historical cohort study in all patients, born before 1987 and transplanted between 1980 and 2004 in two pediatric renal transplantation centers. Data were obtained by reviewing all medical charts from time of transplantation till three years after the transition. We used a Cox proportional hazards model including a frailty term as a correction for repeated outcomes for analysis.

RESULTS: The cohort consisted of 133 Dutch and 29 immigrant patients. Transition occurred at a mean age of 18.2 years (range 14.0-21.7). At transition, 72% had a functioning allograft. Acute rejections occurred in 92 patients before (median follow-up period 4.81 (range 0.20-12.81) years) and in 15 patients after transition (median follow-up period 3.00 (range 1.62-3.00) years). Most rejections (62.2%) occurred within the first year after transplantation. The relative risk of acute rejections after transition was 0.10 (95% CI 0.04-0.28) in Dutch patients and 0.660 (95% CI 0.217-2.02) in immigrant patients.

CONCLUSION: The risk for rejection reduces over time, also after transition to the adult unit in patients of Dutch origin, but not in immigrants. Nephrologists should pay special attention to the latter group.
Abstract# 234
STERIOD-FREE MAINTENANCE IMMUNOSUPPRESSION IN PREPUBERTAL PEDIATRIC RENAL TRANSPLANT PATIENTS RECEIVING BASILIXIMAB, TACROLIMUS AND MYCOPHENOLATE MOFETIL. Angela Deluchi,1 Marcela Valenzuela,2 Mario Ferrario, 1 Pedro Zambrano, J. Luis Guerrero,1 Francisco Cano,1 Marta Azocar, A. Maria Delucchi,1 Jorge Godoy,1 Jorge Rodriguez.1 Pediatric Nephrology, Calvo Mackenna Children Hospital - University of Chile, Santiago, Region Metropolitana, Chile; 2Pediatric Nephrology, Guillermo Grant Benavente Hospital, Concepción, Chile; 1Pediatric Nephrology, Exequiel Gonzalez Cortes, Santiago, Region Metropolitana, Chile.

PURPOSE: Purpose was to evaluate steroid-free maintenance immunosuppression therapy in pre-pubertal renal transplantation.

METHOD: A prospective 59 pre-pubertal renal allograft recipients follow-up to 36 months, 1-11 year (mean 5.8±3.1), PRA<30%, 85% DD, informed consent approved by ethical committee. Group A (n=34) received maintenance therapy TAC and MMF. No steroids were given after 6 d post transplant. Group B (15) steroid, TAC and MMF. Induction therapy was basiliximab in both. Anthropometric, biochemical variables, acute rejection and CMV infection, were registered. Variables were followed up to 36 months and compared using Student’s-t test and regression analysis.

RESULTS: A better growth pattern was seen in steroid-free maintenance group reaching a normal growth (height Z score ± 0.22) at 12 months of follow-up (p<0.05). No significant differences in GFR and serum glucose were found in either group at 3 yr post-transplant. Total cholesterol levels were significantly lower in the study group (p<0.03). The incidence of biopsy-proven acute rejection at 36 months was 3% in steroid-free and 6% in steroid-based group (p=ns), no difference in CMV infection was observed. Hematoctrit levels were lower at first months after transplant in the steroid-free group, increased after 6 months post-transplant. BP was similar in both groups. Graft survival was 98% in both group at 3-yr post transplant.

CONCLUSION: Prepubertal renal transplant recipients in steroid-free maintenance immunosuppressive protocol associated to TAC and MMF was efficacious and safe, with a lower incidence of acute rejection, not increased risk of infection, preserving optimal growth, renal function and reducing cardiovascular risk factors.

Abstract# 235
HYPERLIPIDEMIA IS AN INDEPENDENT RISK FACTOR OF PEDIATRIC CHRONIC ALLOGRAFT NEPHROPATHY. Ehsan Valavi, Hasan Otkesh. Pediatric Nephrology, Ahuzar Hospital, Ahvaz, Khoozestan, Islamic Republic of Iran; Pediatric Nephrology, Ali Asghar Hospital, Tehran, Islamic Republic of Iran.

PURPOSE: Chronic allograft nephropathy (CAN) is now the leading cause of renal transplant loss in pediatric transplant recipients. Despite improvements in immunosuppression, which have significantly reduced the incidence of acute rejection, the rates of chronic kidney loss have remained unchanged in pediatric transplant patients over the last 20 years. Hyperlipidemia is known a risk factor for cardiovascular disease and chronic allograft nephropathy in adult renal transplant recipients, whereas no data exist in pediatric transplant population.

METHOD: In this cross sectional study, 62 renal transplant recipients (32 CAN vs. 30 non-CAN) that aged 5-18 years (17.4±3.6) and with the mean follow-up time of 48 months (9-93 mo) after transplantation, were evaluated for lipid profile and renal function tests.

RESULTS: The incidence of hypertriglyceridemia and hypercholesterolemia after Tx in CAN patients was 68.8% and 59.4%, respectively, and the result of McNemar test show that only hypercholesterolemia was significantly more occurred after Tx among CAN patients (59.4% vs. 26.3%, P=0.021). Comparisons Between groups also showed that hypercholesterolemia and high LDL cholesterol were significantly more seen in CAN group (59.4% vs. 26.7%, P=0.019; and, 57.1% vs. 22.2%, P=0.039, respectively). Thus, hypercholesterolemia and high LDL cholesterol were indicated as significant risk factors for CAN (OR=4.37 and 4.67) respectively (95%CI, 1.16-18.81). Further analysis with Cochran’s statistics show that the effect of hypercholesterolemia on CAN is also independent of acute rejection (P=0.024), hypertension (P=0.011) and donor age (P=0.017).

CONCLUSION: Our results showed that in pediatric recipients hyperlipidemia and particularly hypercholesterolemia have significant association with chronic allograft nephropathy and as adults may need specific therapy which could be more evaluated in later studies.

Abstract# 236
KIDNEY COMPARTMENT-SPECIFIC ALLOIMMUNE NON-HLA TARGETS IDENTIFICATION AFTER RENAL TRANSPLANTATION BY A NOVEL INTEGRATIVE ANALYSIS OF TRANSCRIPTOME AND ANTIBODYOME MEASURE. Li Li,1 Rong Chen,1 Atul Butte,1 Minnie Sarwal,1 Pediatrics, Stanford U, Stanford, CA, USA.

PURPOSE: To identify the tissue specificity and types of immunogenic non-HLA antigen targets after transplantation.

METHOD: 36 paired pre- and post-transplant serum samples from 18 pediatric kidney recipients were used. Serum antibodies were profiled by Inivitrogen ProtoArray® Human Protein Microarray. Compartmental gene expression from normal kidney on cDNA and non-kidney tissues on Affymetrix were used. The integration of the data from ProtoArray and genomics microarrays is re-mapped by AILUN to the most recent NCBI Gene ID. Hypergeometrics were tested for over-enrichment of kidney-compartment specific genes. IHC staining was performed.

RESULTS: 5056 protein targets on the ProtoArray for post-transplant antibody responses were measured. The specificity of antibody responses were measured against gene expression levels specific to the kidney by an integrate genomics method. Allo-antigenic targets by anatomic regions mapped between cDNA microarray and ProtoArray.

CONCLUSION: It provides an immunogenic and anatomic roadmap of the most likely non-HLA antigens that can generate serological responses after renal transplantation.

Abstract# 237
KIDNEY DISEASE OUTCOME QUALITY INITIATIVE (KDOQI) PARAMETERS IN PEDIATRIC RENAL TRANSPLANT RECIPIENTS – A SINGLE CENTRE STUDY. Rajiv Sinha,1 Ahmed Saad,1 Stephen D. Marks.1 1Great Ormond Street Hospital, London, United Kingdom; 2Great Ormond Street Hospital, London, United Kingdom; 3Great Ormond Street Hospital, London, United Kingdom.

PURPOSE: Inclusion of renal transplant recipients (RTR) in the K/DOQI chronic kidney disease (CKD) classification was recently reconfirmed through the kidney disease: improving global outcomes initiative (KDIGO). Despite this there are very few studies looking at CKD stages and complications among paediatric RTR as per K/DOQI.

METHOD: Retrospective review of records of RTR at least 1 year post transplant. RESULTS: 129 RTR aged 2.7 - 20 (median 13.9) years of whom 67% were male and 87% Caucasian were followed up for 12 - 177 (median 45) months. 85 (65%) were on calcineurin inhibitors. Most patients had Stage 3 (54.3%) or Stage 2 (33.3%) [0 Stage 5 and only 1 (0.8%) Stage 1 CKD]. No significant correlation was found between duration of follow up and Stages of CKD. The number of major complications of CKD increased from 0-2 (median 0) in Stage 2 to 0 to 3 (median 1) in Stage 3 and 0-4 (median 2) in Stage 4 (p<0.001). Hypertension, anaemia, hyperphosphataemia and hyperparathyroidism showed a significant increase across CKD stages.
Table 1

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<th>Stage(s)</th>
<th>% SBP = systolic blood pressure, epo = erythropoeitin, bin=PO4binder, S=significant, NS=non-significant</th>
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RESULTS: Male rats treated with EPO had significant lower serum creatinine and BUN. At 24 hours EPO treatment both in male and female Wistar rats. Kidneys were removed and animals killed 2 (T2) and 24 h (T24) after reperfusion. Sham operated rats served as controls. Renal function parameters, histological analysis, RT-PCR, Western blot and immunofluorescent staining were performed.

CONCLUSION: In male rats, EPO pretreatment reduced the postischemic renal failure and in both gender, the protective effect was found in histological parameters. The protective effect of EPO observed in male rats might be the result of its HSP72 mediated impact on NKA expression and localization. EPO has a gender dependent protective effect on I/R induced renal injury.

Supported by OTKA (No 048854), Semmelweis Research Grant, MTA Bolyai, Magyary grant.

Abstract@ 239
PREDICTORS OF PATIENT SURVIVAL IN PEDIATRIC LIVING-RELATED KIDNEY TRANSPLANT RECIPIENTS: A 10-YEAR NKTI EXPERIENCE. Nathan C. Bumanlag,1 Zenaida L. Antonio,1 Ma. Angeles G. Marbella,2 Myrna B. Rosel,1 Pediatric Nephrology, national Kidney and Transplant Institute, Quezon City, Philippines.

PURPOSE: The most effective renal replacement therapy for end-stage renal disease patients is still a successful renal transplant from a living related donor (LRD). The use of LRDs results in better graft function and survival, and often results in decreased time on dialysis. The objective of this study was to examine pediatric patients who underwent renal transplantation with an LRD at the National Kidney & Transplant Institute, and to determine which clinical and laboratory variables were risk factors for patient/grant loss.

METHOD: Data was obtained from the NKTI medical records section and the Renal Disease Control Program (REDCOP) database on 32 children (aged 0-15 years) who underwent renal transplant with an LRD between January 1, 1996 and December 31, 2005. Analysis of graft survival was performed using Kaplan-Meier and Non-Parametric statistical models.

RESULTS: Chronic rejection, ABO blood type, and the degree of HLA mismatch were found to significantly affect patient survival on bivariate analysis. However, on logistic regression, only chronic allograft rejection was found to be significant. Age and sex of the donor and recipient, pre-transplantation dialysis, and early rejection were not found to be risk factors. Children of the older age group were found to have worse 5-year and 10-year survival rates. The mean age at the time of the renal transplant was 11.3 years. During the course of follow-up, 21.8% of the patients either died or lost their renal graft.

CONCLUSION: Chronic rejection was the most important predictor of patient survival for children who received kidneys from an LRD. ABO blood type, early rejection and the degree of HLA mismatch may play contributory roles. Over a 5-10 year period post-transplant, older children appear to have a lower graft survival rate compared to younger children.

Abstract@ 240
THE EFFECT OF DEMOGRAPHIC AND SOCIAL FACTORS ON HOSPITAL READMISSION IN CHILDREN UNDERGOING RENAL TRANSPLANTATION. Theresa H. Pak,1 Rachel S. Blumenthal,1 Michael J.G. Somers.1 Division of Nephrology, Children’s Hospital Boston, Boston, MA, USA.

PURPOSE: To review prospectively the first year post-tx course of all pediatric renal transplant recipients weighing <15kg performed between 2002-2007 in our institution. Post-txs were admitted to a pediatric solid organ tx unit and received similar structured pre-discharge education from specialized pediatric tx staff. All pts shared the same post-tx ambulatory visit schedule.

RESULTS: In the 94 pts txed (52% girls, median age 15 yo, 50% living donor, 86% white, 56% traditional household, median post-tx length of stay (LOS) 12 days), 60 pts required 123 readmissions (median readmission LOS 4 days) in the first year post-tx. 45% of readmissions were for non-infectious medical reasons, 19% for hydration, 18% for viral/bacterial infections requiring parenteral therapy, 15% for acute rejection, and 6% for surgical issues. When the 60 pts requiring readmission were compared to the other 34, there was no difference in age, gender, race, ethnicity, donor type, or LOS post-tx. Children living in traditional households (defined as residing at all times in one dwelling with 2 adult caregivers) were significantly less likely to be readmitted (56% vs 75%, p<0.04). There was no difference in donor type, LOS post-transplant, LOS post-readmission, or propensity for 2 or more readmissions in children from traditional vs non-traditional homes. Children from non-traditional households were more likely to be non-white (p<0.001) and were more likely to have acute rejection (p<0.05) as a reason for readmission.

CONCLUSION: We conclude that in pediatric renal txs: 1) Readmission is frequent though LOS is brief; 2) Age, gender, race and donor type do not affect readmission; 3) Household make-up significantly impacts likelihood for readmission; 4) Household make-up significantly impacts acute rejection risk.
Abstract# 242

DOES TACROLIMUS PREDISPOSE FOR TYPE 1 ALLERGY AFTER ORGAN TRANSPLANTATION? Saskia Gruber, Kerstin Tiringer, Alexandra Goll, Hermina Konstantin, Walter Hörl, Zsolt Szépfalusi.1 1Department of Pediatrics and Adolescent Medicine, Medical University of Vienna, Vienna, Austria; 2Department of Medical Statistics, Medical University of Vienna, Vienna, Austria.

CONCLUSION: The discontinuation was assessed as drug-related. In 51.7% of the patients, AEs showed a higher prevalence of type 1 allergy in tacrolimus-treated patients than in patients receiving other immunosuppressants. This difference was not significant in statistical analysis. The present study therefore aims to compare the occurrence of allergic disease under tacrolimus to that under cyclosporin A in a larger patient sample.

METHOD: The prevalences of IgE-mediated sensitization and allergy are assessed in 200 kidney-transplanted adults (100 patients receiving tacrolimus, 100 cyclosporin A). Mechanisms include a standardized questionnaires, skin prick test, and measurement of total and specific IgE against common nutritional and inhalant allergens.

RESULTS: To date 194 patients (100 tacrolimus, 94 cyclosporin A) have been evaluated. The groups are comparable regarding sex, age and underlying disease. Both sensitization and allergy rate are markedly higher in the tacrolimus-group than in cyclosporin A-receiving patients (33% and 15% versus 16.7% and 7.1%).

CONCLUSION: Our results suggest that tacrolimus-immunosuppression is associated with an increased risk for the occurrence of IgE-mediated sensitization as well as clinically relevant allergic disease after organ transplantation. Further in vitro studies assessing the underlying mechanisms are required.

Abstract# 244

EVEROLIMUS, BASILIXIMAB, LOW-DOSE CYCLOSPORIN A (CsA) AND EARLY STEROID WITHDRAWAL AFTER PEDIATRIC KIDNEY TRANSPLANTATION – PRELIMINARY RESULTS OF THE CONTROLLED, PROSPECTIVE TRIAL. Lars Pape, Thirid Ahlenstiel, Jochen H. Ehrlich, Gisela Offner. 1Pediatric Nephrology, Hepatology and Metabolic Diseases, Medical School of Hannover, Hannover, Germany.

PURPOSE: Primary immunosuppression after pediatric kidney transplantation (Tx) is most often performed using a combination of antibody induction, Calcineurin-Inhibitor, steroids and Mycophenolate Mofetil. We investigated a new protocol consisting of Basiliximab induction, low-dose CsA and the mTOR-inhibitor Everolimus combined with steroid withdrawal 6 months after Tx.

METHOD: Twenty children (mean age 10 ± 7 years) were treated with Basiliximab, CsA (target C0 200-250 ng/ml) and Prednisolone (Standard-dose) at the time of Tx. After 2 weeks, the CsA dose was reduced to 50% (C0 100-200 ng/ml) and Everolimus (1.6 mg/m²) was started (C0 3-6 mg/ml). In case of a normal protocol biopsy 6 months after Tx, Prednisolone was stopped and the CsA dose was reduced in order to reach CD0-levels of 50-75 ng/ml. Cytomegalovirus (CMV) prophylaxis was not performed.

RESULTS: Target drug trough levels could easily be reached by the proposed dosing algorithm. By September 2008, 16 protocol biopsies had been performed (no signs of acute rejection, no borderline). Due to an increase in s-creatinine 7 indication-biopsies were conducted. Three showed acute tubular necrosis, two “borderline” and 2 normal kidney tissue. Of the 21 patients, 14 have fulfilled the observation time and the last one will have by April 2009. The mean GFR 1 year after Tx was 82 ± 22 ml/min/1.73m². The number of serious adverse events, infections and gastrointestinal problems was significantly lower than in studies performed previously.

CONCLUSION: In pediatric kidney transplantation, primary immunosuppression with low dose CsA, Everolimus and steroid weaning 6 months after transplantation leads to good transplant function, an absence of acute rejections and a reduction in infections, especially CMV.

Abstract# 245

CHRONIC ALLOGRAFT DYSFUNCTION: WHAT CAN WE DO? Juan Ibáñez, Marta Montevede, Mario Díaz, Julio Goldberg, Amalia Turconi. 1Nephrology, Hospital Garrahan, Buenos Aires, Argentina.

PURPOSE: Chronic allograft dysfunction (CAD) is a common cause of graft lost in long term kidney transplant recipients. Cyclosporine (CsA) is known to play an important role in CAD. Sirolimus (SRL) is a non nephrotoxic drug and is used safely for minimizing CNI nephrotoxicity. The aim of this study was a retrospective evaluation of the progression of CAD in pediatric renal recipients receiving CsA as core immunosuppression and after conversion to SRL.

METHOD: We analyzed the data of patients (pats) converted from CsA to SRL because of creeping serum creatinina (Scr), histological signs of chronic allograft nephropathy (CAN) with absence of acute rejection and time for CsA treatment at least 12 months (mo) prior to conversion. Lesions of CAN were graded according to the Banff 97 algorithm. By September 2008, 16 protocol biopsies had been performed (no signs of acute rejection, no borderline). Data for I/Scr was plotted over the time for each pat monthly one year prior to conversion and two year after then. Linear regression was employed to assess the slope of I/Scr for each mo.

RESULTS: Twenty-six pats aged (mean ± SD) 9.76 ± 3.98 years at transplante time receiving CsA as core immunosuppression were converted to SRL at (mean ± SD)57.07 ± 39.1 mo after transplantation. An slope of I/Scr decreased from -0.048 before the conversion to -0.002 during the first year after and during the second year to -0.001 (p = 0.007). Then we analyzed slope of I/Scr of pats showing biopsy with Grade I CAN (n = 11) and Grade II CAN (n = 15) separately. In pats with Grade I CAN, slope of I/ Scr decreased from -0.012 before the conversion to -0.006 during the first year and +0.001 in the second year after conversion (p = 0.01). In pats showing Grade II CAN, although and initial improvement occurred it was neither significant nor sustained along the second year. Between both groups, the time of conversion after transplantation (35.85 vs 72.73 mo p= 0.007) and GFR (58.6 vs 44.1 ml/min/1.73 p = 0.01)were the significant variables found.

CONCLUSION: Our results show that significant amelioration in the progression velocity of CAD is achieved if conversion from CsA to SRL is performed when morphological changes in the biopsy are minimal and the GFR is by 60 ml/min/1.73.

Abstract# 246

AGE-DEPENDENT IMMUNOSUPPRESSANT METABOLITE DIFFERENCES. Jamie R. Bendrick-Peart,1 Guido Filler,2 Gillian Johnson,1 Uwe Christians.2 1Eurofins Medinet, Aurora, CO, USA; 2Children’s Hospital of Western Ontario, University of Western Ontario, London, ON, Canada; 3Anesthesiology Clinical Research and Development, University of Colorado Health Sciences Center, Denver, CO, USA.

PURPOSE: In a clinical study of pediatric solid organ transplant recipients converted to sirolimus immunosuppression, the metabolite profile in children was different than the adult profile. In order to better understand these observations, we utilized human

105

Abstracts

Concurrent Session IV: Immunosuppression 2

ConCurrent Session IV: Immunosuppression 2

Abstract# 243

AN OBSERVATIONAL STUDY TO ASSESS THE QUALITY OF LIFE OF KIDNEY TRANSPLANT PATIENTS AS AN INDICATOR OF THE SAFETY OF MYCOPHENOLATE MOFETIL THERAPY. Oguz Soyлемezoglu, Aysin Bakalagolu, Sevgi Mir, Fatos Yalcinkaya, Emel Akoglu. Pediatric Nephrology, Gazi University Hospital, Ankara, Turkey; Pediatric Nephrology, Hacettepe University Children’s Hospital, Ankara, Turkey; Pediatric Nephrology, Ege University Hospital, Izmir; Turkey; Pediatric Nephrology, Ankara University Children’s Hospital, Ankara, Turkey; Nephrology Department, Marmara University Hospital, Istanbul, Turkey.

PURPOSE: Therapy with mycophenolate mofetil (MMF) significantly reduces the risk of acute and chronic allograft nephropathies. However, it is associated with some adverse effects. This observational study aims to investigate the impact of adverse events on the quality of life of paediatric de novo or maintenance kidney transplant patients under MMF therapy using the SF-36 Health Survey.

METHOD: This open-label multi-center, non-interventional, post-marketing observational study is being conducted in 30 centers. All patients are followed-up for 12 months. Medical history, therapy regimen, adverse events and SF-36 results are recorded. 36 paediatric patients from a total of 600 patients completed the follow-up period and were analysed.

RESULTS: The mean age of the patients was 14 ± 3 years. 86.1% had primary allofraft and 63.9% of them were living donor transplants. The mean cold-ischemia period was 2.5 ± 5 hours. SF-36 Health Survey results revealed marked improvement in the patients’ quality of life during the study period. The proportion of patients who felt excellent + very good at study entry increased from 28.6% to 58.4%, 46.7% and 43% at months 1, 6 and 12 (final visit) respectively (all p<0.001 vs. baseline). 20 (55.6%) patients had no adverse events (AEs). 29 AEs were observed in 16 (44.4%) patients. Most frequent AE was diarrhoea (17.2%). Most of the AEs were mild (51.7%) or moderate (43.5%) in severity. 2 patients discontinued due to AEs and in 1 patient the discontinuation was assessed as drug-related. In 51.7% of the patients, AEs showed improvement.

CONCLUSION: MMF therapy seems to have a high patient compliance and is well-tolerated in both de novo and maintenance paediatric kidney transplant patients.
RESULTS: After heart transplantation.

METHOD: At steady-state, 13 pediatric solid organ recipients (median age 9.4 ± 4.3 years) underwent a sirolimus pharmacokinetic profile, with samples drawn 0-12 hours. AUC and metabolic parameters were determined after analysis and quantification with a fully validated LC-MS assay. Human liver microsomes from cadaveric adult and pediatric donors were incubated with sirolimus, everolimus, or tacrolimus, and the resultant metabolites were analyzed and quantified with the same LC-MS assay.

RESULTS: In the clinical samples and the HLM incubations, metabolic sirolimus in children was primarily accomplished via hydroxylation (86%), unlike in adults where metabolism is accomplished through demethylation. Specific sirolimus metabolite formation was correlated to age in the pediatric patient samples (p=0.0097) and followed a similar trend in pediatric micromodal incubations, decreasing with age as does the activity of CYP2C8. Therefore, we believe the increased activity of CYP2C8 in children is partially responsible for the differential metabolism pattern of sirolimus in pediatrics. Similar issues were indicated with everolimus and tacrolimus metabolism.

CONCLUSION: Our results have clinical significance. Since metabolism of immunosuppressants in children is much different than that of adults, caution should be used when translating immunosuppressant pharmacokinetic and therapeutic drug monitoring parameters from adults into pediatric populations.

Abstract# 247
AN HPLC-MS/MS METHOD FOR CONCURRENT MEASUREMENT OF TACROLIMUS, SIROLIMUS, AND EVEROLIMUS FROM DRIED BLOOD SPOTS. Jamie R. Bendrick-Pearl,1 Robert Prongay,2 Gillian Johnson,3 Guido Filler.1 1Eurofins Medinet, Aurora, CO, USA; 2Anesthesiology Clinical Research and Development, University of Colorado Health Sciences Center, Denver, CO, USA; 3Children’s Hospital of Western Ontario, University of Western Ontario, London, ON, Canada.

PURPOSE: We previously developed and validated an HPLC-MS/MS assay to simultaneously measure sirolimus, everolimus and tacrolimus in blood. We modified this assay to measure immunosuppressants after elution from a dried blood spot, which requires significantly less volume of blood than intravenous blood draws. Because of the convenience of dried blood sampling in long-term TDM, this method is an important alternative for immunosuppressant TDM in pediatrics.

METHOD: Whole blood containing known concentrations of tacrolimus, sirolimus, and everolimus was spotted onto ISO certified sampling paper and dried. The spot was excised from the paper and the drug eluted. Sample stability under different conditions including light, heat, and humidity over time was established. The results from samples after elution from a dried blood spot was cross-validated with the results after extraction of whole blood from the same samples and HPLC-MS/MS analysis.

RESULTS: The LLOQ was 0.1 ng/mL and the reliable response ranged from 0.1 ng/mL to 100 ng/mL. Inter-day accuracy was better than ±15% and total imprecision was better than 15%. Our data indicated that dried blood spots are sufficient for evaluating the pharmacokinetics of immunosuppressant metabolites. This is of special interest for pediatric patients in whom immunosuppressant pharmacokinetics is still largely unknown and for whom blood sample volumes are a critical limitation.

CONCLUSION: Our results showed that (A) although a blood volume of only 19 μL was assayed, the lower limit of quantitation was far below what is required for TDM of immunosuppressants, (B) the assay was reproducible and robust using a simple elution/ protein precipitation step and automated online sample extraction, (C) the assay gave results equivalent to those in non-dried blood samples and (D) immunosuppressants in the dried spots showed acceptable stability.

Abstract# 248
REDUCTION OF REJECTION EPISODES WITH DACLIZUMAB IN PEDIATRIC HEART TRANSPLANTATION. Alexandra T. Fuchs, Julia Diterich, Karsten Rinker, Rainer Kozlik-Feldmann, Heinrich Netz. Department of Pediatric Cardiology, University Hospital Großhadern, Munich, Germany.

PURPOSE: Daclizumab, a humanized monoclonal antibody, is a new immunosuppressive drug which binds with high affinity to the Tac subunit of the II-2 receptor complex. Effective immunosuppression with Daclizumab in adult patients encouraged the initiation of the administration of Daclizumab as induction therapy in pediatric heart transplantation.

METHOD: Sixteen patients (9 boys, 7 girls, age 8.3 ± 5.4 years, BMI 40.5 ± 7.5 m²/kg², median age 8.7 ± 5.4 years, BMI 40.5 ± 7.5 m²/kg², n = 14), received daclizumab induction as induction therapy in a dose of 1 mg/kg intravenously peripherally and on day 7 and 21 after orthotopic heart transplantation. Additional immunosuppression was prednisolone (CSA, n = 14) or tacrolimus (TAC, n = 2), mycophenolate mofetil (MMF) and prednisolone. Prednisolone was tapered rapidly in the first six months after heart transplantation.

RESULTS: The administration of Daclizumab was not associated with any side effect. Owing to the blockade of the IL-2 receptor the dosing of calcineurin inhibitors could be reduced leading to less renal and hepatic toxicity. Instead of aiming at CSA trough levels of 350-400 ng/ml/TAC trough levels of 12-15 μg/ml in the first weeks after transplantation we reduced to 250 in the CSA group and to 10 in the TAC group.

CD25+ T-lymphocytes began to be re-expressed after 2-3 months after administration of Daclizumab. In a mean follow-up time of 26±11.5 months no acute or chronic episode of rejection could be experienced.

CONCLUSION: Our results show that immunoprophylaxis with Daclizumab induction therapy in pediatric heart transplantation is safe, effective and well tolerated and does not lead to increased opportunistic infections or malignancies. The reduction of calcineurin inhibitors led to less calcineurin related side effects and raised the quality of life of transplanted patients.

Abstract# 249
IMPROVED LONG-TERM GRAFT FUNCTION AND SIMILAR HEIGHT CHANGES WITH VERY LOW DOSE STEROIDS VERSUS LATE STEROIDS WITHDRAWAL IN PEDIATRIC RENAL TRANSPLANTATION. Jorge R. Ferraris,1 Titania Pasqualini,1 Guillermo F. Alonso,1 Susana Legal,1 Patricia Sorroche,1 Ana Galich,1 Hector Jasper.2 1Pediatrics, Hospital Italiano de Buenos Aires, Buenos Aires, Ciudad Autonoma, Argentina; 2Pediatrics Endocrinology, Hospital de Niños Ricardo Gutierrez, Buenos Aires, Ciudad Autonoma, Argentina.

PURPOSE: Steroid side effects are common after renal transplantation (tx). New immunosuppressive regimes allow to use low dose steroid therapy or steroid free immunosuppression.

METHOD: We aimed to analyse graft function and metabolic side effects in pediatrics renal tx patients (pts) with very low dose (vld) steroid therapy or complete steroid withdrawal. This is a single center pilot, controlled and prospective study. Pts received daclizumab induction, tacrolimus, mycophenolate mofetil and methylprednisone (MP). MP was decreased to 0.07±0.01 mg/kg/day (vld) after 4 month post tx. We then compared two groups (g), g1:16 (prepubertal 9), after 1 year of vld MP (month 16 after tx) and after a 2nd year following MP withdrawal (month 28 after tx) and g2: (n: 14, prepubertal 7) who received the same immunosuppression but were maintained on vld MP all the way through.

RESULTS: Pts and graft survival were 100%. Acute rejection (AR) occurred after 14 months in g1 and MP withdrawal in 2/9 (22%) prepubertal pts only in g1. Mean creatinine clearance, height velocity and increment in height SDS in prepubertal pts at month 28 were respectively 83±4, 7.4±1 and 0.5±1.0 in g1 vs 120±9 ml/min/1.73m², 7±1 cm/yr and 0.5±0.1 SDS in g2 (p<0.01, ns and ns). Graft function did not change in postpubertal pts. In g1 and g2 at month 28 cholesterol/HDL was 4±0.3 and 4.9±0.4 (p<0.05), BMI 20±8.9 and 21.1 (p, fat body mass 0.22±0.03 and 0.29±0.03 kg/kg body weight (kg/kg) (p<0.05), lean body mass 0.70±0.4 and 0.67±0.3 kg/kg (p<0.05), total skeleton BMD -0.7±0.3 and -0.4±0.3 SDS (p<0.05) and lumbar spine -0.9±0.3 and -0.4±0.5 SDS (p<0.05).

CONCLUSION: This study demonstrate that vld MP as well as steroids withdrawal allowed similar catch up growth and BMD. Minimal fat accumulation was associated with vld MP. But, steroid withdrawal had a concerning rate of AR and graft function deterioration in prepubertal pts.

Abstract# 250
NEW ASSAYS TO QUANTIFY VARICELLA IMMUNITY IN PAEDIATRIC LIVER TRANSPLANT RECIPIENTS. Alessandro Diana, Cédric Sottas, Claire-Anne Siegrist, Dominique Belli, Klara Posfay. Department of Paediatrics, University Hospitals of Geneva and Faculty of Medicine, Genenva, Switzerland, WHO Collaborating Center for Neonatal Vaccinology, Departments of Pathology-Immunology & Pediatrics, Geneva, Switzerland.

PURPOSE: Innate and adaptive immunity are needed to protect against Varicella zoster virus (VZV). While it is usually a mild disease in healthy patients, in immunocompromised patients, contact or illness with VZV usually triggers treatment and admission to the hospital. Current commercially available kits misclassify the children as low but protective levels. We developed na new assays to assess both humoral and cellular immunity against VZV with a high specificity and sensitivity in pediatric liver transplant recipients.

METHOD: Detection of VZV antibodies: a new ELISA-based assay using lectin affinity purified glycoprotein from normal human dermal fibroblasts (East Coast Bio®) was developed using highly concentrated serum concentration (1:4). An assay cut-off value was determined and was significantly lower than the protective threshold. Evaluation of VZV-specific CD4+ memory T cells: a modified IFN-gamma assay was developed and detected by fluorescence-activated cell sorter (FACS Array®). Specificity of CD4+ IFN-gamma+ cells was assessed by extracting labelled cells through a magnetic cell sorter, stimulating them for clonal expansion and then restimulating them with VZV/gp to measure IFN-gamma secretion.

RESULTS: Pediatric liver transplant recipients (n=46; mean age 10.1 years, mean age at transplantation 3.1 years) from Switzerland were evaluated. 58/106 available blood samples had protective levels against VZV compared to 50/106 with the commercially
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CONCURRENT SESSION IV: INFECTIOUS DISEASE: PTLD AND MALIGNANCY

Abstract# 255
RISK FOR POST TRANSPLANT LYMPHOPROLIFERATIVE DISEASE (PTLD) IN PEDIATRIC HEART TRANSPLANT RECIPIENTS WITH CHRONIC HIGH EPSTEIN-BARR VIRAL LOAD STATE.

Francesca I. Calo Carducci,1 Giorgia Grutteri,1 Francesco Parisi,1 Patrizia D’Argenio,1 Cardiology and Cardiothoracic Surgery, Pediatric Hospital “Bambino Gesù”, Rome, Italy; 2Pediatrics, Immunoinfectious Disease Unit, Pediatric Hospital “Bambino Gesù”, Rome, Italy.

PURPOSE: Epstein Bar virus (EBV)-linked post-transplant lymphoproliferative disease (PTLD) is a severe complication in pediatric heart transplant (HT) recipients. Extended EBV-replication monitoring by PCR has recently led to the identification of asymptomatic patients who carry very high viral loads over prolonged periods. The significance of this high-load state is not well defined yet. This study was undertaken to ascertain whether this state may identify patients at high risk for development of PTLD.

METHOD: Data on 100 pediatric HT recipients who had serial viral load monitoring since 2003 were reviewed. Chronic high load state was defined as the presence of >20,000 genome copies/ml whole blood on ≥50% of samples over at least 6 months. RESULTS: EBV load was measurable in 71 patients and was markedly and chronically increased in 28 patients. Among this 28 high-load carriers 5 (17.9%) developed PTLD 4.3-18 years post transplant (including for two Burkitt’s lymphoma). Among 72 controls with low (43) or absent (29) loads only 1 (1.4%, p<0.001) developed PTLD.

CONCLUSION: In conclusion, these data confirm that frequent EBV-load monitoring identifies asymptomatic high viral load carriers and that the high-load carrier state is a good predictor of PTLD in pediatric HT recipients.

Abstract# 256
ANTI-CD20 MONOClonAL ANTIBody (RITUXIMAB) CLEARS PERSISTENT POST TRANSPLANT (TX) EBV, BUT EFFECT MAY NOT BE SUSTAINED.

Laija Jinada, Mieko Toyoda, Elaine Kamit, Stanley Jordan, Dechu Puliyananda. Pediatric Nephrology, Cedars Sinai Medical Center, Los Angeles, CA, USA.

PURPOSE: EBV-PTLD is a serious complication in tx patients (pts). There is a correlation between chronic EBV viremia and late onset PTLD. Treatment of EBV includes reduction of immunosuppression (IS), Valganciclovir(VGV), and IVig. As B cells are reservoirs for EBV, we evaluated Rituximab for persistent EBV.

METHOD: 5 tx pts with EBV DNA >100 between 7/2004 and 9/2008, were monitored for EBV (copies/PCR), serum creatinine (sCr in mg/dl), IS medications, and global IS using approaches to BK virus detection similar to ours, as the cost effectiveness of such protocol in our program.

RESULTS: Of 51 first “screening” urine PCRs, 13 (25 %) were positive for BK virus. These 13 positive screening PCRs were followed by 11 plasma PCRs (10 negative, 1 positive, 2 not done yet). Of 51 first “screening” urine PCRs, 13 (25 %) were positive for BK virus. These 13 positive screening PCRs were followed by 11 plasma PCRs (10 negative, 1 positive, 2 not done yet). This single positive plasma PCR did result in down-adjustment of immunosuppression. Four (21 %) out of 19 first “problem” urine PCRs were positive for BK virus. These 19 positive urine PCRs triggered an assessment for BK viremia, and BK viremia in the presence of transplant dysfunction was used as an indication for further evaluation (e.g. biopsy to look for BK virus nephropathy) and consideration of management adjustments (e.g. reduction in immunosuppression).

CONCLUSION: 63 patients had 105 BK virus PCRs (81 urine, 24 blood) performed. Of 51 first “screening” urine PCRs, 13 (25 %) were positive for BK virus. These 13 positive screening PCRs were followed by 11 plasma PCRs (10 negative, 1 positive, 2 not done yet). This single positive plasma PCR did result in down-adjustment of immunosuppression. Four (21 %) out of 19 first “problem” urine PCRs were positive and triggered 2 negative plasma PCRs (2 not done yet).

CONCLUSION: We present study comparing changes in serum lipid concentrations and insulin resistance before and during 6 months therapy with pegylated interferon and ribavirin.

METHOD: We studied 9 children (mean aged 18,16 years) with recurrence of HCV infection after liver transplantation. The genotype of HCV virus was 1a in 5 children and 1b in 4. All children have increased ALT activity. The parameters of lipid, carbohydrate and oxidative stress metabolism were measured on fastum before and after six month of treatment.

RESULTS: Baseline mean parameters were: glucose 114 mg/dl, insulin 18,8 U/l; HOMA IR 5,22; total cholesterol 132,6 mg/dl; triglicerydes 75,9 mg/dl; HDL 32,4 mg/dl; Apo A1 0,92 g/l; glutathione (GSH) 743,6 µmol/l; peroxidase glutathione (Gpx) 30,8 µU/gHb. After treatment: glucose 94,3 mg/dl, insulin 17,4 U/l; HOMA IR 3,4; total cholesterol 132,4 mg/dl; triglicerydes 74,2 mg/dl; HDL 32,7 mg/dl; Apo A1 0,96 g/l; GSH 761,8 µmol/l; Gpx 31,2 µg/l.

CONCLUSION: On baseline the children presented with increased insulin resistance (HOMA IR), oxidative stress (GSH, Gpx) and hypocholesterolemia. Six month after treatment HOMA IR decreased as well as and parameters of oxidative stress.

The study was supported by KBN grant PB 1977/P01/2007/32.

Abstract# 257
INSULIN RESISTANCE AND HYPOCHOLESTEROLEMIA IN TRANSPLANTED CHILDREN DURING PEGYLATED INTERFERON AND RIBAVIRIN THERAPY FOR HCV INFECTION. Joanna Pawlowska,1 Aldona Wierzbicka,2 Roman Janas,3 Katarzyna Dzierzanowska-Fangrat,1 Irena Jankowska,1 Mikolaj Teiseyrey,1 Marek Szymczak.1 Gastroenterology, Hepatology and Immunology, The Children’s Memorial Health Institute, Warsaw, Poland; 2Laboratory Diagnostics, The Children’s Memorial Health Institute, Warsaw, Poland; 3Radioimmunology Diagnostics, The Children’s Memorial Health Institute, Warsaw, Poland; 4Microbiology and Clinical Immunology, The Children’s Memorial Health Institute, Warsaw, Poland; 5Department of Surgery and Organ Transplantation, The Children’s Memorial Health Institute, Warsaw, Poland.

PURPOSE: Changes in lipid metabolism during the interferon treatment in HCV pediatric patients after liver transplantation have not been investigated yet. The aim: We present study comparing changes in serum lipid concentrations and insulin resistance before and during 6 months therapy with pegylated interferon and ribavirin.

METHOD: We studied 9 children (mean aged 18,16 years) with recurrence of HCV infection after liver transplantation. The genotype of HCV virus was 1a in 5 children and 1b in 4. All children have increased ALT activity. The parameters of lipid, carbohydrate and oxidative stress metabolism were measured on fastum before and after six month of treatment.

RESULTS: Baseline mean parameters were: glucose 114 mg/dl, insulin 18,8 U/l; HOMA IR 5,22; total cholesterol 132,6 mg/dl; triglicerydes 75,9 mg/dl; HDL 32,4 mg/dl; Apo A1 0,92 g/l; glutathione (GSH) 743,6 µmol/l; peroxidase glutathione (Gpx) 30,8 µU/gHb. After treatment: glucose 94,3 mg/dl, insulin 17,4 U/l; HOMA IR 3,4; total cholesterol 132,4 mg/dl; triglicerydes 74,2 mg/dl; HDL 32,7 mg/dl; Apo A1 0,96 g/l; GSH 761,8 µmol/l; Gpx 31,2 µg/l.

CONCLUSION: On baseline the children presented with increased insulin resistance (HOMA IR), oxidative stress (GSH, Gpx) and hypocholesterolemia. Six month after treatment HOMA IR decreased as well as and parameters of oxidative stress.

The study was supported by KBN grant PB 1977/P01/2007/32.

Abstract# 258
BK VIRUS MONITORING IN PEDIATRIC KIDNEY TRANSPLANTATION – A SINGLE CENTER EXPERIENCE. Jens Goebel,1 Julie Ross,1 Benjamin Laskin.1 Nephrology, Children’s Hospital, Cincinnati, OH, USA.

PURPOSE: In 2007, polymerase chain reaction (PCR)-based BK virus detection became available at our institution, and we instituted a protocol to evaluate all pediatric kidney transplant recipients followed in our program for BK viruria at yearly follow-up evaluations (“screening”) and during episodes of otherwise unexplained graft dysfunction (“problems”). We now report the yield and impact of implementing this protocol in our program.

METHOD: All pediatric kidney transplant recipients followed in our program were candidates for BK viruria evaluation. Positive urine BK virus PCRs triggered an assessment for BK viremia, and BK viremia in the presence of transplant dysfunction was used as an indication for further evaluation (e.g. biopsy to look for BK virus nephropathy) and consideration of management adjustments (e.g. reduction in immunosuppression).

RESULTS: Of 51 first “screening” urine PCRs, 13 (25 %) were positive for BK virus. These 13 positive screening PCRs were followed by 11 plasma PCRs (10 negative, 1 positive, 2 not done yet). This single positive plasma PCR did result in down-adjustment of immunosuppression. Four (21 %) out of 19 first “problem” urine PCRs were positive and triggered 2 negative plasma PCRs (2 not done yet).

CONCLUSION: We conclude that in our monitoring protocol, overall 20 to 25 % of pediatric kidney transplant recipients carry BK virus. In our protocol, the detection rate of BK virus is similar in screening and problem scenarios, and very few patients qualify for management adjustments based on their BK virus status. Accordingly, we propose review and refinement of BK virus monitoring and management in programs using approaches to BK virus detection similar to ours, as the cost effectiveness of such monitoring may be debatable.
Abstract# LB 15
LIVER TRANSPLANTATION IN A 2 YEAR OLD GIRL WITH UNRECOGNIZED HIV-6 (HUMAN HERPES VIRUS TYPE 6) REJECTION – SUCCESSFUL TREATMENT WITH A 2.5 FOLD DOSE OF CIDOFOVIR. Christian Dohna-Schwake,1 Melanie Fiedler,2 Antje Ballauf,2 Andre Breddemann,3 Stephanie Läer,1 Peter Hoyer.1 1Pediatrics, University Hospital, Essen, Germany; 2Institute of Virology, University Hospital, Essen, Germany; 3Clinical Pharmacy and Pharmacotherapy, University, Düsseldorf, Germany.

PURPOSE: To demonstrate possible difficulties in distinguishing HHV-6 infection from graft rejection and to show the benefit of cidofovir pharmacokinetics.

METHOD: Review of a girl with liver transplantation and HHV-6 infection.

Case report: A 2 year old girl with progressive familial intrahepatic cholestasis was admitted for liver transplantation. A few hours before transplantation she had a temperature of 38.1°C but was otherwise in good clinical condition. Initial liver function was good but on day 7 liver enzymes markedly increased. A biopsy showed acute rejection, and steroid bolus was given. This therapy did not lead to improvement of liver function. Extended search for infectious causes revealed a positive HHV-6 IgM and positive HHV-6 PCR in blood, liver biopsy and pleural effusion. CMV and other virus diagnostics were negative. Immunosuppression was decreased and therapy with cidofovir (5mg/kg/week) was started. Additionally, the patient developed exanthema and thrombocytopenia. Clinical course was further complicated by respiratory failure due to RSV pneumonia. Control liver biopsies still showed the histological signs of graft rejection. We performed pharmacokinetic studies of cidofovir which showed a 2.5 fold clearance of the medication compared to adult standards. Therefore dosing of cidofovir was increased to 12.5 mg/kg/week. Subsequently the clinical course dramatically improved. Liver enzymes normalized, exanthema vanished and the patient could be weaned from mechanical ventilation. 150 days after transplantation she was discharged home.

CONCLUSION: 1) HHV-6 infections can cause severe morbidity in pediatric liver transplant patients which might be difficult to distinguish from graft rejection. 2) Pharmacokinetics of cidofovir led to appropriate dosing regimen and resolution of symptoms in our patient.

Abstract# LB 16
THE EFFICACY AND SAFETY OF VALGANCICLOVIR VS. ORAL GANCICLOVIR IN THE PREVENTION OF CMV INFECTION IN CHILDREN AFTER SOLID ORGAN TRANSPLANTATION. Yaron Avitzur,1 Evelin Lapidus-Krol,2 Rivka Shapiro,3 Rachel Bergreen,1 Miriam Davidovitch,1 Ran Steinberg,1 Eytan Mor,1 Jacob Amitz.2 1Institute of Gastroenterology and Nutrition, Schneider Children’s Medical Center of Israel, Petach-Tikwa, Israel; 2Department of Pediatrics “C”, Schneider Children’s Medical Center of Israel, Petach-Tikwa, Israel; 3Division of Nephrology, Schneider Children’s Medical Center of Israel, Petach-Tikwa, Israel; 4Department of General Surgery, Schneider Children’s Medical Center of Israel, Petach-Tikwa, Israel; 5Department of Organ Transplantation, Rabin Medical Center, Petach-Tikwa, Israel.

PURPOSE: The aim of this study was to compare the efficacy and safety of prophylactic treatment against CMV with valganciclovir (VAL) vs. oral ganciclovir in a pediatric cohort.

METHOD: Historical prospective analysis of all children who underwent kidney (KTx) or liver transplantation (LTx) in our center between the years 2000-2007. All children have received IV ganciclovir for 2 weeks and then oral ganciclovir (TID) before 2004 or VAL (OD) thereafter. Treatment was given for 3 months in R+/D+/T+ recipients and for 6 months in R-/D-/T-.

RESULTS: 153 children were between 2000-2007, 92 of them fulfilled the inclusion criteria (n=41 ganciclovir group and n=51 VAL group). In the VAL group 13.7% of the children have developed CMV infection/disease vs. 19.5% in the ganciclovir group (95%CI, 0.2-2, P=0.57). Sub-analysis according to graft type demonstrated a trend towards better efficacy of VAL compared to ganciclovir in LTx recipients (15% infection rate vs. 37%, respectively, P=NS) but not in KTx recipients. Time-to-onset of CMV disease or infection was comparable in both groups; rates of acute allograft rejection were slightly lower in the VAL group (3.9% vs. 9.8%). No significant side effects were noted in both groups.

CONCLUSION: As in adults, treatment with VAL is as efficacious and safe as treatment with oral ganciclovir in children after KTx and LTx. There might be some advantage for valganciclovir use in children after LTx but further studies are needed to support this assumption.

Abstract# LB 17
SUCCESSFUL RENAL TRANSPLANTATION IN A 10 YEAR OLD BOY WITH FACTOR H ASSOCIATED ATYPICAL HEMOLYTIC UREMIC SYNDROME (aHUS) WITH PLASMAPHERESIS AND Eculizumab. Therese C. jungraithmayr,1 Johannes Hofer,1 Walter Mark,1 Rainhard Würzner,1 Franz Schäfer,1 Kay O. Kliche,1 Lothar B. Zimmermank.1 1Medical University, Innsbruck, Tirol, Austria; 2Alexion Pharma Germany GmbH, Munich, Germany; 3Pediatric Nephrology, Ruprecht-Karls-University, Heidelberg, Germany.

PURPOSE: Patients with aHUS and mutations in factor H have a high risk of recurrence after renal transplantation. Here we report for the first time a successful treatment with the C5 antibody Eculizumab after transplantation in a child.

METHOD: Complement was determined in serum as C3 and C4 level and by concentration of C5b-9 before and after administration of rHuC1q.

RESULTS: A new 10 year old boy with onset of the disease at age 4years with a heterozygous mutation of factor H (W1183C) received a renal transplant after the initial episode with hemolytic anemia (Ha 4.5, LDH 2.800 U/l), low platelets (16,000) and renal failure he received dialysis and plasm therapy. Despite continuous weekly plasma exchange (PE) his renal function declined with time. In November 2008 he received a cadaver kidney from a 15year old donor with immediate function. Immunosuppression consisted of prednisone, mycophenolate mofetil and tacrolimus. Before and after transplantation he received daily PE. In between the session platelets decreased and complement C3 remained low. At day 10 after transplantation he received Eculizumab 600mg i.v. in NaCl 0,9% over 2 hours. The infusion was repeated on postoperative day 18. C3 and thrombocytes normalized an no PE was performed after infusion. Eculizumab is a humanized monoclonal antibody against C5 which inhibits formation of C5b-9 mediated by Soliris for paroxysmal nocturnal hemoglobinuria. 4 weeks after transplantation the boys renal function is excellent an signs of hemolysis or complement activation as measured by C3 and C5b-9 are present.

CONCLUSION: Although observed only for a short time Eculizumab normalized activated complement after renal transplantation and a successful transplantation of this high risk patient could be achieved. Eculizumab is a promising new drug for treatment of atypical HUS. www.hemolytic-uremic-syndrome.org
Abstract #260
EARLY CYTOMEgalovirus infection and the long-term outcome of biliary atresia, Björn Fischer, Antal Nemeth, Stockholm, Sweden.
PURPOSE: We have previously described a significantly higher incidence of ongoing cytomegalovirus (CMV) infection at the time of first presentation in biliary atresia (BA) patients compared to healthy age-matched controls (38% vs 6%). In the present study the impact of this early CMV infection on the long-term outcome was investigated.
METHOD: 28 BA patients born 1988-97 were included and followed up until 2008. Eleven patients (group A) had ongoing CMV infection (CMV detected in the urine and/or CMV- IgM detected in serum) at presentation and were compared to the remaining 17 patients (group B) lacking signs of ongoing CMV. Mean age at Kasai procedure was 82 days in group A and 65 days in group B (p=0.10). The living related liver transplantation (LT) program at our centre did not start until 1996.
RESULTS: Including all patients, survival with native liver was 50% and 36% at 4 and 10 years of follow-up, respectively. At the end of follow-up it was 25% (7 out of 28) and overall survival was 68% (19 out of 28). Seven out of 9 deceased patients died of liver failure while waiting for a liver transplantation before 1996, while two died in the early postoperative period after LT.
RESULTS: At 4 years of follow-up 7 out of 11 (64%) patients in group A were alive with their native liver, compared to 7 out of 17 (41%) patients in group B, while at 10 years the corresponding figures were 4 out of 11 (36%) versus 6 out of 17 (35%). No statistical difference was noted, however Kaplan-Meier survival curves were plotted for group A and B (p=0.67, log rank test). Survival after liver transplantation was 100% (5 out of 5) in group A and 78% (7 out of 9) in group B.
CONCLUSION: For the whole group, survival with native liver is comparable to that of other centres. CMV infected patients may present with a later onset, alternatively the detection of the infection could delay the referral of BA patients. No significant differences in long-term outcome were detected with regard to early CMV infection.

Abstract #261
LESSONS FROM TWO CASES EXPERIENCES OF LIVING DONOR SMALL BOWEL TRANSPLANTATION FOR HYPOGANGLIONOSIS – FOCUSING ON INDICATION AND TIMING OF TRANSPLANTATION. Ken Hoshoi, Yohei Yamada, Naoki Shimoji, Masa Hiro Shino da, Hideaki Obara, Shigeyuki Kawachi, Yasushi Fuchimoto, Minoru Tanabe, Yuko Kitagawa, Tomoki Kato, Yasuhide Morikawa. Surgery, KEIO University, School of Medicine, Tokyo, Japan; Transplantation Surgery, Miami University, School of Medicine, Miami, USA.
PURPOSE: We recently performed living donor small bowel transplantation (LDSBT) in two patients with hypoganglionosis. We report here the peri- and post-operative management of post-transplant complications, the risk-benefit ratio should always be considered when deciding the necessity of this procedure.
METHOD: First patient was a 14-year-old boy, and second patient was a 11-year-old boy. Both of them were with total parenteral nutrition associated with hypoganglionosis.
RESULTS: The first patient received a bowel graft from his 40-year-old father. The second patient received a bowel graft from his 48-year-old father. Blood types were ABO identical, one third of the donor bowel was harvested. The graft vessels were connected to inflow aorta, and inferior vena cava (first case). SMA and SMV (second case) were anastomosed. The immunosuppressive regimen consisted of daclizumab, tacrolimus, and steroids.
CONCLUSION: The evaluation of acute cellular rejection (ACR) was accomplished by using zoom endoscopy and mucosay biopsy. The first patient developed liver dysfunction on postoperative day 7, subsided spontaneously on POD 12, requiring no additional therapy. Two months after transplantation, he weaned off TPN, tolerating oral intake with a functioning graft. The second patient was weaned off TPN on 3 months after transplantation. He experienced mild ACR on day 122, which was successfully treated with bolus injections of steroid.

Abstract #262
Hypertension following paediatric liver transplantation. Sivaramakrishnan V. Kuthik, Sanjay Rajwal, Suzanne M. Davison, Patricia McClean. Children’s Liver and GI Unit, St. James’s University Hospital, Leeds, United Kingdom.
PURPOSE: Early post-operative hypertension (HT) may occur after liver transplantation (LT). Contributing factors include use of calcineurin inhibitors and corticosteroids for immunosuppression. Persistent HT contributes to long-term morbidity for patients. We therefore studied the incidence, management and prognosis of HT in children after LT, all of whom received a standard immunosuppression regime comprising tacrolimus and corticosteroids.
METHOD: All children who underwent LT at a single centre were included if they remain currently under paediatric follow up and had no pre-transplant HT. HT was defined as blood pressure > 2 standard deviations for age. All had blood pressure monitoring at least daily as in-patient and at every out-patient visit.
RESULTS: Of 75 children, 30 (M=16:14) developed HT. The median age at LT was 4.7 years (range: 0.1 – 17.9 years). Estimated median effective dose of radiation in the first 60 days following transplantation was 8.0 (range: 0.1 – 86.6) mSv and 14.2 (0.2 – 189.6) mSv in the year following transplantation. At 1-year, the median effective dose represents a 4.7 fold increase over annual background radiation exposure (3mSv), or a dose equivalent to approximately 865 chest x-rays. The cumulative dose at 1-year in a 5-year old child may be associated with an excess lifetime mortality risk from cancer of 1 in 310 for females and 1 in 595 for males.
CONCLUSION: Although there is wide variation in radiation exposure which is likely related to differences in post-transplant morbidity, children undergoing liver transplantation have the potential to be exposed to a substantial amount of iatrogenic radiation. In children, clinicians should be aware of the potential long term risks associated with ionizing radiation and employ strategies to reduce exposure wherever possible. Although radiographic procedures are necessary for the detection and management of post-transplant complications, the benefit risk ratio should always be considered when requesting diagnostic studies. This is especially important in children who have already had considerable radiation exposure.

Abstract #263
ARE CHILDREN UNDERGOING LIVER TRANSPLANTATION EXPOSED TO SIGNIFICANT IATROGENIC RADIATION? Ivan R. Diamond, Bilal Ahmed, Karen Thomas, Ethan Hoppe, Bairbre Connolly, David R. Grant, Vicky Ng, Paul W. Wales, Annie Fecteau. The Hospital for Sick Children, Toronto, ON, Canada.
PURPOSE: To examine diagnostic and therapeutic radiation exposure, radiation protection, and the potential risk to children undergoing liver transplantation.
METHOD: Retrospective review of all hepatic transplant procedures performed at a single centre from 2001 to 2006. Age-specific effective radiation dose estimates were assigned to each diagnostic and therapeutic radiation exposure.
RESULTS: Of 75 children, 30 (M=16:14) developed HT. The median age at LT was 4.7 years (range: 0.1 – 17.9 years). Estimated median effective dose of radiation in the first 60 days following transplantation was 8.0 (range: 0.1 – 86.6) mSv and 14.2 (0.2 – 189.6) mSv in the year following transplantation. At 1-year, the median effective dose represents a 4.7 fold increase over annual background radiation exposure (3mSv), or a dose equivalent to approximately 865 chest x-rays. The cumulative dose at 1-year in a 5-year old child may be associated with an excess lifetime mortality risk from cancer of 1 in 310 for females and 1 in 595 for males.
in combination. Calcium channel blockers were used in 24. Treatment was commenced after a median period of 3 days (1-40) after LT. Only 1 needed combined alpha- and beta-blockade. One child developed reflex tachycardia after nifedipine, needing change to Amlodipine and 1 developed significant bradycardia with Atenolol requiring cessation of therapy. All but 1 had been successfully withdrawn after a median duration of 33 days (1-579). One child remains on treatment 67 months post LT. Contributing factors include severe renal impairment (GFR < 50 ml/min/1.73 m²) and obesity. Median follow-up was 33 months (range:3-130).

CONCLUSION: HT requiring treatment occurred in 40% of LT recipients, and all were successfully treated. The short term prognosis is good with withdrawal of therapy to be expected in the majority.

Abstract# 226
IMMUNIZATION WITH THE MEASLES-MUMPS-RUBELLA VACCINE IN CHILDREN BEFORE AND AFTER LIVER TRANSPLANTATION.

Patricio Barrios,1 Yoela Levy,1 Nelson Abrahams,2 Ulrike Abramow,1 Elke Lainka,1 Nicole Gieren, Peter F. Hoyer.1 1Clinic 2, Childrens Hospital Duisburg-Essen University, Essen, Germany.

Purpose: Vaccination against Measles-Mumps-Rubella (MMR) is currently not established in patients after solid organ transplantation. Moreover, there are only few studies which focus on effectivity and durability of immunization results with live attenuated vaccinations.

Method: Data from 60 children before and after liver transplantation were analysed retrospectively. Patient charts were reviewed according to MMR- vaccination, seroconversion to protective measles titers, and the period of positive measles titers post transplantation. The mean age at transplantation was 33 months (3 months to 15 years). 29 patients were male, 31 were female.

Results: Prae LTx: of 60 children 30 received at least one vaccination before transplantation (18 children once, 11 children twice, 1 child thrice). Of these children 6 seroconverted to protective measles titers before transplantation, but immunization results were only measured in 13 children. In 5 of these 6 measles titers remained positive until 1 to 6 years after transplantation.

Post LTx: of 60 children 34 with negative measles titer received at least one vaccination after transplantation (at the earliest 12 month post LTx): 13 children received one, 19 children 2, one child 3 and one child four vaccinations. Average time for the first MMR shot was 52 months after LTx. 9 of the children who received one vaccination developed seroprotective titers. 12 of the children who received two vaccinations and also the children who received 3 or 4 vaccinations seroconverted to measles IgG.

No serious side effects were observed after any of these vaccinations.

Conclusion: Only a minority of children on the waiting list develop measles antibodies after MMR vaccination but those who do usually show persistence of protective measles titer also after LTx. Vaccination after liver transplantation leads in two thirds to seroprotective measles titers. Taken together, our data favor the vaccination of live attenuated MMR vaccine before and after liver transplantation.

Abstract# 266
LONG-TERM EVOLUTION OF DE NOVO HEPATITIS C INFECTION (HCV) AFTER PEDIATRIC LIVER TRANSPLANTATION.


Purpose: The behaviour of de novo HCV infection in pediatric population with liver transplantation (LTX) is not well known. The purpose of this study is to establish the outcome of hepatitis C virus characteristics and the long term follow-up of de novo HCV infection in children with LTX.

Method: Between 1985–2008, 175 pts. underwent 218 LTX. 10 (5.7%) developed HCV infection in children with LTX.

Results: Post transplantation (at the earliest 12 month post LTX): 13 children received one, 19 children 2, one child 3 and one child four vaccinations. Average time for the first MMR shot was 52 months after LTx. 9 of the children who received one vaccination developed seroprotective titers. 12 of the children who received two vaccinations and also the children who received 3 or 4 vaccinations seroconverted to measles IgG.

No serious side effects were observed after any of these vaccinations.

Conclusion: Only a minority of children on the waiting list develop measles antibodies after MMR vaccination but those who do usually show persistence of protective measles titer also after LTx. Vaccination after liver transplantation leads in two thirds to seroprotective measles titers. Taken together, our data favor the vaccination of live attenuated MMR vaccine before and after liver transplantation.

Abstract# 267
OPPORTUNISTIC INFECTIONS FOLLOWING INDUCTION THERAPY WITH BASILIXIMAB IN PEDIATRIC LIVER TRANSPLANT RECIPIENTS. J. Quintero, O. Len, M. Falcone, J. Gavalda, C. Venturi, R. Charco, J. Bueno. Pediatric Liver Transplantation Unit, Hospital Vall de Hebron, Barcelona, Spain.

Purpose: Basiliximab is being increasingly used as induction treatment for the prevention of acute rejection in pediatric liver transplant recipients, thus, avoiding the multiple severe side effects associated with steroids. Information regarding opportunistic infections (OI) in pediatric recipients is scarce. We assessed the chronology and risks of infection in a large cohort of pediatric liver transplant recipients that received Tacrolimus-based steroid-free immunosuppressive protocol using an induction treatment with Basiliximab.

Method: All recipients who received basiliximab from January 2000 to December 2006 as induction therapy at the time of transplantation were evaluated for the development of an OI until death or for 24 months after procedure. Results: 62 liver transplants were performed in 56 recipients. Mean age was 3.9 years, 17 (30.6%) patients < 1 year old. Overall, 23 recipients (41.1%) developed 32 OI. Viral infection accounted for 90.6% of the episodes including CMV disease (8 viral syndrome, 1 pneumonia, 1 hepatitis and 1 disseminated), EBV disease (6 febrile syndrome and 4 posttransplantation lymphoproliferative disease), 2 syncytial respiratory virus pneumonia, 3 colitis due to adenovirus, one episode of human herpesvirus 6 infection, 1 episode of chickenpox and 1 herpes simplex virus localized infection. Only 3 out of 29 episodes presented the first month after procedure. Fungal infection was responsible of 3 OI distributed as follows: 1 esophageal candidiasis, 1 disseminated candidiasis and 1 pulmonary invasive aspergillosis. 4 patients (17.4%) died due to infection (of them affected of invasive fungal disease). Acute rejection (odds ratio 3.5; 95% confidence interval: 1.1-11.8) was the only independent predictor for the development of an opportunistic infection.

Conclusion: Viral infections are the main etiology for opportunistic infections in pediatric liver transplant recipients who received basiliximab as induction treatment for allograft rejection which, at the same time, was the only predictor for developing an opportunistic infection.

Abstract# 268
OUTCOME OF PEDIATRIC LIVING DONOR LIVER TRANSPLANT WITH LEFT-SIDE LOBE GRAFTS HAVING MULTIPLE ARTERIES. Hiroyuki Kanazawa,1 Yasuhiro Ogura,1 Kohei Ogawa,1 Hisashi Imai,1 Yasutatsu Takada,1 Hirotu Egawa,1 Shinji Uemoto.1 Surgery, Kyoto University, Kyoto, Japan.

Purpose: In pediatric living donor liver transplantation (LDLT), small diameter of hepatic artery is one of risk factors for hepatic arterial complications. In a liver graft having multiple arteries, one of the arteries with the largest diameter is chosen for the anastomosis, and the others are sacrificed, if the sufficient intrahepatic arterial flow is confirmed by intraoperative doppler ultrasonography. The aim of this study is to analyze the outcome of a graft with multiple hepatic arteries in pediatric LDLT.

Method: Since January 2005, 86 pediatric patients underwent LDLT at our institute. Forty liver grafts (left lobe: 7 grafts, lateral segment: 23 grafts, monosegment reduced monosegment: 10 grafts) had single artery and 28 liver grafts (left lobe: 9 grafts, lateral segment: 14 grafts, monosegment or reduced monosegment: 5 grafts) had multiple arteries, which were compared for intraoperative factors and outcome including liver function and arterial complications.

Results: The mean diameter of the anastomosed arteries in the all kinds of grafts was 2.68 ± 0.07 mm (with single artery: 2.83 ± 0.09 mm, with multiple arteries: 2.45 ± 0.08 mm). One anastomosis was performed for 26 of 28 liver grafts with multiple arteries. Two anastomosis was done for 2 liver grafts (left lateral segment: 2 grafts).

During the immediate postoperative period, liver function tests and blood lactate level were not significantly different between liver grafts with multiple arteries and with single artery. Two hepatic arterial complications (2.8 %) occurred only in liver grafts with multiple arteries. In 9 year-old girl, arterial anastomotic stenosis occurred and successfully treated with transfemoral catheter balloon dilatation. In 10 year-old boy, hepatic arterial thrombosis occurred and treated with re-anastomosis.

Conclusion: The diameter of graft arteries was significantly smaller in liver grafts with multiple arteries, but multiple arteries did not influence graft function tests and not increase the incidence of hepatic arterial complications.

Abstract# 269
UNEXPECTEDLY HIGH FREQUENCY OF LATE SERIOUS CARDIOVASCULAR EVENTS AFTER LIVER TRANSPLANTATION (LTX) DUE TO ALPHA-1-ANTITRYPSIN DEFICIENCY (AATD). Antal Németh,1 Lennart Eleborg,2 Bo-Göran Ericzon,1 Björn Fischler1 1Pediatrics, Karolinska Univ Hosp, Stockholm, Sweden; 2Anaesthesiology, Karolinska Univ Hosp, Stockholm, Sweden; Ts Surgery, Karolinska Univ Hosp, Stockholm, Sweden.

Purpose: Pediatric AATD is a liver-specific disease and in case of failure itx serves both as organ replacement and gene therapy. However, we have experienced an
unexpectedly high frequency of late postoperative extrahepatic complications which might be more than coincidence.

**METHOD:** During the last 24 years we had 10 AATD patients (0.5-23 years, 6 girls) listed for ltx. One died while waiting and 9 underwent ltx on 12 occasions.

**RESULTS:** Patients 1 and 2 were monozygotic twins. Patient 2 received a heterozygous (PiMZ) liver. Patients 3 and 5 underwent two, patient 4 three ltxs. The 2 oldest girls have been followed by us since early childhood. Table 1 summarizes the postoperative course.

**CONCLUSION:** Four of the 9 patients developed late lethal or near-lethal sudden, unexpected cardiovascular complications vs 1 of the other 108 pediatric patients (119 ltxs) transplanted in our center.

We could not obtain tissue specimens for electron microscopy. But it is known that the sequestered defect Z protein is accumulated also in extracellular tissues. In our earlier studies the post-ltx renal function of AATD children worsened more than expected. The late cardiovascular complications indicate that the (cardio)vascular wall of patients with AATD might also contain defect protein and this might lead to suboptimal biological properties.

Our earlier and present data indicate that children with AATD need more careful observation pre- and post-ltx.

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**Abstract@ 270**

**GROWTH HORMONE IN CHILDREN WITH CHRONIC RENAL INSUFFICIENCY AND LIVER TRANSPLANT: 3-YEARS EXPERIENCE.** Carlota Fernández,1 Mercedes Navarro,1 Ángel Alonso,1 Loreto Hierro,2 Carmen Camarena,3 Jara Paloma,2 (1Pediatric Nephrology, Hospital La Paz, Madrid, Spain; 2Pediatric Hepatology, Hospital La Paz, Madrid, Spain)

**PURPOSE:** To evaluate efficacy and safety of growth hormone treatment in children with Chronic Renal Insufficiency (CRI), delayed growth and a liver transplant.

**METHOD:** A retrospective study of 16 patients (10 male 6 female) with a liver transplant with 7.2±3.6 years follow-up and CRI (Cr-EDTA 55±16 ml/min/1.73 m²). AATD might also contain defect protein and this might lead to suboptimal biological properties.

**RESULTS:** Patients 3 and 5 underwent two, patient 4 three ltxs. The 2 oldest girls were 21yrs post-ltx alive and well survived.

**CONCLUSION:** Treatment with rh-GH in liver Tx. is safe and improves the growth velocity and height gain in selected cases. Recently several authors reported use of the new technology helping to eliminate and reduce posttransplant anti-donor ABO specific hemagglutinin titers to assist immunosuppression in preventing acute rejection after transplantation.

**METHOD:** We report the case of liver transplantation with ABO incompatible graft under immunoadsorption protocol.

**Case report:** 17 year old boy with acute decompensation of chronic liver failure due to PSC and AIH was qualified for urgent liver transplantation. After 3 following ABO incompatible donors we decided to perform liver transplantation across blood groups (donor: B, Rh positive; recipient A, Rh positive). Immunosuppressive protocol consisted of basiliximab, tacrolimus, mycophenolate mofetil and corticosteroids. Additionally 3 immunoadsorption sessions with ABO Glycoex type B on 3, 7, 12, 16 postoperative days were performed. Anti-B isoglutinin titers were < 1/2048. Just after transplantation it dropped to 1:4 and increased again to 1:2048 on postoperative day 6 and then to 1:8192 on post operative day 10. After 3 immunoadsorption the titer decreased to 1:64 on day 21. There was no acute rejection until discharge home and until now, 6 months after Tx. The liver function is excellent. The only problem observed after transplantation was mild anemia due to low grade hemolysis in the postoperative period.

**CONCLUSION:** Immunosuppressive therapy has been safely and effectively introduced in patient with ABO incompatible donor liver transplantation.

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**Abstract@ 273**

**EVANS SYNDROME IN A CHILD AFTER LIVER TRANSPLANTATION FOR ALAGILLE SYNDROME.** Andrea Briem-Richter,1 Enke Grabhorn,2 Rainer Ganschow,1 (1Pediatric Gastroenterology and Hepatology, University Hospital Hamburg-Eppendorf, Hamburg, Germany)

**PURPOSE:** Evans syndrome is a rare and severe disease characterized by the association of autoimmune hemolytic anemia and autoimmune thrombocytopenia. We report a case of a five year old girl with Evans syndrome after liver transplantation.

**METHOD:** Case report: The child underwent liver transplantation for cholestatic liver disease due to Alagille syndrome and was retransplanted two times because of an arterial thrombosis and chronic graft dysfunction. At the age of five years, the child presented with thrombocytopenia and bone marrow puncture revealed signs of autoimmune thrombocytopenia.

**RESULTS:** The child was treated with steroids and i.v. immunoglobulin, but severe thrombocytopenia persisted. The immunosuppressive medication with tacrolimus was stopped and a therapy with cyclosporine was initiated. Two days later, acute hemolytic anemia with positive direct Coombs test occurred and the disease was classified as Evans syndrome. Plasmapheresis had to be performed and the child received anti CD20 monoclonal antibody.

**CONCLUSION:** Children after liver transplantation can develop rare but severe complications like Evans syndrome. Immunosuppressive therapy with tacrolimus may be a trigger for this phenomenon.
Abstract# 274
NEW APPROACH IN THE TREATMENT OF PORTAL VEIN THROMBOSIS AFTER PEDIATRIC LIVER TRANSPLANTATION. COMBINATION OF OPEN SURGERY AND ENDOVASCULAR RADIOLOGY.
Javier Bueno,1 Mercedes Pérez,2 Carla Venturi,1 Jesus Quintero,1 Juan Ortega,1 Ramón Charco,1 Alejandro Romero,2 Antonio Segarra.2
Pediatric Liver Transplantation Unit, Hospital Valle de Hebron, Barcelona, Spain; 2Interventional Radiology, Hospital Valle de Hebron, Barcelona, Spain.

PURPOSE: To describe a new technique for the treatment of early portal vein (PV) thrombosis after pediatric liver transplantation (LTx).

METHOD: 3 infants (mean age: 7m) with biliary atresia who underwent LTX developed early PV thrombosis. 2/3 patients developed severe graft dysfunction The type of graft were complete (1), split (1), reduced (1). Technique description: After opening the abdominal wall, a 5 F cathether/sheath was placed through the ileocolic vein (n=2) and left PV at Rex recessus (n=1). The catheter was exteriorized through the abdominal wall (2) or surgical wound (1). One patient was treated in-situ simultaneously in the operative room under flouroscopy and 2 in a second time in the Interventional Radiologist room. The clot was removed with mechanical fragmentation with balloon dilatation through the catheter. Also, stent placement (1) and competitive portal flow collatetals embolization with coils (2) were performed. After the procedure, a perfusion of heparin was administrated through the catheter.

RESULTS: The technique allowed restoration of the PV flow in all cases. One infant required 2 sessions. No transfeusions were needed. The 5 F catheters were withdrawn at a mean of 10 days (4-15 days) after a control portography. One patient has 2 years follow-up, 1 was retransplanted 2 weeks later because of graft dysfunction with the PV open, and the remaining died of adenoviruses pneumonia 2 months later, also with the flow patent.

CONCLUSION: This new strategy of combined open surgery and interventional radiologist is effective in the treatment of early PV thrombosis after LTX. It avoids surgical thrombectomy that requires manipulation of the hilum and sometimes the necessity to take off the bilioenteric anastomosis without blood requirements. Also, it permits embolization of collaterals that steal portal flow.

Abstract# 275
SUCCESSFUL LIVER TRANSPLANTATION FOR SEVERE HEPATIC GRAFT VERSUS HOST DISEASE IN TWO CHILDREN AFTER HEMATOPOIETIC STEM CELL TRANSPLANTATION. Joanna Teseisseye,1 Mikolaj Teseisseye,2 Piotr Kalicinski,1 Beata Wolska-Kusnierewicz,3 Hor Ismail,1 Senthilselvan.3
1Pediatric Surgery and Organ Transplantation, Children’s Memorial Health Institute, Warsaw, Poland; 2Gastroenterology, Hepatology and Immunology, Children’s Memorial Health Institute, Warsaw, Poland.

PURPOSE: Graft versus host disease (GVHD), common complication of hematopoietic stem cell transplantation (HSCT), frequently causes liver injury and in some cases leads to severe liver disease Some authors have suggested that extra hepatic GVHD (skin and intestinal) should be a contraindication to liver transplantation (OLT) because the survival of these patients is poor.

The aim of the study is to present successful OLT in two patients with severe chronic GVHD after HSCT.

METHOD: First case: 8-years-old boy received MUD HSCT due to CD40 ligand deficiency complicated by chronic Cryptoosporidium infection with cholangitis sclerosans. GVHD III/IV degree occurred 8 days after HSCT. Vanishing bile duct syndrome caused liver failure. Successful OLT was performed 11 months later, after resolution of skin and intestinal symptoms of GVHD.

Second case: 6-months-old boy with X-linked severe combined immunodeficiency received MUD HSCT. GVHD III degree occurred 26 days after HSCT. Six months later, skin and intestinal symptoms had been resolved, living related OLT was successfully performed due to end stage liver involvement.

RESULTS: Both patients have good liver function, full immunological reconstitution and have no GVHD symptoms respectively six months and four years after OLT.

CONCLUSION: OLT appears to be an effective treatment for post HSCT GVHD even when both hepatic and extra hepatic symptoms are present.

Abstract# 276
RENAL FUNCTION POST LIVER TRANSPLANTATION. Manjula Gowrishankar,1 Summit Sawhney,2 Susan M. Gilmour,1 Sentil A. SenthilSelvan.1
1Pediatrics, University of Alberta, Edmonton, AB, Canada; 2Faculty of Medicine and Dentistry, University of Alberta, Edmonton, AB, Canada.

PURPOSE: Chronic kidney disease (CKD) is a major risk factor for morbidity and mortality in adult liver transplants. However, there is paucity of data for children with liver transplantation. CKD is defined as GFR < 90ml/min/1.73m2. Long term tacrolimus therapy can result in nephrotoxicity and CKD. Our objectives were to determine the incidence of CKD and the significance of the correlation between CKD and trough blood levels of tacrolimus.

METHOD: In this retrospective cohort study, the charts of children who underwent liver transplantation between January 2000 and December 2005 at the Stollery Children’s Hospital were reviewed. There were 30 patients with 37 transplants and follow-up period was 1.4–7 years. GFR-renalscan each year post-transplant was coded as GFR1, GFR2, etc.

RESULTS: Table 1-Results

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Despite annual GFR-renalscan inclusion as part of routine follow-up, many of the scans were not performed. Interestingly, the rate of GFR-renalscans increased significantly (p = 0.0037) after a dedicated liver transplant coordinator was hired. There was a negative correlation (not significant) between GFR-renalscans and tacrolimus, suggesting that high tacrolimus levels may cause renal impairment. After one year post-transplant, there was consistent positive correlation between serum tacrolimus and creatinine.

CONCLUSION: Thus, high tacrolimus levels may cause CKD in children with liver transplants. A dedicated coordinator who ensures follow-up measures is of utmost importance in the management of these children to allow early detection and appropriate therapy to prevent or minimize renal dysfunction.

Abstract# 277
APPENDICEAL BILIARY CONDUIT FOR LIVER TRANSPLANTATION IN A CHILD WITH SHORT BOWEL SYNDROME: A CASE REPORT. Ivan R. Diamond,1 Annie Fecteau,1 Paul W. Wales,1 David R. Grant.1 SickKids Transplant Centre, The Hospital for Sick Children, Toronto, ON, Canada.

PURPOSE: Biliary reconstruction using Roux-en-Y hepatojejunostomy in a child with Short Bowel Syndrome (SBS) may result in deterioration of intestinal function due to loss of absorptive surface area. As well, in the setting of technical variant graft, duct-to-duct reconstruction may not be feasible.

METHOD: This case report will describe a novel technique for biliary reconstruction in a child with SBS undergoing isolated liver transplantation with a graft from a live-donor.

RESULTS: This male born at 32 weeks gestation developed SBS secondary to meconium peritonitis. He had 63 centimeters of residual small intestine with an intact colon. He achieved full enteral tolerance and was weaned off parenteral nutrition (PN) by 5 months of age. At the time he had evidence of Parenteral Nutrition Associated Liver Disease with a serum conjugated bilirubin of 3.5mg/dl. Surprisingly, although he remained off PN, his cholestatic liver disease was progressive. At 22 months of age, he was listed for an isolated cadaveric liver graft. Initially, we were reluctant to proceed with live-donor transplantation given the biliary reconstruction challenge posed by his shortened intestine. However, given his worsening liver function while on the waitlist, it was decided to proceed with such. The patient underwent live-donor liver transplantation with a left-lateral segment graft at 31 months of age. During the transplant, the appendix was mobilized along its vascular pedicle, and was utilized as a biliary conduit (bile duct-appendix-duodenum). An internal-external biliary drain was left in-situ. His immediate post-operative course was complicated by Grade 5/9 rejection managed with steroids. At 23 days post-transplant, he is at home and remains independent of PN. Although, his drain has migrated into the duodenum he remains free from biliary complications with a serum bilirubin of 0.0mg/dl.

CONCLUSION: Although early in our patient’s post-transplant course, the appendiceal conduit appears to be a promising approach for biliary reconstruction in a patient with SBS in whom standard approaches are not feasible.

Abstract# 278
EARLY DIAGNOSIS AND TREATMENT OF BILIARY ANASTOMOTIC STRictures AFTER PEDIATRIC SPLIT LIVER TRANSPLANTATION. Marco Spada,1 Pieralba Catalano,1 Roberto Miraglia,1 Fabrizio Di Francesco,1 Silvia Riva,1 Davide Cintorino,1 Marco Sciveres,1 Bruno Griddi,1,2 IEMETT, UPMC, Palermo, Italy.

PURPOSE: Analyze the efficacy of a protocol of early diagnosis and treatment of biliary complications after split liver transplantation in children.

METHOD: Over 5 years, we performed 95 liver transplantations (LTx) in 80 children. 75 were primary LTxs that represent our study group. Recipient median age was 2.4 yrs. Median follow up was 25 months. Split liver was in situ. Anatomostic biliary stricture (ABS) was investigated with liver ultrasound and liver biopsy and confirmed with percutaneous transhepatic cholangiography (PTC).

RESULTS: 3-year patient and graft survival were 86%, 82%. Recipients received 12 whole livers (WL), 53 left lateral segments (LLS), and 11 extended right grafts (ERG). Biliary reconstruction was with duct-to-duct anastomosis in 7 cases (WL=1, ERG=6), single hepatojejunostomy (HJ) in 52 (WL=11, LLS=36, ERG=5), and double HJ in 16 LLS recipients. No stents were used, except in 7 LLS recipients in whom a transhepatic biliary stent was placed intraoperatively. ABS developed in 18
cases (WL=17%, LLS=28%, ERG=9%). In 40% of the cases there was no evidence of biliary tree dilatation while histologic signs of mechanical cholestasis were always present. PTC confirmed the diagnosis. 17 patients underwent stent placement and balloon dilatation. In two cases the stricture could not be passed or did not resolve and HD redo was performed. PTC with biliplasty was successful in 76% of the cases. In 6 cases stent recurrence was treated with re-stenting and biliplasty and two still have a biliary stent in place. No grafts were lost because of ABS. Of the 7 patients with intraoperative stent placement, 2 developed ABS and intrahepatic biliary stricture. Univariate and multivariate analysis identified among 18 parameters only LLS as risk factor for ABS development.

CONCLUSION: ABS is a frequent complication after split LTx. Its early diagnosis is crucial to preserve graft function and can be efficiently obtained combining clinical, radiologic and histologic findings. PTC and biliplasty are effective in ABS treatment.

Abstract# 279
ATRAUMATIC RETROGRADE HEPATIC ARTERY PERFUSION IN PEDIATRIC LIVING DONOR LIVER TRANSPLANTATION. Andrea Bruniati,1 Catherine De Magne,1 Christophe Bourdeaux,1 Francesco Lacanna,1 Raymond Reding.1 1Pediatric Liver Transplant Program, Saint-Luc University Clinics, Brussels, Belgium.

PURPOSE: Living donor liver transplantation (LDLT) offers clear benefits including lower pre-transplant mortality, and excellent graft quality and survival. Nevertheless, as observed in left cadaveric split transplant, biliary complications were reported to reach 15-25% in LDLT. Arterial ischemia of the left bile duct has been suspected to play a crucial role in post-transplant anastomotic strictures. We wish to describe a novel technique to improve arterial purge during ex-situ bench preparation of the graft in LDLT.

METHOD: 167 pediatric LDLT were performed at our center between July 1993 and January 2006. Conventional surgical techniques were used for both the donor and the recipient, as described elsewhere. During ex-situ portal perfusion of the graft with University of Wisconsin solution, the hepatic artery (HA) is neither directly catheterised nor flushed for fear of endothelial injury and subsequent intimal dissection. Since August 2006, atrumatic retrograde perfusion of hepatic artery (RHAP) was performed in 20 consecutive cases according to the following protocol: at the half of portal perfusion (total volume: 3 ml/g of graft), RHAP was carried out by clamping the hepatic vein in order to obtain an inversion of the flow of the preservation fluid through HA. Biliary and artery complications were registered during a median post-transplant follow-up period of 375 days (range 172-762). Outcomes were compared with the first 100 LDLT performed without RHAP.

RESULTS: The rate of anastomotic biliary complications was 24% in the 100 cases without RHAP, versus 16% in the 20 cases with RHAP (p=0.56). The corresponding rates for HA thrombosis were 1%, versus 0% (n.s.).

CONCLUSION: RHAP constitutes a safe and feasible procedure allowing perfusion of the parenchyma and biliary arterial tree of the graft; this technique may contribute to reduce the incidence of biliary anastomotic complications suspected to be related to arterial ischemia. We suggest to extend the use of this retrograde perfusion of hepatic artery to all liver grafts.

Abstract# 280
HOMOZYGOUS FAMILIAL HYPERCHOLESTEROLEMIA AS DOMINO GRAFT IN DOMINO LIVER TRANSPLANTATION – A CASE REPORT. Chinsu Liu, Che-Chuan Loong, Cheng-Yuan Hsia, Hsin-Lin Tsai, Mei-Yung Tsou, Chou-Fu Wei. Division of Pediatric Surgery, Division of Transplantation Surgery, Department of Surgery, Taipei Veterans General Hospital, National Yang-Ming University, Taipei, Taiwan.

PURPOSE: The aim is to report the result of a domino liver transplantation (DLTx) using a domino graft from the patient with homozygous familial hypercholesterolemia (HFH).

METHOD: The domino donor was a 16-year-old boy with HFH. The domino recipient was a 59-year-old hepatitis B-related cirrhosis and multiple hepatocellular carcinoma. The domino donor received a deceased whole liver from a 9-year-old girl. The hepatic outflow was reconstructed by side-to-side cavovaval anastomosis for the first liver transplantation, so the hepatectomy of the domino donor was preservation of the IVC and the stump of three hepatic veins were preserved for as long as possible. The hepatic veins of the domino graft were joined together at back table. A vein graft from the deceased donor was used as a venous port for outflow reconstruction for domino graft. The domino graft was implanted in piggyback fashion with clamping the IVC but without venous-venous bypass.

RESULTS: The domino donor was discharged on the 19th postoperative day. The second recipient was discharged on the 12th postoperative day but readmitted for anastomotic bile leakage 8 days after discharge. He was treated by a percutaneous trans-hepatic biliary stent and now he was well with normal liver functions. The Doppler ultrasound showed normal triphasic flow into all major hepatic veins of the domino liver 6 months after transplantation. The plasma cholesterol level of the domino donor is normal without anti-hyperlipidemic agents or food restriction and the plasma cholesterol level of the domino recipient is slightly increased with receiving a HMG-CoA reductase inhibitor, atorvastatin (Lipitor), 60 mg per day 7 months after transplantation.

CONCLUSION: The liver of HFH can be used as a domino graft in the patient with a normal serum cholesterol level before transplantation. The venous path method for hepatic venous outflow reconstruction in DLTx is recommended.

Abstract# 281
POSTTRANSPLANT LYMPHOPROLIFERATIVE DISEASE IN PEDIATRIC LIVER TRANSPLANT RECIPIENTS. Simasi Sevmit,1 Rauf Shahbazov,1 Hamdi Karakayali,1 Figen Ozçay,2 Mehmet Haberal.1 1General Surgery, Baskent University, Faculty of Medicine, Ankara, Turkey; 2Pediatrics, Baskent University, Faculty of Medicine, Ankara, Turkey.

PURPOSE: Posttransplant lymphoproliferative disease was first reported in 1968. Posttransplant lymphoproliferative disease encompasses a spectrum of abnormalities ranging from a benign infectious mononucleosis like illness to non-Hodgkin’s lymphoma with nodal and extranodal site involvement. In this study, we evaluated 5 children who had posttransplant lymphoproliferative disease after liver transplant.

METHOD: Since 2001, we have done 111 liver transplants in 108 children at our center. Five children (4.6%): 3 female; 2 male; mean age, 5.9 years) were developed posttransplant lymphoproliferative disease. The indications for liver transplant were hepatoblastoma in 1 recipient and cholestatic liver disease in the remaining 4.

RESULTS: Posttransplant lymphoproliferative disease was diagnosed 6, 11, 17, 22, and 27 months after liver transplant. Imaging modalities identified generalized lymphadenopathy in 1, multiple liver masses in 1, a large portal mass in 1, multiple stomach ulcers in 1, and a large mediastinal mass in 1 recipient. At the time of diagnosis, 1 recipient with a large mediastinal mass had a cough; the remaining 4 recipients were asymptomatic. Histologic findings showed B-cell lymphoma in 3 recipients and T-cell lymphoma in 2. The result of in situ hybridization for Epstein-Barr virus was negative in 1 recipient and it was positive in 4. Four recipients were treated with chemotherapy; the remaining recipient was treated with anti-CD20 monoclonal antibodies (Rituximab). One recipient who had a large mediastinal mass died 2 months after diagnosis due to chemotherapy-related sepsis; the remaining 4 children are alive at the time of this writing at 9, 11, 18, and 34 months after treatment.

CONCLUSION: Our rate of posttransplant lymphoproliferative disease is similar to that published in the literature. From a few months to several years after liver transplant, radiologists must be alert to the possibility of posttransplant lymphoproliferative disease. Thorough imaging is required to detect the wide variety of potential presentations.

Abstract# 282
LIVING RELATED LIVER TRANSPLANTATION IN CHILDREN – A SINGLE CENTRE EVALUATION OF THE OUTCOME OF DONOR CANDIDATES AND RECIPIENTS. Björn Fischer,1 Magnus Johansson,1 Henrik Gjertsen,2 Bo-Göran Ericzon,2 Annika Bergquist,3 Antal Nemeth.1 1Dept of Pediatrics, Karolinska Univ Hospital, Huddinge, Stockholm, Sweden; 2Dept of Transplant Surgery, Karolinska Univ Hospital, Huddinge, Stockholm, Sweden; 3Dept of Gastroenterology, Karolinska Univ Hospital, Huddinge, Stockholm, Sweden.

PURPOSE: To study the outcome of donor candidate investigations for living related donor liver transplantation from adult to child in a single centre during the time period 1995-2003.

METHOD: The charts of 25 donor candidates (age 18-30 years, 17 were parents), all with proven ABO compatibility with the recipient, were reviewed. All 22 recipients, of whom 18 had biliary atresia, were simultaneously listed for deceased donor (DD) organ transplantation.

RESULTS: Eleven donor candidates were accepted. Seven of them successfully donated the left lateral liver segment. At a mean follow-up time of 5.6 years (range 3.5-9.8 years), all donors and recipients were well from the surgery. However, one donor developed Crohn’s disease 7 years after the donation. In the four remaining cases the recipient deteriorated before transplantation was possible or other surgical approaches were utilized. For three candidates the investigations were never finalised, due to either clinical deterioration of the recipient or the availability of a DD organ.

CONCLUSION: Eleven donor candidates were rejected for cardiopulmonary disorders and the remaining four for other reasons such as size mismatch or iatrogenic but reversible damage directly associated with invasive angiography, which was routinely performed during the first half of the time period.

CONCLUSION: We conclude that only 7 of 25 (28%) ABO compatible candidates donated a liver segment. The fact that parents of biliary atresia patients have potential liver pathology may be of importance for the understanding of the etiology of the disease and have possible implications for the choice of donors. If possible, noninvasive angiographic investigations should be used.
LIVER TRANSPLANTATION IN CHILDREN WITH BILIARY ATRESIA AND POLYSPLENIA SYNDROME. Artur Apanasiewicz,1 Piotr Czubkowski,2 Malgorzata Markiewicz,1 Jan Pertkiewicz,2 Diana Kaminska,1 Joanna Pawlowska,1 Piotr Kalicinski,2 Zbigniew Zolna,2 Irena Jankowska,1 Mikolaj Teissuye,1 Jerzy Socha,3 1Children’s Memorial Health Institute, Warsaw/Warszawa, Poland; 2Pediatric Surgery, The Children’s Memorial Health Institute, Warsaw/Warszawa, Poland.

PURPOSE: Children with biliary atresia (BA) and polysplenia syndrome (PS) have been evaluated considering the role of high risk liver transplant recipients due to technical problems during transplant surgery. We report single-center experience with liver transplantation in children with this syndrome.

METHOD: Between 2000 to 2008 330 liver transplants were done in our center in children, among them were five with end stage liver insufficiency, with BA and PS, after Kasai procedure. They have undergone liver (4 patients) or cadaveric donor liver transplantation. All patients demonstrated additional malformations like: absence of retrohepatic vena cava (1), intestinal malrotation (2), preduodenal portal vein (1), hepatic artery (2) and cardiac anomalies (2). No situs inversus occurred. Transplantations were performed in the age of 6 months to 11 years. We did not meet serious technical problems during operation, as well as never had to use vascular conduits for graft revascularization.

RESULTS: All patients are alive and well with follow up between 7 and 96 months after transplantation, although one with persistent hepatitis C and one with signs of portal hypertension after portal thrombosis which occurred during PTLD treatment one year after transplantation.

CONCLUSION: Results of liver transplantation in children with BA and PS syndrome are as good as for other indications or non-syndrome BA in experienced pediatric liver transplant center.

Abstract# 284

AUXILIARY LIVER TRANSPLANTATION FOR AUTOIMMUNE HEPATITIS. Erick Hernandez, Lesley Smith, Maria Rodriguez, Gennaro Selvaggi, Eddie R. Island, Phillip Ruiz, Andreas G. Tzakis, John Thompson, Tomoaki Kato. Department of Pediatrics, Pathology, and Surgery, Miller School of Medicine. University of Miami, Miami, FL, USA.

PURPOSE: To present the clinical outcome of three patients after auxiliary liver transplantation. All three patients had serological markers compatible with type I autoimmune hepatitis.

METHOD: Chart reviews of three patients before and after they received auxiliary liver transplantation.

RESULTS: All three patients presented with acute liver failure. Upon presentation their age and sex were 1 year old female, 4 year old male, and 8 year old male. The first patient had a total IgG of 2170.00 mg/dl and an antinuclear antibody titer of 40. The second patient had an antinuclear antibody titer of 40, his total IgG was not measured. The third patient had an antinuclear antibody titer of 2560. Their liver biopsies showed features compatible with autoimmune hepatitis. Viral hepatitis were excluded by serology, viral cultures, and PCR. Metabolic disorders were also excluded. Upon admission to our center deterioration of their liver synthetic function ensued, characterized by significant hyperbilirubinemia, coagulopathy, and hyperammonemia. These patients underwent auxiliary liver transplantation and immunosuppressants were administered as per our institution protocol. The first patient had total immunosuppression withdrawal 18 months after transplantation with subsequent graft removal due to graft infection. In the second patient immunosuppression was discontinued 22 months after transplantation. These two patients had their immunosuppression discontinued over one year ago, they are thriving well with a normal functioning native liver. The third patient remains on immunosuppression 34 months after transplantation.

CONCLUSION: Previous reports had questioned if the expression of autoimmune markers in patients with acute liver failure are the result of their acute liver failure or just the consequence of autoimmune hepatitis. However, in the setting of acute liver failure with abnormal autoimmune markers auxiliary liver transplantation should be considered. Total withdrawal of the immunosuppression is feasible in these patients.

Abstract# 285

NON-SURGICAL APPROACH TO BILIARY COMPLICATIONS AFTER LIVER TRANSPLANTATION IN CHILDREN. Piotr Czubkowski,1 Malgorzata Markiewicz,1 Jan Pertkiewicz,2 Diana Kaminska,1 Joanna Pawlowska,1 Piotr Kalicinski,2 Zbigniew Zolna,2 Irena Jankowska,1 Mikolaj Teissuye,1 Jerzy Socha,3 1Children’s Memorial Health Institute, Warsaw/Warszawa, Poland; 2Pediatric Surgery and Organ Transplantation, The Children’s Memorial Health Institute, Warsaw/Warszawa, Poland.

PURPOSE: The aim of the study was to define the role of endoscopic/radiological methods in the treatment of biliary tract complications after liver transplantation in children.

METHOD: We performed the retrospective chart review of 28 patients (17 M/11 F) after liver transplantation (20 CAD/8 LR) with biliary complications who were referred to non-surgical procedures (endoscopic retrograde cholangio pancreato-gram-ERCPT), percutaneous transhepatic cholangiography-PTC) with typical interventions like bile duct balloon dilatation and biliary stent/catheter placement.

RESULTS: In 28 children after LTx presenting with biliary stenosis, we performed 35 PTC and 26 ERCP. At the moment of intervention 20 patients had Roux-en-Y loop and 8 had duct-to-duct anastomosis. The mean age at the first intervention was 11,1 years (SD:5.9) with time from LTx of 2.4 years (SD:3.0). After LTx the total mean follow up after auxiliary transplantation/death was 3.45 (SD:3.2) and after bile duct revision 3.4 (SD:1.4) years. In this group early biliary complications (within 30 days after LTx) occurred in 9 patients (32%): bile leakage in 5, fistulas in 5 and stenosis in 4 cases. The mean time to its development after LTx was 21 days (SD:19.10).children underwent surgical reconstruction of biliary anastomosis (6 as a primary treatment after LTx, 4 after unsuccessful endoscopy), 7 underwent ReLTx and 2 were deceased due to infections.

CONCLUSION: Non-surgical, endoscopic and radiologic methods are effective and safe procedures in biliary complications after liver transplantation in children and should be considered as a treatment of choice. The majority of patients require repeatedly performed interventions. Surgical approach should be considered in selected cases with poor response to primary treatment.

Abstract# 286

VASCULAR COMPLICATIONS AFTER PEDIATRIC SPLIT LIVER TRANSPLANTATION: DIAGNOSIS, TREATMENT AND RISK FACTORS. Marco Spada,1 Pieralba Catalano,2 Fabrizio Di Francesco,1 Angelo Luca,1 Silvia Riva,1 Davide Cintorrino,1 Settimo Caruso,1 Bruno Gridelli.1 JSMETT, UPAMC, Palermo, Italy.

PURPOSE: Analyze vascular reconstruction, diagnosis and treatment of vascular complications after split liver transplantation.

METHOD: Over 5 years, we performed 95 liver transplantations (LTS) in 80 children. 75 were primary LTx that represent our study group. Recipient median age was 2.4 yrs. Median follow up was 25 months. Pre-LTx vascular anatomy was assessed with angio-CT. Split liver was in situ, leaving main hepatic artery (HA) with the left lateral segment (LLS). Post-LTx liver flows were monitored with ultrasound and in case of abnormal findings angio-CT was used.

RESULTS: Pre-LTX HA anomalies were detected in 36% of cases, portal vein (PV) hypoplasia in 13%, and PV thrombosis in 5%. Recipients received 12 whole livers (WL), 53 LLS, and 11 extended right grafts (ERG). HA anomalies were detected in 10 grafts, requiring bench reconstruction in 3 cases; 7 LLS had two hepatic veins requiring bench plasticy or conduit. HA anastomosis was between graft and recipient HA or celiac trunk in 60 cases, between graft celiac trunk and recipient aorta in 4, and between ERG right HA and recipient right HA in 11. PV anastomosis was with an interposed vein graft in 2 cases. In 3 LLS recipients venous outflow was restored creating a neocava with and iliac vein graft. 3-year patient and graft survival were 86% and 82%. Post-LTx, HA thrombosis developed in 4 cases; 1 LLS recipient died, while the others were treated with anastomosis redo (WL<1, ERG≈1) or reTx (WL<1). HA stenosis developed in 6 cases (LLS≈3, ERG≈3), all treated with angioplasty. Early PV thrombosis developed in 3 LLS recipients, treated with anastomosis redo. Outflow obstruction was diagnosed in 4 LLS recipients treated with angioplasty. Univariate and multivariate analysis identified among 18 parameters small donor, ERG, and portal vein hypoplasia as risk factors for HA thrombosis, HA stenosis and PV complications, respectively.

CONCLUSION: Split LTX can be safely used in pediatric LTx with a low rate of vascular complications, that can be effectively diagnosed and treated in an high percentage of cases.

Abstract# 287

A SINGLE CENTRE EXPERIENCE OF 25 PEDIATRIC LIVING DONOR LIVER TRANSPLANTATIONS FROM INDIA. Neelam Mathur,1 Heema Mittal,1 Rahul Vaswani,1 Neelam Mathur,2 Vinod Singh,2 1Department of Pediatric Gastroenterology, Sir Ganga Ram Hospital, Rajinder Nagar, Delhi, India; 2Gyan Burban Unit, Sir Ganga Ram Hospital, Rajinder Nagar, Delhi, India.

PURPOSE: Aim of this study is to present our experience of pediatric living donor liver transplantation (LDLT).

METHOD: 23 children; 15 males, 8 females with a median age of 8 years (range 8 months to 16 years) underwent 23 LDLT between September 2002 and August 2008. The indications for LDLT were acute liver failure 6 (Wilson’s disease 3, Hepatitis – A 2, Idiopathic 1), chronic liver disease 17 (biliary atresia 6, cryptogenic cirrhosis 3, wilson’s disease 2, progressive familial intrahepatic cholestasis 2, autoimmune hepatitis 1, tyrosenimia 1, type V choledochal cyst 1, haemangioendothelioma 1. Two patients had primary hyperoxaluria type-1 with end stage renal disease and underwent combined liver-kidney transplantation. The donors were parents in 15 and close relatives in others. 14 received left lobe, 8 received left lateral lobe and 3 received right lobe.

RESULTS: Median follow up of 15 months (range 1-47 months). There was no donor mortality while there were 2 recipient deaths at 2 weeks and 2 years post transplantation. Acute rejection was seen in 7, bile leak in 3, and CMV hepatitis in 2 and chylous ascites, portal vein thrombosis and SMA aneurysm in Ieach; all were managed successfully. Rest of the recipients are doing fine. Complications on long term follow up include hepatitis C virus infection with cirrhosis 1, chronic tuberculous otitis media with mastoiditis 1, functional cholesterol 1 and ductopenic rejection 1.

CONCLUSION: With meticulous operative techniques and dedicated pre and post transplant care a successful pediatric LDLT programme has been established in India with 92% survival to date.
Abstract# 288

CHOLECYSTOCOLIC INTERNAL BYPASS WITH PROPEROSTALIC JEJUNAL SEGMENT INTERPOSITION IMPROVES INTRACTABLE PRURITUS IN A 10-Y-OLD BOY WITH TYPE 1 PROGRESSIVE FAMILIAL CHOLESTASIS.

Arnaud Delarue, Bertrand Roquelaure, Anna Bulugiu. Department of Pediatric Surgery, Hôpital Timone-Enfants, Marseille, France; Department of Hepato-Gastro-Enterology, Hôpital Timone-Enfants, Marseille, France; Department of Pediatric Surgery, Hôpital Timone-Enfants, Marseille, France.

PURPOSE: Bile acid (BA) depletion is a recognized palliative method for treatment of congenital cholestatic diseases such as Progressive Familial Intrahepatic Cholestasis (PFIC) and arteriohepatic dysplasia (Alagille’s syndrome). BA depletion relieves pruritus, leads to stabilization or even regression of histological liver lesions and may improve outcome. Bile depletion through an internal cholecysto-colic bypass with interposed jejunal segment was successfully experimented in guinea-pigs before clinical application.

METHOD: A boy with PFIC-1 had unsuccessful attempts of medical treatment and plasmapheresis to relieve pruritus. At 10 y of age, he had good liver function and few histological lesions on liver biopsy. Pruritus was graded 3-4, leading to bleeding skin lesions and disturbances in school and familial life. He underwent an internal cholecysto-colic bypass with an interposed properostalic jejunal segment through a right transverse laparotomy.

RESULTS: Pruritus improved promptly and is currently graded 1-2, 6 months after surgery, with regression of itching, normalization of sleep and a 2 kg weight gain. However, clinical improvement is not correlated with a decrease of blood total bile acid level that remain as high as preoperative one (280 µmol/L). Only two cases of cholecysto-jejuno-colic bypass have been recently reported. The alleged risks of complications of direct bile input in the colon such as ascending cholangitis, diarrhea or colonic tumorigenesis are not supported by the literature. Long term followup will be necessary to better assess the efficacy and drawbacks of the procedure.

CONCLUSION: Cholecysto-jejuno-colic internal bypass might be an attractive alternative technique of bile diversion for the same indications than ileal bypass and cholecystostomy in children with selected cholestatic diseases.

Abstract# 289

LIVING-RELATED LIVER DONOR’S PERCEPTIONS OF LIFE AFTER DONATION. Annette S. Nasr,1 Roberta R. Rehm.2 'Center for Nursing Excellence. Lucile Packard Children’s Hospital. Palo Alto, CA, USA; 'Family Health Care Nursing University of California San Francisco, San Francisco, CA, USA.

PURPOSE: The purpose of this interpretive research study was to understand the perceptions of life experiences of individuals who participated in living-related liver donation (LRLD). The specific research question of this study was: What is the impact of LRLD on the physical, emotional, and familial lives of the donor post-donation?

BACKGROUND: Pediatric patients suffering from end stage liver disease (ESLD) must depend on deceased liver donation or living liver donation in order to sustain life. According to the United Network of Organ Sharing (UNOS) approximately 85,000 candidates are listed for organ transplantation, 17,000 are listed for liver transplantation. Decreased liver donation cannot meet the demand presented by children with ESLD, therefore alternatives to deceased donation must be established. One alternative to cadaveric donation is living liver donation.

METHOD: This interpretive study used ethnographic methods to gather information from 13 living parental donors regarding their physical, emotional, and familial lives since their donation. Donors were recruited from two transplant centers on the western coast of the United States. Interviews were audio taped and transcribed. Data was analyzed in order to produce themes and revealed specific dimensions of these phenomena. This study was approved by the IRB at both medical centers.

RESULTS: The overarching theme that expressed the impact that LRLD had on the donor was that of transformation. Within this theme of transformation major categories were identified. These included: 1) the process of transformation 2) transformation of self 3) transformation of relationships 4) transformation of life. The transformation of self was the major category that included the categories of identity changes, physical and psychological effects of surgery, and the process of recovering. The transformation of relationships included the categories of family relationships and personal relationships. The transformation of life included the categories of physical changes, emotional and psychological changes, and life changes.

CONCLUSION: Information developed in this study can be used to prepare the donor during the pre-transplant phase as well as to develop interventions to facilitate the adjustment of donors post-transplant. This study will provide nurses and healthcare professionals working in the field of transplantation insights about the issues that LRLD face.

Abstract# 290

OUTCOME OF BOWEL PERFORATION AFTER PEDIATRIC LIVER TRANSPLANTATION. Seyed Mohsen Dehghani,1,2 Saman Nigebehian,1 Ali Bahador,1 Heshmatollah Salahi,1 Seyed Ali Malek-Hosseini.1 'Shiraz Transplant Research Center, Shiraz University of Medical Sciences, Shiraz, Fars, Islamic Republic of Iran; 2Gastroenterohepatology Research Center, Shiraz University of Medical Sciences, Shiraz, Fars, Islamic Republic of Iran.

PURPOSE: Bowel perforation is one of the causes of mortality after pediatric liver transplantation. The aim of this study was to evaluate the incidence, risk factors, clinical presentation and outcomes of bowel perforation in pediatric liver recipients.

METHOD: This is a retrospective analysis of all pediatric patients who underwent liver transplantation at a single liver transplant center in Iran between 1999 and 2006.

RESULTS: During this period 72 liver transplantsations were performed in children less than 18 years old. Five bowel perforations occurred in 4 children (6.9%). One patient required two re-explorations. The median delay between liver transplantation and bowel perforation was 7 days. All patients had abdominal distention before re-exploration. Abdominal fluid analysis in all patients indicated secondary peritonitis. The sites of perforation were jejunum (n=3) and ileum (n=2). Two children expired after bowel perforation (mortality rate, 50%).

CONCLUSION: Bowel perforation is relatively frequent after pediatric liver transplantation. Among risk factors, prior Kasai operation may have a role. We observed that abdominal distention is a sign of bowel perforation and a high index of suspicion and timely abdominal paracentesis is required for rapidly diagnosis of this complication. The outcome of bowel perforation is poor and mortality is high.

Abstract# 291

GRAFT VERSUS HOST DISEASE AFTER LIVER TRANSPLANTATION. CASE REPORT. Malgorzata Markiewicz-Kijewska,1 Piotr Kalicinski,1 Joanna Teisseyre,1 Przemyslaw Kluge,1 Mikolaj Teisseyre.1 'Pediatric Surgery and Organ Transplantation, The Children’s Memorial Health Institute, Warsaw, Poland; 2Pathology, The Children’s Memorial Health Institute, Warsaw, Poland; 3Gastroenterology, Hepatology, and Immunology, The Children’s Memorial Health Institute, Warsaw, Poland.

PURPOSE: Graft versus host disease after liver transplantation develops extremely rare, but always is a life threatening complication. In the literature we found about 85 cases GvHD after liver transplantation reported till now included 10 children.

METHOD: We report an additional case of GvHD in a pediatric liver transplant recipient.

RESULTS: A 16 months old boy received living related donor (father) liver transplantation after failed hapoportotomenteroentostomy due to congenital biliary atresia. Both, donor and recipient were of identical blood group and pre-transplant cross-match was negative. Primary immunosupression consisted of tacrolimus and mycophenolen mofetille. Early post-transplant course was excellent, but after 7 weeks he developed mild upper respiratory distress which was treated with oral cephalsporine. Three days later he developed skin rash and then little blisters and ulcerative changes. There were no laboratory abnormalities but relative leucopenia, with increased number of eosinophiles and CRP. Skin biopsy confirmed suspicion of graft versus host disease of grade II/III. Local therapy was introduced with colloid dressings and tacrolimus was discontinued, while corticosteroid boluses (5-10 mg/kg body mass) and daclizumab (1 mg/kg body mass) were started. Despite that, further deterioration was observed and we decided to treat the child with ATG, however the child died of MOF after next 9 days despite all intensive therapy.

CONCLUSION: GvHD is very serious complication with high mortality rate. There is no standard for the effective therapy of problem.

Abstract# 292

PERIOPERATIVE NURSING CARE: LIVER TRANSPLANT PATIENTS WITH METABOLIC DISEASE. Laura Krawczuk,1 Marilyn Moonan,1 Heung Bae Kim.1 'Children’s Hospital, Boston, USA.

PURPOSE: To describe the perioperative nursing care of patients with metabolic disease. We describe the unique perioperative management and nursing requirements in these cases.

RESULTS: A baby with Propionic Acidemia and cirrhosis received a liver transplant. He needed a bicarbonate and carnitine infusion and frequent monitoring for hypoglycemia, acidosis, and ketonamia. Since transplant, he has not suffered metabolic crisis and neurologic development has improved. A six year old girl, diagnosed with Primary Hyperoxaluria, was nonresponsive to medical therapy. Due to rising oxalate levels, she required dialysis 5x/week while awaiting a combined kidney-liver transplant. Postoperatively, she was dialyzed daily until her oxalate levels were <20 to minimize oxalate deposition in the new kidney. A teenager with Crigler Najjar Type I was treated with daily phototherapy since infancy. Due to an escalating and difficult phototherapy requirement, liver transplant was
recommended. He required intense preoperative phototherapy and albumin infusions to help bind indirect bilirubin. During the transplant, he required acute hemodi-

...pH: 3.0, pCO2: 28 mmHg, and HCO3: 13 mmol/L. He had undergone 17 transfusions of packed red blood cells. The patient was extubated on the first postoperative day and discharged from the hospital on postoperative day 8. At 6 months post-transplant, he had a normal liver function test, with INR 0.9, total bilirubin 0.1 mg/dL and absolute lymphocyte count of 810/μL. Further evaluation for A1AT deficiency, Wilson's disease, autoimmune hepatitis, celiac disease and bile acid abnormalities was negative. An EGD showed spontaneous enteropathy (PLE). She required multiple hospitalizations for albumin transfusions with no response to corticosteroids. Her improved liver function led to evaluation for transplantation. There were no serious complications, but in 4% minor complications occurred (abdominal pain n=1, infection n=1). One specimen (2%) could not be analyzed due to technical problems.

CONCLUSION: Serum albumin levels from liver biopsies performed post liver transplantation provide important information for differential diagnosis. Biopsies can be obtained safely without major complications, even in very small children.

Abstract# 295
TOXIC AND DRUG-INDUCED ACUTE LIVER FAILURE IN CHILDREN: PERSONAL EXPERIENCE. Irena Jankowska,1 Marek Szymczak,2 Joanna Pawlowska,1 Diana Kaminska,1 Malgorzata Markiewicz,2 Mikolaj Teissiey,1 Jacek Rubik,1 Jakub Kniotek,1 Elzbieta Pietraszek-Jeziarska,1 Maciej Pronicki,1 Piotr Kalcinski.2
Gastroenterology, Hepatology and Immunology, The Children's Memorial Health Institute, Warsaw, Poland;2Surgery and Organ Transplantation, CMHI, Warsaw, Poland;3Nephrology and Kidney Transplantation, CMHI, Warsaw, Poland;4Anesthesiology and Intensive Therapy, CMHI, Warsaw, Poland.

PURPOSE: Toxic and drug-induced acute liver failure (ALF) is still a very serious problem in children. The aim of study was to assess the aetiology and the outcome of children with toxic and drug-induced ALF in our own material.

METHOD: Eighteen children (aged 1.9-18 yr, 9 girls) with toxic and drug-induced ALF (INR>2) were treated in our Institute between 2000-2008. The etiological cause of ALF was: mushroom poisoning in 12 children (66.6%) (11 Amanita phalloides [A.ph.] and 1 Gyromitra esculenta poisoning), acetaminophen ingestion - 3 pts, wood preservatives toxicity containing chromium (Cr) and copper (Cu) - 2 pts and one child with ferrum overdose.

RESULTS: Sixteen children (88.8%) were qualified for liver transplantation (LT) according to King’s College criteria. In 10 children (55.5%) LT was performed (5 children LDLT, 3 children main blood group incompatible cadaveric LT). One child died after LT, 9 children are alive and well, up to 8 years after LT. Two children died on the waiting list (A.ph. poisoning) and 2 children were disqualified from LT due to multiorgan failure (wood preservatives toxicity Cr and Cu). Two patients after A.ph. poisoning recovered spontaneously (conservative treatment and albumin dialysis - MARS). Among 2 children, who were not considered for LT: 1 child died (A.ph. poisoning) and 1 recovered (acetaminophen ingestion).

CONCLUSION: 1. Mushroom poisoning is still the most common cause of toxic acute liver failure in children in Poland. 2. The majority of patients with acute liver failure after Amanita phalloides poisoning had to be qualified for liver transplantation. 3. The poisoning with wood preservatives containing chromium (Cr) and copper (Cu) had a bad prognosis.
Abstract# 297
THE USEFULNESS OF MONITORING PROGK (FK) AND SERUM CREATININ (SCr) LEVELS FOR EPSTEIN-BARR VIREMIA. Zachary Nayak,1 Eunice John,1 Guillermo Hidalgo,1 Linda Fornell,1 Enrico Benedetti,2 Jose Oberholzer.1 Division of Pediatric Nephrology, Department of Pediatrics, University of Illinois at Chicago, Chicago, USA; 2Division of Transplantation, Department of Surgery, University of Illinois at Chicago, Chicago, USA.

PURPOSE: The purpose of this study was to retrospectively review Epstein-Barr Virus (EBV) infections and the relationship to immunosuppression in small-bowel (SB) and liver (LV) transplant patients who received grafts from living related donors.

METHOD: Data from 7 female and 4 male patients with an average weight of 9.40 kg ± 2.3 kg was collected. 6 patients received both SB and LV transplants. 5 patients received SB grafts only. Among 11 patients, 6 were Caucasian, 2 were African-American and 3 were Hispanic. Patients received Thyroglubulin (FV) induction and 5-day post-op course of predonine. MMF (0.14 mg/kg-4.98 mg/kg) and FK (0.054mg/kg- 3.11mg/kg) were given for maintenance. EBV counts were collected and analyzed by PCR weekly for 1 month and every 1-2 months thereafter. FK levels and SCr levels were drawn daily while inpatient and every visit once outpatient. P-value <0.05* was considered significant.

RESULTS: During 12 month follow-up, patients survival was 73% and graft survival was 73%; 2 grafts were lost to rejection and 1 graft was lost to post-transplant lymphoproliferative disease (PTLD). 6 of 11 of the patients developed EBV infections, 2 of 1 of the patients developed PTLD and 5 of 11 patients responded to decrease in FK and MMF dose. There was a significant positive correlation between both blood FK levels and EBV viral counts (r=0.001*) and blood FK levels and SCr levels (r=0.001*). There was not a significant difference between correlation of immunosuppression dosage and EBV viral counts.

CONCLUSION: Our results show that both FK and SCr levels can be used to monitor susceptibility to EBV infections and to monitor immunosuppression levels in SB transplant patients. These results are likely due to differences in metabolism of immunosuppressive drugs. Close monitoring of FK, SCr, and EBV PCR may help to avoid FK toxicity and its adverse effects including viremia.

Abstract# 298
INDOCYANINE GREEN PLASMA DISAPPEARANCE RATE. MARKER OF EARLY GRAFT MALFUNCTION IN HEPATIC TRANSPLANTATION. Jesus Quintero, Carla Venturi, Javier Bueno, Sergio Flores, Ramon Charco, Juan Ortega. Hepatology and Pediatric Liver Transplantation, Hospital Vall d’Hebron, Barcelona, Spain.

PURPOSE: To assess the reliability of the Indocyanine Green Plasma Disappearance Rate (ICG-PDR) as an estimator of early graft dysfunction and to compare it with the classical approach (INR).

METHOD: From February 2005 to August 2008, we studied twenty patients who underwent liver transplantation. Three out of twenty underwent more than one OLT. We performed 47 ICG-PDR, one in the first six hours (PDR6), and a second measurement 24 hours after liver transplantation (PDR24). In 42 out of twenty-five transplantations, we could not perform the second measurement because of patient’s exitus. We also collect the INR 24 hours after transplant. All the determinations were performed under hemodinamic stability (SatO2 >90%, MAP >60 mmHg, DiO2 <20%).

RESULTS: The mean PDR was 13 % (range 4.4-72 %). We established as a marker of early graft dysfunction an ICG-PDR < 9%. A INR > 3 was also defined as a cut-off for liver disfunction. Our results were as shown in the table 1:

<table>
<thead>
<tr>
<th>Method</th>
<th>Sensibility</th>
<th>Specificity</th>
<th>VPV</th>
<th>VPN</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICG-PDR 6</td>
<td>66.6%</td>
<td>60%</td>
<td>80%</td>
<td>80%</td>
</tr>
<tr>
<td>ICG-PDR 24</td>
<td>84.4%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>INR</td>
<td>50%</td>
<td>84.5%</td>
<td>50%</td>
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CONCLUSION: In the setting of early-postoperative liver transplantation, ICG-PDR is a significant tool for assess graft dysfunction. Based in our data, ICG-PDR > 3 seems to be a better predictor for decision-making than ICG-PDR and INR.

Abstract# 299
IMPROVING THE PATIENT JOURNEY FROM HOSPITAL TO HOME FOLLOWING INTESTINAL TRANSPLANT. Lindsay Hogg, Debbie Hartt. Liver Unit, Birmingham Children’s Hospital NHS Foundation Trust, Birmingham, United Kingdom.

PURPOSE: To describe the planning involved in safely discharging a patient and family following transplant. Paediatric Intestinal Transplant is a new and exciting development. For these children to be managed safely in their local communities it is essential that discharge planning includes good communication both with families, primary health care and shared care teams.

METHOD: During the assessment process it is vital to identify key workers to facilitate a smooth discharge post transplant. This could be the child’s community nurse, health visitor or hospital based specialist nurse. Success at home depends on careful preparation and planning.

A planning meeting is arranged following transplant. Local teams and the family are invited to meet with key professionals. Supportive literature is given to the families and local teams with details of post transplant care and medications. Each family is given a Personnel Information record which they are encouraged to use when meeting health professionals.

Families are taught all aspects of care to allow the child to be safely looked after at home. A Shared Care Protocol along with an individualised trouble-shooting guide ensures local teams are equally informed.

RESULTS: Families are empowered and confident to care for children at home. Local teams are aware of all follow up arrangements and are able to care children in the local hospital safely. Informed support is available from community teams.

CONCLUSION: Meeting the needs of these families can be both challenging and demanding however extremely rewarding. The appropriate use of resources and skills can facilitate a smooth discharge and hopefully reduce subsequent admissions. Providing appropriate information can reduce anxiety and improve compliance.

It is essential that the family be committed to the complicated and time-consuming aftercare of a child following Intestinal Transplant.

References

Abstract# 300
MULTIVISCERAL TRANSPLANTATION IN A PATIENT WITH UNRESECTABLE HEPATOBLASTOMA. Erick Hernandez, Lesley Smith, Gennaro Selvaggi, Antonello Poddà, George M. Zacur, Andreas G. Tzakis, Eddie R. Island, Tomoki Kato, John Thompson. Department of Pediatrics, Miller School of Medicine. University of Miami, Miami, FL, USA; Department of Pediatrics, Miller School of Medicine. University of Miami, Miami, FL, USA; Department of Surgery, Miller School of Medicine. University of Miami, Miami, FL, USA; Department of Pediatrics, Miller School of Medicine. University of Miami, Miami, FL, USA; Department of Pediatrics, Miller School of Medicine. University of Miami, Miami, FL, USA; Department of Surgery, Miller School of Medicine. University of Miami, Miami, FL, USA; Department of Pediatrics, Miller School of Medicine. University of Miami, Miami, FL, USA; Department of Pediatrics, Miller School of Medicine. University of Miami, Miami, FL, USA.

PURPOSE: To present the management of a child with history of recurrent hepatoblastoma.

METHOD: We reviewed the chart of a patient who previously underwent multivisceral transplantation. The patient was referred with a history hepatoblastoma diagnosed in infancy.

RESULTS: He was two years old with failure to thrive and a history of significant weight loss. CT of his liver showed multiple low intensity masses throughout the remaining portion of his liver, with and AFP of >60000.0 ng/ml. Further imaging showed tumor extension into the portal and superior mesenteric vein. The patient was treated with two cycles of Cisplatin/Doxorubicin to decrease tumors size and then underwent multivisceral transplantation 22 months ago. AFP remains normal without any other clinical or radiologic evidence of tumor recurrence. He has achieved normal growth and development post-transplantation without a single episode of organ rejection or posttransplant lymphoproliferative disorder.

CONCLUSION: The combination of chemotherapy and multivisceral transplantation should be considered in patients with unresectable hepatoblastoma and multiple vascular tumor invasions, in whom OLT is contraindicated.

Abstract# 301
PRE- AND POSTOPERATIVE CARE OF PEDIATRIC LIVER RECIPIENTS: THE BULGARIAN EXPERIENCE. Christo Z. Zheley,1 Emilia I. Panteleeva.1 Gastroenterology and Hepatology, University Pediatric Hospital, Sofia, Bulgaria.

PURPOSE: We have undertaken an analysis of Bulgarian children liver transplanted in order to establish the outcomes of the transplantation service in our hospital.

METHOD: This is a retrospective review of pre-operative and post-transplantation management of 30 children.

RESULTS: Since 1993 30 children have been liver transplanted: 17 abroad, after 2004 – 13 in Bulgaria. The first OLT in Bulgaria was done in 2004.

Etiology: biliary atresia – 19 patients, metabolic diseases – 4, CHF – 4, Alagille syndrome – 1, cryptogenic cirrhosis – 1, liver adenomatosis – 1. Combined liver-kidney transplantation was performed in 1 child due to primary oxaluria.

Age at the time of OLT: 5 months - 3 years - 63%, 3 years – 18 years - 37%. 11 children received deceased donor livers, 19- living donor organs.

Two children died due to PPH and 1 due to central pontine myelinolysis. One child was re-transplanted. Patient survival post-OLT is 89.8% after 1 yr.

We support the early withdrawal of steroids as well as keeping low levels of CsA and Tacrolimus. We have not seen any serious side effects of immunosuppression with
the exception of 1 boy who suffered bilateral necrosis of the femoral head. The early onset complications are: PNF – 3 patients, HAS – 2, PVT – 2, CPM – 1, bile duct strictures and leakage, surgically treated – 6, Acute rejection – 5 and Small for size dysfunction – 1 patient.

The most frequent late onset complications are CMV and EBV related. One child was diagnosed late PTLD, 6 months later he developed B cell lymphoma, successfully treated with Rituximab.

Three children diagnosed as PFIC I and III showed remarkable improvement of physical development.

CONCLUSION: We find several factors dependent on the pediatrician that predict the successful outcome: early diagnosis, close monitoring of the complications of the ESLD, management of nutrients and vitamins deficiency. Our experience supports the benefits of early withdrawal of steroids and keeping low level of immunosuppression. An improvement in growth in PFIC children after OLT has been well demonstrated. Also, the analysis showed that living donor transplants are a good option for Bulgarian children.

Abstract# 302
RECURRENT GRANULOMATOUS LIVER DISEASE IN A CHILD AFTER LIVER TRANSPLANTATION: AN EXTRAORDINARY CASE. Rita Lombaerts,1 Nanja Bevers,1 Carine Wouters,1 Tania Roskams,2 Chris Scott.1

PURPOSE: Granulomatous disease of the liver is rare in children, and is usually the result of an infectious disease like tuberculosis, brucellosis or an autoinflammatory pathology like sarcoidosis.

METHOD: We present a 14-year-old boy with an extraordinary clinical history.

RESULTS: At age of 7 the boy presented with the suspicion of a Budd Chiari disease with liver failure following venous outflow tract obstruction and recurrent thrombosis of several transjugular intrahepatic portosystemic stents (TJPS). He was successfully treated with a liver transplant. Seven years later the boy suddenly experienced severe abdominal pain, breathing difficulties, and pleural effusion. There was a scaly rash on the extremities. He had hepatosplenomegaly and important ascites. Liverfunction tests were normal. A liver biopsy revealed a granulomatous disease with non-caseating multinucleated giant cell and epitheloid cell granulomas obstructing the venous outflow tract. There were no other organs involved. All infectious causes were excluded. The ACE level was normal as was the NBT test. Card 15 mutation analysis is normal. A panbacterial PCR is negative. High doses prednisone while continuing FK-506 and azathioprine were started. The general condition of the patient improved very soon. A liver biopsy 4 weeks after starting prednisone therapy showed a complete disappearance of the granulomas. The diagnosis of sarcoidosis is withheld in this boy.

CONCLUSION: We present a young patient with recurrence of granulomatous disease in his transplanted liver, probably as a result of sarcoidosis. A broad spectrum of infectious and inflammatory diseases were excluded. Treatment was successful using high doses of prednisone. Repeat biopsies showed complete remission of the transplanted liver.

Card 15 mutation is normal. To our knowledge this is the first report of “isolated” granulomatous liver disease as a result of sarcoidosis in a child.

Abstract# 303
LIVER TRANSPLANTATION FOR CRIGLER NAJJAR SYNDROME TYPE 1. Figen Ozyaz,1 Fusun Alehan,1 Sinasi Sevmis,2 Handi Karakayali,2 Gokhan Moray,2 Adnan Torgay,2 Gulnaz Arslan,2 Mehmet Haberal.2

PURPOSE: Crigler-Najjar syndrome type 1 (CNS1) is characterized by severe unconjugated hyperbilirubinemia from birth, caused by total failure of UDP-glucuronoyltransferase activity. Only LT can correct the metabolic defect totally and avoid irreversible neurological deficits. However, because the onset of neurologic deficits is unpredictable, timing of LT remains difficult.

METHOD: Four patients underwent LRLT for CNS1. Three were infants (2, 8.5 and 15 months old) and 1, 8 and 10 kg in weight). The 13 yr patient had no neurodevelopmental sequelae except learning difficulties. All patients required extensive phototherapy to control bilirubin levels. The 2 month old baby underwent phototherapy for the 2 months after birth. At 2 months, his unconjugated bilirubin level was 30 mg/dl and he had high pitched cry suggesting bilirubin encephalopathy. Plasmapheresis, intense phototherapy, and early LRLT performed to this patient. Other 2 patients (8.5 and 15 months) were neurologically normal.

RESULTS: Three fathers and one mother were the donors. Three patients received left lateral segments and 1 received a left lobe. Biliary reconstruction was completed with a duct-to-duct anastomosis. One patient (8.5 months) experienced biliary leak and treated with repeated cholangioplasty. All had normal unconjugated bilirubin levels after transplantation. Three were alive with normal neurodevelopmental milestones for 1, 8 and 29 months after LRLT. One patient (2 months) displayed kernicterus signs (axial hypotonia, lack of head control, spasticity of lower limbs, feeding difficulties) and died following aspiration of gastric contents 10 months after the operation.

CONCLUSION: Irreversible brain damage (kernicterus) may occur very early in the course of CNS1 disease. Despite urgent treatment modalities like plasmapheresis, phototherapy and LT irreversible brain damage may occur. LT should be performed as a preventive procedure to counteract severe CNS1-related complications.

Abstract# 304
NEW ONSET PROLONGED QTC, TORSADE DE POINTES AND VENTRICULAR TACHYCARDIA IN A CHILD FOR LIVER TRANSPLANT. Mohamed Rehman,1 Michael Serwacki.2

Anesthesiology and Critical Care Medicine, The Children’s Hospital of Philadelphia, Philadelphia, USA; 2Department of Pediatrics, Armed Forces, Albuquerque, USA.

PURPOSE: Prolongation of the QT interval, an uncommon complication associated with liver disease, has been shown to resolve with liver transplantation. The development of Torsade de Pointes has been reported in adults with liver failure, but not in children. The occurrence of both the monomorphic and polymorphic forms of ventricular tachycardia (VT) in the same patient has not been previously reported even in adults.

METHOD: 6 year old male was born with severe aortic valve stenosis that required balloon valvuloplasty at a one month of age and had an EKG that was normal at discharge. At age 6 years he developed new onset of liver failure, but an extensive workup did not reveal any cause. A repeat EKG revealed a QTc interval of 533 msec.

RESULTS: We present a 14-year-old boy with an extraordinary clinical history.

The patient presented 17 days later for a follow up and a liver biopsy showed rejection with elevated liver enzymes and bilirubin. A coughing episode followed by a nonsustained run of VT that spontaneously converted occurred. One minute later he had multiple episodes of VT in the ICU. The patient presented 17 days later for a follow up and a liver biopsy showed rejection with elevated liver enzymes and bilirubin. A coughing episode followed by a nonsustained run of VT that spontaneously converted occurred. One minute later he had multiple episodes of VT in the ICU.

CONCLUSION: We find several factors dependent on the pediatrician that predict the successful outcome: early diagnosis, close monitoring of the complications of the ESLD, management of nutrients and vitamins deficiency. Our experience supports the benefits of early withdrawal of steroids and keeping low level of immunosuppression.

METHOD: We present a 14-year-old boy with an extraordinary clinical history.

RESULTS: At age of 7 the boy presented with the suspicion of a Budd Chiari disease with liver failure following venous outflow tract obstruction and recurrent thrombosis of several transjugular intrahepatic portosystemic stents (TJPS). He was successfully treated with a liver transplant. Seven years later the boy suddenly experienced severe abdominal pain, breathing difficulties, and pleural effusion. There was a scaly rash on the extremities. He had hepatosplenomegaly and important ascites. Liverfunction tests were normal. A liver biopsy revealed a granulomatous disease with non-caseating multinucleated giant cell and epitheloid cell granulomas obstructing the venous outflow tract. There were no other organs involved. All infectious causes were excluded. The ACE level was normal as was the NBT test. Card 15 mutation analysis is normal. A panbacterial PCR is negative. High doses prednisone while continuing FK-506 and azathioprine were started. The general condition of the patient improved very soon. A liver biopsy 4 weeks after starting prednisone therapy showed a complete disappearance of the granulomas. The diagnosis of sarcoidosis is withheld in this boy.

CONCLUSION: We present a young patient with recurrence of granulomatous disease in his transplanted liver, probably as a result of sarcoidosis. A broad spectrum of infectious and inflammatory diseases were excluded. Treatment was successful using high doses of prednisone. Repeat biopsies showed complete remission of the transplanted liver.

Card 15 mutation is normal. To our knowledge this is the first report of “isolated” granulomatous liver disease as a result of sarcoidosis in a child.

Liver enzymes, function and QTc interval returned to normal prior to discharge.
RESULTS: Complete resolution of prolonged QTc with normalization of liver function.

CONCLUSION: The multidisciplinary group caring for children undergoing liver transplant should be aware of the increased mortality and morbidity associated with prolonged QTc and Torsade de Pointes, even in children.

Abstract# 305
AUTOIMMUNE HEPATITIS AND HIV REQUIRING LIVER TRANSPLANTATION IN A CHILD. Rene D. Gomez-Esquivel,1 Ruben E. Quiros-Tejera,1 Susan H. Wootton,2 Gloria P. Heresi,2 Wei Li,1 Bob H. Saggi,4 Haddar J. Merhav,4 Luis A. Mieles.4 Division, Pediatric GI, Hepatology & Nutrition, University of Texas-Houston, Houston, TX, USA; 4Division, Pediatric Infectious Diseases, University of Texas-Houston, Houston, TX, USA; 1Pathology, University of Texas-Houston, Houston, TX, USA; 4Liver Transplantation & Hepatobiliary Surgery, Children's Memorial Hermann Hospital, Houston, TX, USA.

PURPOSE: In autoimmune hepatitis (AIH) an environmental exposure triggers a T-cell mediated response that causes inflammation, necrosis and fibrosis of the liver.

METHOD: We present a patient with HIV that developed AIH that culminated with a liver transplantation (LTx).

RESULTS: A 16-year-old African American female with HIV presented with a 3 day history of icterus and intermittent right sided abdominal pain. She was diagnosed with HIV at 9 months old and has been on highly active antiretroviral therapy (HAART) though out her life, during the last 3 years she was on lopinavir-ritonavir (Kaletra) and abacavir sulfate-lamivudine-zidovudine (Trizivir). Her CD4 count was 586, and the viral load was undetectable. No prior history of hepatitis.

Total protein 6.3 g/dl, Albumin 2.3 g/dl, ALT 350 u/l, AST 172 u/l, alkaline phosphatase 198 u/l, bilirubin 8.8 mg/dl, direct bilirubin 4.2 mg/dl, PT 21.1 seconds. INR 2.53, PTT 48.4 seconds. ANA 1:640, homogenous. ASMA negative. ALKMA <1:20; screening for viral hepatitis including a, b, c, Parvovirus B19, EBV, and CMV were negative. The liver biopsy showed parenchymal collapse, portal bridging fibrosis (stage 2-3/4), Severe lymphoplasmocytic inflammation, hepatocytic degeneration and necrosis. No viral inclusions were seen.

Despite methylprednisolone, she persisted with coagulopathy (Factor V at 21%, Factor VII at 9%) and required an LTx.

CONCLUSION: In a susceptible host a viral particle, in this case HIV, can cause a T-cell mediated cascade, that culminates in AIH. HIV has been previously associated with viral inclusions were seen.

Abstract# 306
MODIFIED PIGGYBACK TECHNIQUE OF LIVER TRANSPLANTATION IN CHILDREN. Hamidrea Fonouni,1 Arianeb Mehrabi,1 Mohammad Golriz,2 Guido Engelmann,2 Georg F. Hoffmann,2 Markus W. Bäücher,2 Jan Schmidt.2 General, Visceral and Transplantation Surgery, University of Heidelberg, Heidelberg, Baden-Württemberg, Germany; 2Pediatrics, University of Heidelberg, Heidelberg, Baden-Württemberg, Germany.

PURPOSE: In the modified piggyback technique (MBPLTx) introduced by Belghiti a side-to-side caval caval anastomosis not only preserves partial caval flow but also decreases the risk of outflow disturbance. Our aim is to report the experience of this technique in children at our department.

METHOD: From 2003 till now a total number of 9 children underwent MBPLTx. The evaluated parameters were:demographic data,indications of LTx,cold ischemia time,type of preservation solution,duration of operation,and blood loss. Furthermore,postoperative complications,graft and patient survival were analyzed.

RESULTS: There were 2 girls and 7 boys with median age of 10b(yrange3-15), LTx indications were: cirrhosis due to chemotherapy(n=1) and extrahepatic biliary atresia(n=1),biliary cirrhosis(n=1),Wilson(n=1) and Byler disease(n=1),chronic liver failure following LTx(n=1),acute liver failure(n=1),mucoviscidosis(n=1),an d ctitrullinemia(n=1). The Child score was: Child-A(n=2),Child-B(n=4) and Child-C(n=3). Seven liver grafts were preserved in histidine-tryptophan-ketoglutarate and two in UW solution. The median blood loss,duration of operation and cold ischemia time were 600cc(range200-5000),5hrs(range4-10) and 9hrs(range6-14),respectively. There was one case of rel.LTx after complicated piggyback LTx. Two stenoses of bile duct anastomosis occurred which were managed conservatively in one case and with a bilio-digestive anastomosis in the other one. Except one child with no follow-up after one year the rest showed 100% graft and patient survival.

CONCLUSION: We could show MBPLTx is feasible and beneficial in children with a promising rate of complication and graft survival. However the risk of caval stenosis after several years as a result of visceral growth is an important factor. Although we have not encountered this complication so far, longer follow-ups are warranted. Finally, this procedure should be performed in high case load centers and by experienced transplant surgeons.

Abstract# 307
THE INDICATION FOR LIVING RELATED LIVER TRANSPLANTATION TO IMPROVE THE QUALITY OF LIFE IN A PATIENT WITH GLYCOGEN STORAGE DISEASE TYPE Ia. Masato Fujiki,1 Seisuke Sakamoto,2 Satoshi Kaibara,2 Hidetaka Ushigome,3 Toshihiko Sakai,4 Shuji Nobori,2 Tomoyuki Suzuki,2 Masahiko Okamoto,1 Hisanori Ikoma,3 Toshihisa Ochiai,1 Norio Yoshimura.1 Transplantation and Regenerative Surgery, Kyoto Prefectural University of Medicine, Kyoto, Japan; 2Kobe City Medical Center General Hospital, Kobe, Japan; 3Gastrointestinal Surgery, Kyoto Prefectural University of Medicine, Kyoto, Japan.

PURPOSE: Glycogen storage disease (GSD) type Ia is occasionally complicated by hepatic adenomas with malignant transformation, growth retardation, and nosebleeds.

Orthotopic liver transplantation (OLT) is proposed as a therapeutic tool when multiple hepatic adenomas are present with a fear of malignant transformation whereas the indication to improve the quality of life is rare.

METHOD: We report a 5-year-old boy with GSD type Ia complicated by growth retardation and frequent nosebleeds that leads to severe anemia and asphyxia who underwent OLT and is now free from disease symptoms.

RESULTS: The patient is a 5-year-old boy who was diagnosed as GSD type Ia at 7 months of age. Medical treatment was initiated for hypoglycemia, hypertriglyceridemia, and hyperuricemia. In order to avoid hypoglycemic attack, frequent nasogastric tube feeding was necessary. Growth hormone was administered for severe growth retardation at 4years of age, but failed to show catch-up growth. Since 5 years of age, the patient experienced several life-threatening nosebleeds that caused asphyxia and consequent anoxia. To correct bleeding tendency and growth retardation, OLT was performed using the lateral segment graft from patient’s mother. The quality of life has initially greatly improved, with none of the previous dietary restraints or medications. A few nosebleeds were experienced during one month post-transplant, but no episodes were observed after that. A spectacular increase in height was observed during one year post-transplant (pre-OLT -2.8 SD, post-OLT -1.4 SD).

CONCLUSION: OLT restores a normal metabolic balance in patients with GSD type Ia, corrects the bleeding tendency, allows catch-up growth, and improves the quality of life.

Abstract# 308
LIVER TRANSPLANTATION TO COUNTERACT LIFE THREATENING PANCREATITIS IN A PATIENT WITH TYPE I A GLYCOGEN STORAGE DISEASE: AN UNCOMMON INDICATION. Daniel Weghuber,1 Daniela Zakin,2 Joep C. Defesche,3 Kurt Widhalm.3 Department of Paediatrics, Paediatric Centre, University Medical Center, Salzburg, Austria; 2Department of Paediatrics, Medical University of Vienna, General Hospital of Vienna, Vienna, Austria; 3Department of Vascular Medicine, Academic Medical Centre, Amsterdam, Netherlands.

PURPOSE: The authors report on an unrepresented coincidence and the physical stabilization of an 18 years old female undergoing orthotopic liver transplantation (OLT) suffering from glycogen storage disease type-Ia (GSD1A) and related life threatening, recurring acute episodes of pancreatitis.

METHOD: Significant improvement of serum lipids and normalization of lipoprotein and hepatic lipase activity was attained within 24-months following OLT.

RESULTS: The rapid cessation of pancreatitis episodes coinciding with normalisation of lipoprotein values resulted in a significant improvement in this young patient as documented during a three year follow up.

CONCLUSION: This distinctive case warrants further investigation in similar cases of the reproducibility of our observed dramatic beneficial impact on the course of the disease following OLT in patients with GSD1A and life threatening pancreatitis.

Abstract# 309

PURPOSE: To review our experience of pediatric liver transplant in infants and children post LT and analyze graft survival, rejection rate, complication and outcome.

METHOD: Charts of children underwent LT between 1990-2008 were reviewed. Data collected retrospectively and subjected to statistical analysis.

RESULTS: A total of 52 children underwent LT (28 males (54%) 47 (90%) underwent cadaveric LT and 5(10%) received living related LT.Aged range 1-13 yrs (Mean=4.7yrs).30 pts (57%) <4yrs,21pts(40%) between 5-10 yrs and 1 pt> 12 yrs.Patients were transplanted in 13 centers :USA(36),Europe(6),Saudi Arabia (6) and Egypt(2). Indications:Biliary Atresia 15 pts(29%),Neonatal Hepatitis 8 pts(15%),Glycogen storage disease type IV 7 pts(13%),Progressive familial intrahepatic cholestasis 7 pts(13%),Wilson disease6 pts(11%),Autoimmune hepatitis 5 pts (10%),Primary oxalosis 4pts(4%). Fulminant hepatic failure 1 pt(2%) and hepatocellular carcinoma in 1 pt (2%).

Immunosuppression: Tacrolimus i 43 pts(83%) and Cyclosporin in 9 pts(17%).

Rejection: 49 episodes encountered: 17 pts (33%) in the first 6 months post LT, 7 pts
Abstract# 310
NEW ONSET DIABETES MELLITUS PRESENTING WITH DIABETIC KETOACIDOSIS AFTER PEDIATRIC LIVER TRANSPLANTATION. Seyed Mohsen Dehghani,1,2 Ahad Eshraghi,2 Saman Nik heghalian,1 Kourosh Kazemi,1 Seyed Ali Malek-Hosseini.1 1 Shiraz Transplant Research Center, Shiraz University of Medical Sciences, Shiraz, Fars, Islamic Republic of Iran; 2 Gastroenterology Research Center, Shiraz University of Medical Sciences, Shiraz, Fars, Islamic Republic of Iran.

PURPOSE: The development of new-onset diabetes mellitus (NODM) is a common metabolic complication after liver transplantation. Presentation of post liver transplant diabetes mellitus with diabetic ketoacidosis is rare especially among pediatric patients.

METHOD: We reported three pediatric patients (1 girl, 2 boys) who presented with diabetic ketoacidosis after liver transplantation.

RESULTS: The underlying diseases leading to transplantation were cryptogenic liver cirrhosis, Wilson disease and congenital hepatic fibrosis. None of the three patients had history of diabetes prior to transplantation and all of them were cases of NODM after transplantation. All three patients presented with severe hyperglycemia, significant ketosis and metabolic acidosis of variable severity. All three patients received tacrolimus as one of the immunosuppressant agents. All of the three patients received liver transplant from deceased donor. Viral markers for HBV and HCV infection were negative in three patients. Two patients treated with subcutaneous insulin injection, but one case was expired in intensive care unit due to sepsis and chronic rejection.

CONCLUSION: Our experience suggests that post-transplant diabetes mellitus may result in ketoacidosis either secondary to relative beta cell dysfunction, peripheral insulin resistance, or a combination of the two effects. Finally we emphasize on paying more attention to glucose metabolism and risk of diabetes mellitus in patients with immunosuppressant therapy, especially tacrolimus (FK506).

Abstract# 311
MULTIVISCERAL TRANSPLANTATION FOR HEPATOBlastOMA. Melissa Hull,1 Jill Zaliecak,1 Brian Jones,1 Maggie McGuire,1,5 Daniel Kamin,1,2 Chris Weldon,1 Heung Bae Kim.1,3 1 Surgery, Children’s Hospital Boston, Boston, USA; 2 Gastroenterology, Children’s Hospital Boston, Boston, USA; 3 Pediatric Transplant Center, Children’s Hospital Boston, Boston, USA.

PURPOSE: Hepatoblastoma (HB) is the most common liver malignancy in children. Although liver transplantation in combination with other organs has been performed in adults with unresectable upper abdominal malignancies, there are no published reports of multivisceral transplantation (MVT) for HB. We report a case of HB requiring MVT to achieve gross tumor resection.

METHOD: Case report; patient treated by a multidisciplinary transplant team.

RESULTS: A 2 year-old male was diagnosed with stage 3 HB with significant vascular involvement. The patient underwent a MVT, with resection of native stomach, spleen, pancreas, liver, small bowel, and proximal colon. The MVT graft consisted of stomach, liver, pancreas, and the entire small bowel. His initial alpha-fetoprotein was 893,915 ng/mL, but fell to 48 ng/mL one month post-transplant.

CONCLUSION: Our patient underwent liver transplantation three times. The first for idiopathic cirrhosis and hepatocellular carcinoma which subsequently failed due to what we thought was chronic rejection. He also had a low gamma-glutamyl transpeptidase and progressive cholestasis. The second transplant failed secondary to acute hepatic vein outflow obstruction and portal vein thrombosis. In the third allograft, the patient had progressive cholestasis with low gamma-glutamyl transpeptidase. Biochemical studies were done which revealed a deficiency in bile salt export protein. This was subsequently confirmed on immunohistochemistry of not just his third allograft but also his native liver.

CONCLUSION: Liver transplantation is the most successful therapeutic option for familial intrahepatic cholestasis syndromes. However, we hypothesize that this patient had a recurrence of this rare disease.
Abstract# 314
PRE TRANSPLANT ASSESSMENT FOR INTESTINAL TRANSPLANT. Lindsay Hogg, Debbie Hartt. Liver Unit, Birmingham Children’s Hospital, Birmingham, United Kingdom.
PURPOSE: To describe the assessment process of information sharing to allow parents to give informed consent for intestinal transplant.

METHOD: Families are invited to a national intestinal transplant unit for a pre admission meeting with the consultant, specialist nurse and social worker. Explanation of the assessment admission is given with written information about the transplant unit and overview of intestinal transplants. The assessment is over 2 weeks and both parents are encouraged to be present during this time. A detailed timeline of investigations and meetings with the multi-disciplinary team (MDT) is provided. The specialist nurses meet with the families daily to share information. An information sharing checklist is used to ensure that all families receive the same information prior to signing consent forms. Families are issued with a Personal Information Record which they will be encouraged to use throughout their contact with the unit. The file will contain information which supports verbal information given.

RESULTS: The child will be presented at a MDT meeting for agreement of a recommendation to be made. The options usually fall into 4 categories.
1. Intestinal transplantation is not necessary as the child does not appear to have life threatening complications related to Parental Nutrition.
2. Intestinal transplantation is not possible as the child has other complex problems that are not compatible with a successful intestinal transplant. The team follows the international recommendations when arriving at this difficult decision.
3. Intestinal transplant may be possible. Further tests or intestinal surgery may be needed after discussions.
4. Intestinal transplant is possible.

CONCLUSION: Families that have received appropriate information are able to make informed decisions about their child’s future. It is an emotional and difficult time for families due to the nature of the information they receive. Families report that they can cope with the highs and lows of intestinal transplant if they are fully informed. We hope to formally assess family’s feedback in the next year.


Abstract# 315
HYPERVENTRICULAR CARDIOMYOPATHY AND NON HODGKIN LYMPHOMA IN A CHILD AFTER LIVER TRANSPLANTATION. Ahad Eshraghian,1 Seyed Mohsen Dehghani,1,2 Mahmood Haghighat,1 Bita Geramizadeh,1 Seyed Ali Malek-Hosseimi.1 Shiraz Transplant Research Center, Shiraz University of Medical Sciences, Shiraz, Iran.

PURPOSE: To describe the indications and histological diagnosis in paediatric liver transplant recipients undergoing liver biopsies.

METHOD: A Retrospective chart review of all paediatric liver transplant recipients who had undergone liver biopsies from August 1991 to August 2008.

RESULTS: Fifty nine children underwent 64 liver transplants, 38 of which (64.4%) were living related. Mortality rate was 15.3%. Median age at transplant was 4.6 (0.9–20.4) years. Underlying liver diseases that led to transplantation include biliary atresia (57.6%), Alagille’s syndrome (8.5%), and metabolic liver disease (5.1%). Immunosuppression was Tacrolimus-based in 81.8% and Cyclosporine-based in 14.5%. Sixty one liver biopsies were performed in 24 transplant recipients. The indications for liver biopsy were elevated transaminases in the immediate post-transplant period (65.5%), transplant rejection (11.5%), histopathology with fever (11.5%), triad of jaundice, fever and transaminis (4.9%) and clinical jaundice with transaminisis (4.9%). Histological findings were rejection (54%), hepatitis (6.5%), biliary obstruction or damage (14.7%), normal or nonspecific changes (19.7%) and combination of rejection and biliary damage (4.9%). Among patients with rejection (n=32), nine (28.1%) had rejection within the 1st month post-transplant, five (15.6%) within the 1st to 6 months post transplant, and 18 (56.2%) more than 6 months post transplant. Only 1 of these rejection episodes had features of chronic rejection.

Among patients with hepatitis (n=4), CMV hepatitis (n=3) was more prevalent than Hepatitis B in 1 (recipient of Hepatitis B core antibody liver graft). Large duct obstruction (n=7) occurred more often than biliary stricture (n=2).

CONCLUSION: Liver biopsies are helpful in determining the cause of elevated liver enzymes. The most common cause was allograft rejection, the majority of which were late acute rejection, occurring beyond 6 months post-transplant.

Abstract# 317
LIVING DONOR LIVER TRANSPLANTATION FOR WILSONIAN FULMINANT HEPATIC FAILURE IN CHILDREN: THREE CASE REPORT. Yoshikazu Toyoki,1 Shunji Narumi,1 Keinosuke Ishido,1 Daisuke Kudoh,1 Kenichi Hakamada.1 Gastroenterological Surgery, Hiroasaki University School of Medicine, Hiroasaki, Aomori, Japan.

PURPOSE: Fulminant Wilsonian hepatic failure (FWHF) is rare and fatal condition in children. Moreover, only urgent liver transplantation can save these children. We have experienced three cases of living donor liver transplantation (LDLT) for children with FWHF.

METHOD: [Cases] Case 1. A 14 year-old girl had been admitted a department of pediatrics in our institute due to FWHF on October 9th, 2002. She had hepatitis com in October 10th. We immediately performed LDLT as a donor was her mother on October 15th. Donor operation was extended lt. hepatic lobectomy. Postoperative course of donor was uneventful and her serum ceruloplasmin and copper levels were normal range now. Case 2. A 12 year-old girl had been admitted a department of pediatrics in our institute due to FWHF on April 27th, 2004. She had hepatic coma on April 30th. We immediately performed LDLT as a donor was her grandfather on May 3rd. Donor operation was lt. hepatic lobectomy. Postoperative course of donor was uneventful and her serum ceruloplasmin and copper levels were normal range now. Case 3. A 12 year-old boy had been admitted a department of pediatrics in our institute due to FWHF on October 4th, 2007. His liver extremely was atrophic. We immediately performed LDLT as a donor was his mother on October 23rd. Donor operation was rt. hepatic lobectomy. Postoperative course of donor was uneventful and her serum ceruloplasmin and copper levels were normal range now.

RESULTS: Three children’s serum copper level and urinary copper excretion were within normal limit now.

CONCLUSION: FWHF lead to death in almost pediatric patients if liver transplantation can not be performed. LDLT is better treatment for children with FWHF.

Abstract# LB 21
UNIQUE CONCERNS CAPTURED BY PeLTQL: A NOVEL LIFE SPECIFIC QUALITY OF LIFE TOOL CREATED BY PEDIATRIC LIVER TRANSPLANT RECIPIENTS FOR PEDIATRIC LIVER TRANSPLANT RECIPIENTS. V. Ng,1 A. Otey,1 D. Nicholas,2 S. Gilmour,1 N. Yazigi,1 M. Stormon,1 L. Ee,1 R. Taylor,1 A. Dhawan.1 SickKids Transplant Center, The Hospital for Sick Children, Toronto, ON, Canada.

PURPOSE: Using established methodology for the dev of health-related quality of life (HRQOL) tools, item response theory (IRT) findings were analyzed to assess HRQOL of pediatric liver transplant (pLT) recipients across age groups, primary disease and country of LT.

METHOD: A 76-item IR tool was given to children >1 yr post-LT (in 2 age strata (8-12 y [n=54] and 13-17 y [n=44]) and their parents (stratified as 4 gps of 1 y [n=44] 1-4 y [n=47], 5-8 y [n=48], 8-12 y [n=47], 13-17 y [n=51]) old at 8 LT programs in Canada, Australia, US and UK. Parent subjects were asked to respond from the perspective of their child. All subjects completing the IR tool indicated how important each item was to them and how often it bothered them on a 5 point Likert scale, with impact scores = importance + concern ratings.

RESULTS: IR subjects represented a total of 209 LT recipients at median 5.9 (range 1.17-8.7) y post LT, and 96 (46%) female. Primary indications for LT included biliary atresia (BA,50%), fulminant liver failure (FHF, 13%), tumour (7.2%) and metabolic liver atresia (BA,50%), fulminant liver failure (FHF, 13%), tumour (7.2%) and metabolic liver atresia (BA,50%), fulminant liver failure (FHF, 13%), tumour (7.2%) and metabolic liver
Abstract# LB 22
LIVER TRANSPLANTATION FOR PRIMARY SCLEROSING CHOLANGITIS IN CHILDREN: A SINGLE CENTER EXPERIENCE.
Maria C. Dezza,1 Vittorio Corno,1 Paola Strippa,1 Aurelio Sonzogni,1 Manila Candusso,1 Fabio Tagliabue,1 Alessandro Lucianetti,1 Domenico Pinelli,1 Alessandro Aluffi,1 Michela Guizzetti,1 Marco Zambelli,1 Mhoamed Al Hashash,2 Marco Platto,1 Simona De Ponti,1 Silvana Marin,1 Giuliano Torre,1 Michele Colledan.1 LIVER TRANSPLANTATION. 1Liver and Lung Transplant Unit, Ospedali Riuniti, Bergamo, Italy.
PURPOSE: The purpose of this study was to analyze the results of liver transplantation (LTx) for Primary Sclerosing Cholangitis (PSC) in pediatric recipients.
METHOD: We reviewed our series of 356 isolated primary pediatric liver transplants performed between October 1997 and October 2008.
RESULTS: PSC was the indication in 6 (1.7%) children (median age 5 years, 1-17). 3 children were diagnosed in neonatal period; 3 patient were transplanted before the age of 2 years. The LTx was indicated in 2 patients for liver failure associated to portal hypertension and gastroesophageal bleeding, in 1 for a biliary stricture not treatable by a biliary stent placement, in 2 for progressive cholestasis with jaundice and intractable pruritus, in 1 for a progressive worsening of liver function up to a Pediatric End-Stage Liver Disease (PELD) score of 25. Median PELD score at the time of listing was 16 (10-25). In one case PSC was associated with hepatitis C. Median waiting time between diagnosis and transplantation was 15.2 months (4.3-81.3). No patient had evidence of inflammatory bowel disease (IBD) before LTx. 4 children received a left lateral split graft, 1 whole graft. Median follow up was 457 days (20-291). All the patients received a tacrolimus-stereoids based immunosuppression. 3 children developed an acute rejection, 1 a mild histological chronic rejection. The 1,3 and 5 year actuarial patient survival was 100%. A child developed a histological recurrence of PSC in his allograft and a mild IBD 8 months post LTx. All children at last follow up were alive and in good condition and their liver tests were in a normal range.
CONCLUSION: According our experience LTx provided good graft and survival rates in paediatric recipients, including infants with end-stage PSC.

Abstract# LB 23
VACUUM ASSISTED CLOSURE FOR MANAGEMENT OF COMPLICATED ABDOMINAL WOUNDS AFTER PEDIATRIC LIVER TRANSPLANTATION. Fabio Tagliabue,1 Maria C. Dezza,1 Vittorio Corno,1 Alessandro Lucianetti,1 Domenico Pinelli,1 Michela Guizzetti,1 Marco F. Zambelli,1 Alessandro Aluffi,1 Marco Platto,1 Simona De Ponti,1 Mhoamed Al Hashash,2 Silvana Marin,1 Michele Colledan1,1 Liver and Lung Transplant Unit, Ospedali Riuniti, Bergamo, Italy.
PURPOSE: To describe our experience using vacuum assisted closure (VAC) therapy system for the management of abdominal wound complications after liver transplantation (LTx) in children.
METHOD: Between January and October 2008 5 children (median age 2.7 years, 0.6-10.3) underwent VAC placement for complicated abdominal wound after LTx. We used polyvinyl alcohol foam dressing and application of negative, subatmospheric pressure, median 100 mmHg (100-150).
RESULTS: Our cases included: 1 second retransplantation for a primary graft non function complication by bowel perforations; 1 retransplantation for a delayed graft function complication by a biliary leak; 1 LTx for a unknown fulminant hepatic complication by a biliary stenosis, 1 LTx for biliary atresia complicated by bowel perforations; 1 LTx for biliary atresia associated to an hepatopulmonary syndrome complicated by portal vein and hepatic artery thrombosis and biliary leakage. Median Paediatric End-Stage Liver Disease score at LTx was 30 (2-38). All the children had a wound infection. The culture examination included: Escherichia Coli (3), multi-resistant Pseudomonas Aureginosa (2), Enterococcus Faecalis and coagulase-negative Staphylococcus (1). A child had a skin wound dehiscence; three children had a partial abdominal wall dehiscence; a child had an open abdomen with total exposition of the liver graft and bowel. Median time between transplantation and VAC Placement was 23 days (12-61). Median time between surgery for LTx complication and VAC placement was 5 days (0-15). Median length of VAC use was 27 days (23-59). Wound closure occurred in 3 children. A treatment is in progress. One patient died for multorgan failure. Any wound complications or enteric fistula occurred. Median follow up after wound closure was 168 days (132-188).
CONCLUSION: VAC can be safely and effectively used to manage complicated abdominal wound in paediatric liver transplantation.

Abstract# LB 24
LATE ONSET PORTAL VEIN OBSTRUCTION AFTER PEDIATRIC LIVING DONOR LIVER TRANSPLANTATION. Ju Il Moon,1 Milljae Shin,1 Jong Man Kim,1 Jae Min Chun,1 Gunn O. Jung,1 Gyu Seong Choi,1 Jae Bern Park,1 Choon Hyuck David Kwon,1 Sung-Joo Kim,1 Jae-Won Joh,1 Suk-Koo Lee.1 Department of Surgery, Samsung Medical Center, Sungkyunkwan University School of Medicine, Seoul, Korea.
PURPOSE: Portal vein (PV) complications after pediatric living donor liver transplantation have rarely been reported. In this study, we analyzed the outcome of late onset PV obstruction after pediatric LDLT and evaluated the characteristic finding of late onset PV obstructions.
METHOD: From June 1996 to November 2008, 106 consecutive pediatric patients (male: 46; female: 60) received LDLT at Samsung Medical Center in Seoul, Korea. We retrospectively evaluated basic characteristics of the patients with the late onset portal vein obstruction and results after management of the complications through the medical record.
RESULTS: PV compications was occurred in 13 patients (12.2%; stenosis: 8 patients; obstruction: 4 patients; thrombus: 1 patient). 5 year overall survival rate of patients with PV complication and without PV complication were 91.7% and 88.9%, respectively (p=0.624). Of total pediatric LDLT patients (3.8%) had late onset PV obstrucion and they were diagnosed median 8.5 months (3-13 months) after the last normal radiologic examination. Three of 4 patients with portal vein obstruction had GRWR above 4%. Late onset PV obstruction was detected between 16 and 27 months (median: 22.9 months) after the transplantation. Three of 4 patients with late onset PV obstruction showed the portal hypertension symptom as melena, hematemesis and splanomegaly. One patient had not any symptoms and observed by routine follow up doppler ultrasonography. In the patients with late onset PV obstruction, balloon angioplasty was done in 2patients, esophageal variceal band ligation in 1patient and mesocaval shunt operation was performed in 1 patient. All of 4 patients are alive after the procedure and currently under close follow up.
CONCLUSION: PV complication has not significantly affected patient survival in our study and every 3months radiologic follow up may detect the late onset portal vein obstruction as early as possible.

Abstract# 318
IMPACT OF AGE ON OUTCOME IN EXPERIMENTAL POSTTRANSPLANT BRONCHIOLITIS OBLITERANS. Yongsheng Niu,1 Zhongmin Liu,1 Huimin Fan,1 Hao Cao,1 Department of Cardiovascular and Thoracic Surgery, Shanghai East Hospital Affiliated to Tongji University, Shanghai, China.
PURPOSE: For pediatric lung transplant and adult lung transplantation, the largest obstacle to long-term survival remains chronic allograft rejection secondary to the development of bronchiolitis obliterans, for which little advancement has been made in prevention or treatment. The aim of this study was to test whether donor and recipient age influence the development of obliterative airway disease in an established rat model of human bronchiolitis obliterans.
METHOD: The heterotopic tracheal transplantation model in rats was used. Our studies involving the use of rats conform to 1991 Revision of "Guiding Principles in the Care and Use of Animals" (American Physiological Association, Bethesda, MD 20814-3991). Rat tracheas were transplanted from young (six months) and aged (22 months) Brown-Norway donors into young and aged Lewis recipients. Kinetic changes in the selected cytokines (TGF-β, IL-4, IL-10, IL-8 and INF-γ) were monitored. Grafts were harvested at days 7, 14 and 21 for further histologic and Immunohistochemical analysis of cell infiltration in allografts.
RESULTS: At each time point, both epithelial injury and the extent of luminal occlusion of the tracheal allografts were similar between the groups. Furthermore, Cytokine gene expression of the allografts for TGF-β, IL-4, IL-10, IL-8 and INF-γ did not differ between the groups.
CONCLUSION: Our data suggest that age has no impact on the development of obliterative airway disease in this transplant model. Nevertheless, one should be aware of limitations of this model when translating these results to human transplant situations.

Abstract# 319
THE INVOLVEMENT OF γδ T LYMPHOCYTES IN LIVER TRANSPLANT TOLERANCE. Frances R. Malone,1 Katie Carper,1 Jorge D. Reyes,2 Wei Li2 Division of Transplantation, Department of Surgery, Seattle Children’s, Seattle, WA, USA; 2Division of Transplantation, Department of Surgery, University of Washington, Seattle, WA, USA.
PURPOSE: Gamma delta (γδ) T lymphocytes are considered a non-conventional T cells and are found throughout the body, but mainly located in the cutaneous, gastric
and intestinal epithelia. The role of gdT cells in innate and adaptive immunity is just emerging; remaining poorly understood in many aspects. gdT cells have recently been shown to play an important role in protection from tumor and infection however, their role in hematopoietic transplantation and GVHD remains controversial. Whether gdT cells are involved in allogeneic transplant is understudied.

METHOD: In this study, we have characterized the γδT cell population in mouse livers and spleens, and further evaluated their contributions in liver transplant tolerance throughout the course of posttransplantation by using our unique model of mouse spontaneous transplant tolerance.

RESULTS: Our studies revealed that γδT cells mainly reside in the liver and comprise about 20% of the population of liver nonparenchymal cells in either naïve B6 or C3H mice. Most of those cells are CD4, CD8, and NK1.1 negative. The percentage of γδ T cells was decreased in the liver grafts in the spontaneous tolerance model from day 1 to day 10 posttransplantation; they were all below 10% in the liver grafts vs 20% in naïve controls. In contrast, the percentage was increased in the rejected liver grafts, which was induced by anti-CTLA4 and anti-CD25 mAbs administration. The percentages of γδT cells were 33% and 35% in the anti-CTLA4 and anti-CD25 mAb treated recipients at day 5 posttransplantation, respectively. There was a slightly increased frequency of CD8 expression on γδ T cells in the tolerant livers post transplantation (10-20%), but not in the rejected livers.

CONCLUSION: Thus, the data from our preliminary study suggests that γδT cells are involved in the liver transplant tolerance and rejection however, it is not clear if γδT cells augment or attenuate these processes.

Abstract# 320

SIX YEARS POSTTRANSPLANT FOLLOW UP OF RENAL RECIPIENTS WITH RESPECT TO HLA ANTIGENS AS PREDICTING FACTOR OF CHRONIC REJECTION. Ines Humar,1 Zvonimir Puretic,1 Ljubica Bubic,2 Maja Puc,3 Natalija Martinez,1 1National Referal Tissue Typing Centre, University Hospital Zagreb, Zagreb, Croatia.

Purpose: Chronic graft rejection that remains the main cause of graft loss after renal transplantation in subset is associated with anti-HLA antibodies. Since only about 5% of functioning patients can be expected to fail in one year, if patients with HLA antibodies fail at a higher rate, clinicians will be convinced to monitor them and to intervene to eliminate the antibodies and among those who have no antibodies, immunosuppression might be reduced.

Method: Pretreatment sera of 273 recipients were obtained and between 1-37.2 years posttransplant. Statistical analysis Survival curves were estimated using the Kaplan-Meier method. Cox regression model was used to assess the significance of PRA, serum concentration of creatinine and graft survival. All P values are two-sided and considered statistically significant if less than 0.05.

Results: 33.3.7% of recipients had HLA reactive alloantibodies before transplantation. The incidence of antibodies was 17% among those who had antibodies prior to transplantation, and 73% among those who did not have antibodies.1.5% of patients had lost graft in this study period. In 93 recipients with incidence of anti-MHC alloantibodies 17.5% failed, compared to 2.2% failure among 180 patients who did not develop antibodies statistically significant. PRA had statistically significant effect after transplantation for graft loss due to alloantibodies (P = 0.01) and 3 of 92 relative (P < 0.05) in this selected group. With respect to type of immunosuppression used in our transplant center, we found a wide range of percentage antibodies formed.

Conclusion: Post transplant detectable alloantibodies are risk factor for chronic allograft rejection, suggesting that humoral mechanisms are rather the cause than the consequences of chronic rejection. On average, kidneys that have experienced an anti-MHC alloantibodies production manifest lose of function and reduced probability of longterm survival.

Abstract# 321

THE ROLE OF FAMILY HAPLOTYPES IN INDUCING DONOR SPECIFIC HYPERSUSCEPTIVENESS. Zvonimir Puretic,1 Ines Humar,2 Jasna Slavicek,3 Ljubica Bubic,1 Hrvoje Puretic. 1Dialysis, University Hospital Zagreb, Zagreb, Croatia; 2University Hospital Zagreb, Croatia.

Purpose: The ultimate goal of clinical transplantation is the induction of donor specific unresponsiveness, without the impairment of host defence mechanisms. The need is not just any more potent immunosuppression but rather the development of protocols which will induce immunological tolerance in the clinical setting of transplantation. It was suggested that exposure of the fetus and newborn to non-inherited maternal HLA antigens has life long effect on allograft recognition.

Method: The patient’s population consisted of 42 sibling pairs. PBMCs were obtained from each patient and their family members. Limiting dilution analysis (LDA) provides a method of precisely quantization the size of CTLp and Thp frequencies. Statistical analysis of the relationship between T cell reactivity to donor cells and patient was performed using Mann-Whitney Two Sample Test.

Results: We have tested in vitro reactivity of T cells from 26 siblings expressed maternal HLA haplotypes not inherited by the other part of pair. The group of 16 siblings expressed different paternal HLA haplotypes. Analyses of Th precursor frequencies were marginally significant in a favour of father’s haplotypes (P=0.0623). Effector function of T cells were not significant (P= 0.8425). When we compared proliferative and effector function of siblings against their parents, siblings who shared a same HLA haplotype from mother have significantly higher proliferative alloresponse (Thpf) against mother (P=0.0072). There were no difference in measuring effector cells (P=0.1483). Comparing siblings with identical father’s HLA haplotype, Thpf (P=0.4176) and CTLpf (P=0.8353) didnt show significant increase in alloseimmune response against any of parents.

Conclusion: The immune response generated against each donors specific combination of HLA antigens is influenced by the HLA profile of the recipient. Based on our results it is not possible predicted that an organ transplanted from mother would have a superior survival rate and we did not find advantage of any inherited HLA haplotype. However, we should not oversimplify HLA and immunogenetic individuality.

Abstract# 322

SIROLIMUS HAS A DELETERIOUS EFFECT ON CYCLOSPORINE-INDUCED PANCREATIC INJURY IN RATS. Insung Moon, Hyunuk Song, Dongha Han, Can Li, Sunwoo Lim, Jungyeon Ghee, Suhyun Kim, Hyeoon Yoon, Jin Kim, Chulwoo Yang. Transplant Research Center, Division of Nephrology and Surgery, Kangnam St. Mary’s Hospital, The Catholic University of Korea, Seoul, Korea; Department of Internal Medicine, The Affiliated Hospital, YanBian University Medical College, YanJi, Jilin, China; Cell Death Research Center, Department of Anatomy, The Catholic University of Korea, Seoul, Korea.

Purpose: Sirolimus (SRL) is a promising immunosuppressive agent replacing calcineurin inhibitors (CNI). This study was performed to investigate whether SRL can replace CsA in a setting of CsA-induced pancreatic injury.

Method: Sprague-Dawley rats were used. First, dose-dependent effect of SRL on diabetes was evaluated. Second, synergistic effect of CsA (15 mg/kg) and SRL (0.3 mg/kg) on pancreatic injury was studied. Third, the effect of conversion from CsA to SRL on pancreatic injury was evaluated. The effect of SRL on CsA-induced pancreatic injury was evaluated with intraperitoneal glucose tolerance test (IPGTT), plasma insulin concentrations, and pancreatic b cell morphology.

Results: IPGTT revealed that SRL treatment for 4 weeks showed dose-dependent increase of blood glucose concentration compared with control rats. CsA treatment for 4 weeks caused diabetes, and combined treatment of SRL showed synergistic pancreatic injury, demonstrated by markedly increased AUC and decreased plasma insulin concentration and pancreatic b islet mass compared with CsA rats. CsA withdrawal after 4 weeks treatment of CsA normalized CsA-induced pancreatic injury. However, conversion to SRL injury failed to ameliorate CsA-induced impaired glucose homeostasis.

Conclusion: SRL is diabetogenic and aggravates CsA-induced pancreatic injury.

Abstract# 323

POTENTIAL MECHANISTIC EXPLANATIONS FOR DIFFERENTIAL METABOLISM OF IMMUNOSUPPRESSANTS IN PEDIATRICS. Jamie R. Bendrick-Peart,1 Claudia Clavijo,2 Fernanda Zapata,2 Vanessa Moll,2 Guido Filler,3 Uwe Christians.3 1Eurofins Medinet, Korea; Department of Internal Medicine, The Affiliated Hospital, YanBian University Medical College, YanJi, Jilin, China; 2Anesthesiology Clinical Research and Development, University of Colorado Health Sciences Center, Denver, CO, USA; 3Children’s Hospital of Western Ontario, University of Western Ontario, London, ON, Canada.

Purpose: Our studies have shown that pediatric metabolism of immunosuppressants differs from adults, both in clinical studies and in human liver microsome in vitro studies. There are indications in these studies that the differential activity of cytochrome P450 enzymes, especially CYP3A4, 3A5 and 2C8 is responsible for the different metabolic patterns of immunosuppressants. Literature indicates that there are developmental changes associated with the activity of CYP3A4 from birth through young adulthood. There is also precedence for the idea that post-translational modifications of CYP enzymes are responsible for variable activities of these enzymes. We hypothesized that post-translational modifications of CYP3A4, 3A5 and 2C8 contribute to the development of the enzymes and their respective activity.

Method: Utilizing human liver microsomes from cadaveric adult and pediatric donors, age grouped according to <30 days, 30 days - 1 year, 1 year - 2 years, 2 years to adolescence, and adult, cytochrome P450 enzyme expression was verified with Western blot. Mass spectrometry analysis will be utilized to investigate the possible presence of predicted post-translational modifications.

Results: Western blot analysis indicated some differences in the pattern of expression of CYP enzymes across age groups, although the commercial vendors supplying the microsomes estimated total abundance of the proteins to be identical. Mass spectrometry experiments to identify the presence of and abundance of post-translational modifications are underway, and will determine whether any post-translational modification is correlated to the activity of CYP activity.
CONCLUSION: The use of mass spectrometry to identify and differentiate the post-translational modifications on cytochrome P450 enzymes could lead to mechanistic explanations for the differential metabolism of immunosuppressants in pediatrics and adults.

Abstract# 324
FALSE POSITIVE CROSSMATCH AFTER RITUXIMAB ADMINISTRATION BEFORE LIVING RELATED KIDNEY TRANSPLANTATION. Gerard Cortina,1 Therese Juangrathimay,1 Harald Schennach,2 Annelies Muehlbacher,1 Lothar Bernd Zimmerhackl.1 1Department of Pediatrics, Medical University Innsbruck, Innsbruck, Austria; 2Department of Blood Transfusion and Immunology, Medical University Innsbruck, Innsbruck, Austria.

PURPOSE: Rituximab is a murin/human monoclonal antibody directed against CD 20 antigen and leads to a depletion of B cells. Rituximab is widely used in transplantation medicine for treatment of antibody mediated rejection. Also prior to transplantation Rituximab is evaluated as therapeutic option in FSGS or SLE or as induction therapy in ABO Incompatibility.

METHOD: In a 21 year old patient suffering from lupus erythematosides with lupusnephritis level IV (Diagnosis 01/2001) and acute exacerbation in 03/2005 Rituximab was administered twice (375mg/m²/body surface), which lead to a longterm suppression of B cells. Finally the patient developed end stage renal disease and was evaluated for living related kidney transplantation. In 03/2008 another dose of Rituximab was given for another relapse.

RESULTS: Because of AB0-Blood group and excellent HLA match (5/6) the aunt of the patient was prepared for living related kidney transplantation. In the first crossmatch performed with complement-dependent cytotoxicity (CDC) the T-cell crossmatch was negative, the B-cell crossmatch positive. The day prior to transplantation, 5 weeks after the last rituximab administration, both T- and B-cell crossmatch were clearly positive.

CONCLUSION: Because Rituximab activates complement it may interfere with antibody detection methods such as complement-dependent cytotoxicity (CDC). It should be stressed that the correct interpretation of the results should be performed interdisciplinary between transplant surgeons, pediatricians and immunologists and positive crossmatch results should be controlled with more specific complement independent methods, such as ELISA or FACS based assays.

Abstract# 325
IMPLEMENTING SELF-DETERMINATION ON PATIENTS’ READINESS TO TRANSITION TO ADULT HEALTH CARE AND ADHERENCE TO MEDICATION, Tiziona Lugusi,1 Marie Achille,1 Moire Stevenson,1 Marie-Josée Clermont,2 Véronique Phan,2 Lorraine Bell.1 1Psychology, Université de Montréal, Montréal, QC, Canada; 2Nephrology, CHU Sainte-Justine, Montreal, QC, Canada.

PURPOSE: Transition from child care (CC) to adult care (AC) has become an important issue due to improvements in the prognosis of chronically ill children and adolescents. Transition may result in failure to adhere to medical recommendations and in poor adaptation to AC. Studies investigating factors that impact transition are lacking. The purpose of this study is to examine several self-determination variables in the context of transition to AC to assess their impact on adherence to medical recommendations and on readiness to transition.

METHOD: Patients (N=15) between the ages of 17 to 21 with end-stage renal disease or Type 1 diabetes were recruited from two pediatric hospitals 1-3 months prior to their transition. Patients completed questionnaires 3 months before their transition to AC. Self-determination variables were measured using the Treatment Self-Regulation Questionnaire, the Modified Health Care Climate Questionnaire, and the Perceived Competence Scale. Adherence was assessed with the Frazier Non-Compliance Inventory. Feelings about transition and readiness to transfer were also measured. Recruitment is ongoing and results on the total sample will be presented.

RESULTS: Seventy-seven percent of patients rated their pediatric caregivers as autonomy supportive and 72.8% reported they were ready to transition. Preliminary correlations showed a trend between ratings of caregivers’ autonomous support and adherence to medical follow-ups (r = .516, p = .071). Additional analyses showed significant relationships between patients’ autonomous motivation and perceived competence (r = .720, p = .019) and adherence to follow-ups (r = .661, p = .038). Results from regression analyses will also be presented.

CONCLUSION: Preliminary results suggest that pediatric health care givers are perceived by patients to be autonomy supportive. In addition, patients’ perception of autonomy support appears to be related to increased medical adherence.

Abstract# 326
A FINANCIAL ANALYSIS OF ACUTE REJECTION AMONG PEDIATRIC KIDNEY TRANSPLANT RECIPIENTS. Jennifer L. Paruch,1 Mitesh S. Patel,1 Joshua A. Cohn,1 Yasser M. Ads,1 Michael J. Englese,1 John C. Magee.1 1Department of Surgery, Transplant Division, University of Michigan, Ann Arbor, MI, USA.

PURPOSE: Rejection episodes in the pediatric kidney transplant population have substantial medical, psychological and financial costs to the patient and the healthcare system. We analyzed financial data for acute rejection episodes in pediatric kidney transplant patients in order to determine the cost of acute rejection and who bears the financial burden of rejection.

METHOD: Clinical and financial data were collected on pediatric kidney transplant recipients transplanted between January 1998 and January 2006. Financial data were calculated by dividing costs and margins for all procedures occurring between discharge from the transplant operation and one year after transplant. Patients in the rejection group were receiving their first transplant, had biopsy confirmed acute rejection, had a graft that survived at least one year, and only had one rejection episode during the first year.

RESULTS: The total first year post-transplant cost for patients with acute rejection episodes (n=10) was $98,211, compared to a total cost of $56,415 in patients with no rejection during the first year (n=82). The mean difference between the two groups was $41,797. Hospital margins were $-23,689 for the group with rejection compared to $-12,121 for the group without rejection, a mean difference of $-11,568. Margins in patients with public versus private insurance were $-16,143 versus $-10,254 respectively for the rejection group, and $-32,441 versus $-10,560 for the group with no rejection. Finally, 23% of patients with public insurance had rejection episodes during the first year, compared to only 7% of patients with private insurance.

CONCLUSION: Children with acute rejection episodes during the first year after transplant have higher total costs than those without rejection, and hospitals pay a significant portion of this cost. Patients with public insurance may be more likely to have rejection episodes during the first year after transplant. It is in the financial interest of providers to prevent rejection episodes in the pediatric kidney transplant population.

Abstract# 327
IMPLEMENTING LIVING DONOR ADVOCACY IN PEDIATRIC KIDNEY TRANSPLANTATION. Jens Goebel,1 Katherine Evers,2 Debbie Schoborg,1 Carol Page,1 Linda Page,1 Gregg Tiao,2 Maria Alonso,2 Kevin Adams.1 1Pediatrics, Children’s Hospital, Cincinnati, OH, USA; 2Surgery, Children’s Hospital, Cincinnati, OH, USA; 3Social Work, Health Alliance, University Hospital, Cincinnati, OH, USA.

PURPOSE: Formal recommendations for independent living donor advocacy are now in place in the United States. For pediatric transplant (tx) programs, who may be limited in volume and resources and have long-standing relationships with many of their donors (i.e. patients’ parents), meeting the recommendations can be challenging. We thus present our independent donor advocacy team (IDA) experience.

METHOD: Guided by an interested chaplain at our institution, a small working group of tx professionals (nurses, adminitstrators and physicians), tasked with developing our IDA program, reviewed the new recommendations, contacted other centers, and attended conferences covering IDA.

RESULTS: Over ~18 months, an IDA program with the following features was created: 1. An IDAT consisting of a tx surgeon, an adult medical physician, and a tx-focussed social worker (SW), the latter not employed by our institution and with no relationship to our patients. Donor candidate (DC) evaluation protocols containing a separate appointment with the SW for a detailed psychosocial assessment. Additional availability of the SW for DC support. 4. Decision algorithms at predefined points in the DC evaluation facilitating “rejection” should the IDAT not support donation unanimously. 5. Rejection communication strategies protecting the DC’s privacy. A standardized education, consent, and documentation process throughout the evaluation. Other than the actual work performed by the group, required resources mostly consist of reimbursement for the SW’s contributions. The IDA process was recently implemented in our kidney program. Ongoing monitoring of our experience is in place.

CONCLUSION: IDA in pediatric kidney tx programs is feasible but requires the commitment of specific resources. Programs need to familiarize themselves with IDA strategies, not only as they may be part of regulatory audits, but also because IDA represents specific challenges for pediatric centers.

Abstract# 328
PROVIDERS’ ADHERENCE IN PEDIATRIC KIDNEY TRANSPLANTATION. Jens Goebel,1 Julie Ross,1 David Hooper.1 1Nephrology and Hypertension, Children’s Hospital, Cincinnati, OH, USA.

PURPOSE: Novel diagnostic (e.g. BK virus testing) and therapeutic (e.g. mammalian target of rapamycin inhibition, mTORI) options have made clinical care protocols more variable and complex. We assessed the reliability of our program (~15 kidney transplant/year) with regards to actually following our current post-transplant (ptx) protocol which individualizes follow-up based on several factors, including time ptx and use of mTORI, conversion to which is offered to most patients at least 6 months ptx.

METHOD: Because we perceived our prior adherence to our own protocol as suspicious, we designated, in early 2008, one nurse coordinator to preview each tx recipient before
clinic visits and arrange testing accordingly. Specifically, our protocol mandates liver and lipid profiles, BK viruria testing, and a transplant ultrasound (US) by 6 months ptx and yearly thereafter for the first few years, paired with a glomerular filtration rate measurement and an echocardiogram. Moreover, patients on mTORI are required to have at least 6-monthly lipid profiles and sex hormone measurements.

RESULTS: With a designated coordinator, who spent substantial amounts of time specifically planning ptx visits, our program’s adherence with our follow-up protocol was 100% in patients within 1 year ptx, between 77.1% (BK viruria testing) and 97.1% (transplant US) in patients between 12 and 24 months ptx, and between 79.1% (BK viruria testing) and 93.0% (transplant US) in patients beyond 24 months ptx. Almost 80% of patients on mTORI had lipid profiles and sex hormone measurements within 6 months before their next clinic visit. Of note, our adherence with diagnostic testing per protocol at clinic visits during weeks when our designated coordinator was absent deteriorated markedly.

CONCLUSION: Our ptx follow-up now requires resource-intense planning to ascertain providers’ protocol adherence. If our experience is mirrored at other pediatric centers, it may have important implications regarding resource allocation and care delivery in such programs. Specifically, efficient fail-safe strategies to guarantee adequate follow-up testing are needed and should not depend on individual care team members.

Abstract# 329
QUALITY OF LIFE IN CHILDREN PRE AND POST RENAL TRANSPLANTATION. Alan R. Watson,1 Hilary Maxwell,2 Dorothy Mackinlay,1 Children’s Renal & Urology Unit, Nottingham University Hospitals, QMC Campus, Nottingham, United Kingdom; 2Clinical Psychology, Nottingham University Hospitals, QMC Campus, Nottingham, United Kingdom.
PURPOSE: A generic Children’s Quality of Life measure (GCQ) has been developed which enables an individual child to express their perception of their position in life in relation to their goals and expectations. We report a pilot study of the use of the GCQ in the chronic renal failure/transplant clinic.
METHOD: The GCQ was completed by 67 children (38 male) with a mean age of 13.6 yrs (range 6-18 yrs). 22 had chronic renal failure, 11 on dialysis, 34 post renal transplant (14 pre-emptive and 20 post-dialysis). Completion of the GCQ was supervised to ensure child self-report. Statistical comparisons were made to the published norms.
RESULTS: The mean QOL score in the renal population was 79.6 (SD ± 11.5) versus 74.5 (SD ± 9.92) for the general population normative sample (p = 0.004). There was a significant difference between males in the renal sample (mean 81.3, SD ± 10.6) and those in the normative sample (mean 74.1, SD ± 9.9, p = .002). In comparison, there was no significant difference between females (renal mean 77.4, SD ± 12.6 v norm mean 74.8, SD ± 9.9; p = 0.3). No significant difference was detected between treatment modalities.
CONCLUSION: The results to date challenge the assumption that renal disease leads to a diminished quality of life. Gender differences in QOL in renal patients requires further investigation and lack of treatment modality differences needs larger patient samples. The GCQ is a simple and convenient measure which will permit longitudinal studies.

Abstract# 330
PAEDIATRIC PRESENTATION OF END-STANCE RENAL FAILURE IS ASSOCIATED WITH POORER SOCIAL AND EDUCATIONAL ACHIEVEMENTS. Stephen D. Marks,1 Sara Arber,2 Helen M. Lewis.1 1Department of Paediatric Nephrology, Great Ormond Street Hospital for Children NHS Trust, London, England, United Kingdom; 2Department of Sociology, University of Surrey, Guildford, Surrey, United Kingdom.
PURPOSE: Recent studies have suggested poor attainment of social relationships and educational achievements in adults who have end-stage renal failure (ESRF) in childhood. Our aim was to evaluate the outcomes of adults with end-stage renal failure within two groups (paediatric [under 16 years] versus adult presentation of ESRF).
METHOD: Initial questionnaire and further face-to-face interviews of adults with ESRF identified from paediatric and adult databases of nephrology programmes. Four of pre- and post-tx scores indicated significant differences between functional ability scores but no differences in the prevalence of depression (15% vs 13%). At both time points depression scores were significantly correlated (r=0.05) with ratings of functional ability. Whilst there were no differences between different diagnostic groups prior to tx, after tx children with previous congenital heart disease had poorer functional ability than those transplanted for cardiomyopathy.
CONCLUSION: After successful transplantation a significant minority of children have poor functional ability, particularly those transplanted for congenital heart disease. Whilst the prevalence of depression is not significantly different in those who are assessed for transplant compared with those who have been transplanted, the relationship between mood and functional ability requires further investigation to determine causality. Interventions can then be targeted to reduce psychological morbidity and optimise functional ability.

Abstract# 332
HAS ANYTHING CHANGED? COHORT COMPARISON OF PARENTAL MENTAL HEALTH AND BEHAVIOUR OF CARDIOTHORACIC RECIPIENTS FROM TWO DIFFERENT ERAS. Jo Wray,1 Tracy Lunnon-Wood.1 1Cardiothoracic Transplantation, Great Ormond Street Hospital for Children, London, United Kingdom.
PURPOSE: Significant progress has been made in the medical and surgical management of children and adolescents undergoing cardiothoracic transplantation over the last 15 years, particularly in aspects such as medication protocols. Children and adolescents undergoing transplantation are known to be at risk for adjustment difficulties but to date no comparison has been made of the psychological adjustment of patients who were followed in different eras.
METHOD: Two groups of patients who had undergone heart and/or lung transplantation were assessed with standardised measures of behaviour and parental functioning as part of their routine follow-up. The first group was followed up in 1992-1993 (n=48) and the second group was followed up in 2006-2007 (n=82).
RESULTS: The groups did not differ in terms of mean age or gender distribution but more patients in the earlier group had undergone heart-lung transplantation (34 vs 3). Eight patients in the second group had undergone bilateral lung transplantation compared with none in the first group. Mean time since transplant was significantly different (30 months vs 52 months, p<0.01). All patients in the earlier era were maintained on Cyclosporin whereas all patients in the later group were on Tacrolimus. The proportion of children in each group who scored above the cut-off for total behaviour problems was very similar (29% vs 26%). Although not significant, a higher proportion of mothers from the earlier group had scores indicative of psychological distress (42% vs 29%). There was no association between time since transplant and any of the outcome measures in either group.
CONCLUSION: Despite advances in the care of children and adolescents undergoing transplantation over the last 15 years and the increasing recognition of the psychological impact of the transplant and medical follow-up, there were few differences in the reported levels of problem behaviour or parental psychological distress in the recently transplanted group compared with the historical cohort.
Abstract# 333
WORLD TRANSPLANT GAMES: A BENEFICIAL REHABILITATION EXPERIENCE FOLLOWING HEART TRANSPLANTATION. Samantha J. Anthony,1 Robin D. Deliva,1 Alison Drabble,1 Anne I. Diphand,1,2 1Transplant Centre, Hospital for Sick Children, Toronto, Canada; 2Labatt Family Heart Centre, Hospital for Sick Children, Toronto, Canada.

PURPOSE: The World Transplant Games (WTG) is an international event with over 1500 competitors, all recipients of a life-supporting transplant (Tx). This sporting competition strives to raise awareness of organ donation and demonstrates the health and vitality that can be achieved following Tx. This study sought to investigate perceived health related quality of life (QOL), self-worth and functional status in pediatric heart Tx recipients following participation in the 2007 WTG.

METHOD: Subjects included all patients from the single centre Tx program who competed in the 2007 WTG in Bangkok, Thailand. Standardized instruments (including the Pediatric QOL Inventory 4.0, Self-Perception Profile for Children,Functional Status II) were administered pre- and post-WTG (self-report and parent proxy). To explore the recipient’s, and parent’s experiences of WTG participation, focus groups were conducted. This mixed method design triangulated these sources of data.

RESULTS: Twelve heart Tx recipients (8 male, 67%) participated (median age 13.3 y, range 8.6 – 18.3 y) at a median time post-Tx of 7.5 y (range 0.7 – 13.1 y). Participants reported enhanced QOL, self-worth and competence, in particular in domains of physical functioning, social acceptance, and athletic competence. Parental proxy reports paralleled these findings with a higher sense of overall wellbeing. Qualitative data analysis generated several themes: a) sense of patriotism, b) camaraderie among participants, c) a process of “normalization” meeting others who have triumphed over similar adversity, d) intense emotions witnessing children thriving after once facing life-threatening illness and e) a celebration of organ donation and the gift of life.

CONCLUSION: This data enhances the existing evidence of the physical and psychosocial benefits of sports and participation in organized athletic competitions in Tx recipients. To optimize overall physical health and QOL, involvement in physical activities and participation in sporting events should be encouraged as part of routine post-Tx care.

Abstract# 334
CORRELATES OF PHYSICIAN-IDENTIFIED NONADHERENCE IN PEDIATRIC HEART TRANSPLANT RECIPIENTS. Debra S. Leferowitz,1 Ronnie M. Rubin,1 Beth D. Kaufman,1,2 1Division of Cardiology, The Children’s Hospital of Philadelphia, Philadelphia, PA, USA; 2University of Pennsylvania School of Medicine, Philadelphia, PA, USA.

PURPOSE: To examine medical and psychosocial variables associated with physician-identified nonadherence in a pediatric heart transplant population.

METHOD: Retrospective chart review was conducted on all patients who underwent heart transplantation during a 5-year period and survived at least 3 months post-transplant (n=35). Patients identified as nonadherent in the medical chart were compared on a number of sociodemographic (age, ethnicity, insurance status), medical (disease type, biopsy-identified rejection, # hospitalizations per year) and psychosocial (missed appointments, physician identification of family psychosocial concerns, parent/physician identification of patient psychosocial concerns) variables with patients who were not identified as nonadherent.

RESULTS: Physician-identified nonadherence was significantly associated with minority ethnicity (p<.05), public insurance status (p<.01), physician-reported family psychosocial concerns (p<.001), parent- and physician-reported child psychological concerns (p<.01), number of hospitalizations per year (p<.05), missed clinic appointments (p<.01), and biopsy-identified rejection (p<.01). Age and pre-transplant disease type were not associated with physician-identified nonadherence.

CONCLUSION: A number of medical and sociodemographic factors were found to be associated with physician-identified nonadherence in pediatric heart transplant recipients. Further research is needed to better understand the mechanisms underlying the relationships between these indicators and physician identification of nonadherence.

Abstract# 335
DOES “AUTISM + TRANSPLANT” = BEST INTERESTS OF THE CHILD? Ruta Niedra, Christine Harrison, Arlette Lefebvre. Social Work, Hospital for Sick Children, Toronto, ON, Canada; Bioethics, Hospital for Sick Children, Toronto, ON, Canada; Psychiatry, Hospital for Sick Children, Toronto, ON, Canada.

PURPOSE: Heart transplantation is often a successful treatment for children with end-stage cardiac malformations, although it is not curative and limited research has examined psychosocial outcomes for pediatric heart recipients. When considering our patient, also diagnosed with autism, for a transplant, we could find no literature to help in decision making, when a 4-year-old boy with autism was referred for a heart transplant.

METHOD: In reviewing bioethics and other literature, we came to the conclusion that the diagnosis of autism is not in itself justification to decide not to transplant. Assessment of risks and benefits for such a child is complex and raises ethical issues. Responsible decision making requires us to make the best possible predictions about what will be in the ‘best interests of the child’. When an autistic child experiences tactile defensiveness (extreme sensitivity to touch, fearfulness, and being easily overwhelmed) it may seem unjustifiable to subject this child to long hospital stays, separation from a familiar environment, and many invasive procedures.

This child’s parents were strong advocates for him to receive a transplant and also were able to be constantly present with him during his long hospitalization. We believe this was an important mitigating factor.

RESULTS: To err on the side of life” provides us with a safety net. Here it served our patient well. Counter-intuitively, and much to the team’s surprise, this child not only tolerated 108 days on the Berlin Heart in a Critical Care environment, but his affect, speech and eye contact improved dramatically. This progress has been maintained to date, one year after transplant.

CONCLUSION: Autism is not an absolute contra-indication to heart transplantation. Experience with this patient has led to the development of a nursing protocol to help support autism spectrum patients through the transplant experience.

Abstract# 336
A FINANCIAL ANALYSIS OF ACUTE REJECTION AMONG PEDIATRIC LIVER TRANSPLANT RECIPIENTS. Jennifer L. Paruch,1 Emily M. Fredericks,2 Michael J. Englesle,3 M. James Lopez,2 Mitesh Patel,1 Joshua A. Cohn,1 Yasser M. Ads,1 John C. Magee,3 Medical School, University of Michigan, Ann Arbor, MI, USA; 2Department of Pediatrics, University of Michigan, Ann Arbor, MI, USA; 3Department of Surgery, Transplant Division, University of Michigan, Ann Arbor, MI, USA.

PURPOSE: Rejection episodes in the pediatric liver transplant population have substantial medical, psychological and financial costs to the patient and the healthcare system. We analyzed financial data for acute rejection episodes in pediatric liver transplant patients to determine the cost of acute rejection.

METHOD: Clinical and financial data were collected on pediatric liver transplant recipients transplanted at our center between January 1990 and January 2006. Financial data were calculated by adding costs and margins for all inpatient and outpatient procedures occurring between discharge from the transplant operation and one year after transplant. Patients in the rejection group were receiving their first transplant, had biopsy confirmed acute rejection, had a graft that survived at least one year, and only had one rejection episode during the first year.

RESULTS: The total first year post-transplant cost for patients with acute rejection episodes (n=13) was $46,247, compared to a total cost of $41,788 in patients with no rejection during the first year (n=49). Hospital margins were $2,972 for the group with rejection compared to $5,891 for the group without rejection. Margins in patients with public versus private insurance were $485 versus $5,874 respectively for the rejection group, and $2,156 versus $4,990 for the group with no rejection. Finally, 27% of patients with public insurance had rejection episodes during the first year, compared to 17% of patients with private insurance.

CONCLUSION: Children with acute rejection episodes during the first year after liver transplant have higher costs than those without rejection. In addition, patients covered by public insurance may be more likely to have rejection episodes during the first year. It is in the financial interest of providers to prevent rejection episodes in the pediatric liver transplant population.

Abstract# 337
POORER ADHERENCE TO MEDICATIONS AND LIFESTYLE ADVICE IN ADULTS WITH PAEDIATIC PRESENTATION OF END-STAGE RENAL FAILURE. Stephen D. Marks,1 Sara Arab,2 Helen M. Lewis.3 1Department of Paediatric Nephrology, Great Ormond Street Hospital for Children NHS Trust, London, England, United Kingdom; 2Department of Sociology, University of Surrey, Guildford, Surrey, United Kingdom.

PURPOSE: Adherence to medications is important to improve renal allograft survival, but is difficult among the adolescent age group. Our aim was to evaluate adherence in young adults with end-stage renal failure.

METHOD: Initial questionnaire and further face-to-face interviews of adults with ESRF identified from paediatric and adult databases of nephrology programmes.

RESULTS: 296 adults (52% male, 73% currently with functioning renal allograft) of mean current and ESRF onset ages of 25 and 17 years respectively, were questioned on the importance of control over health versus complying with advice over different aspects of health. There was a significant perception that diet (including frequency of eating 5 fruits and vegetables) and exercise (p = 0.01 and 0.02) was a matter for following health professional advice. 66% of respondents reported that personal control of their own health was important, and this extended to their alcohol consumption and smoking habits. 86% and 43% of respondents thought it was very important to take medications and check their own blood tests results respectively, while 65% thought it very important to follow health or treatment advice. Only 10% missed taking medication weekly or more often. Higher frequency of missing medication was related to dialysis (as opposed to transplant) patients (p = 0.05), and assigning lower importance to taking medication (p = 0.001) as well as feeling lonely, depressed and pain (p < 0.001, 0.003
and 0.04 respectively). However, age < 23 years was associated with attaching lesser importance to complying with advice about treatment and health (p = 0.02), especially if age of onset of ESRF was < 16 years (p = 0.01).

CONCLUSION: Adherence to medications, fluids, diet, lifestyle, clinic appointments and investigations is of importance to renal transplant recipients, who wish to have personal control over their own life and health. The importance of clinicians providing health care advice has been emphasised in this questionnaire.

Abstract# 338
PERCEIVED BENEFITS OF PARTICIPATION IN THE BRITISH TRANSPLANT GAMES. Jo Wray,1 Carol Olley.2 Cardiothoracic Transplantation, Great Ormond Street Hospital for Children, London, United Kingdom; 2 Transplant Sport UK, Winchester, United Kingdom.

PURPOSE: All children who have undergone any type of transplant are eligible to participate in the British Transplant Games, which are held annually for paediatric and adult transplant recipients and offer both a competitive sporting element and a social element. To date, the potential benefits of participation have not been evaluated for liver and kidney recipients.

METHOD: Fifty-three patients (32 (60%) boys; mean age: 12 years; time since transplant: 8–177 months; type of transplant: kidney: 26, liver: 21; heart: 4; stem cell: 2) participated in the Games and were asked to complete a specifically designed questionnaire both before and after the Games. The 14 questions covered areas such as mood state, perceived physical health and physical ability, fatigue, anxiety and confidence. Questions were all on 5 point rating scales, with some being reverse scored, and a total score was calculated.

RESULTS: Over time there were improvements on 12 of the 14 constructs and the changes were significant (p<0.05) on ratings of mood and physical ability, and total score. Prior to the games younger children had a more positive self perception than older children, but there were no differences in terms of gender. There were no significant differences between the different organ groups or any association between time since transplant and any of the scores. All patients reported enjoying the Games and wanted to return the following year and feedback from families also indicated the benefits experienced by parents and siblings.

CONCLUSION: Interventions such as the Transplant Games have a positive impact on psychological functioning for children and adolescents. However, a relatively small percentage of transplant recipients attend and the focus should now be on increasing the numbers of children who are included and making the Games more accessible to all.

Abstract# 339
HEALTH-CARE PROVIDERS’ REPRESENTATIONS OF THEIR EDUCATIONAL ROLE REGARDING ADHERENCE IN ADOLESCENT TRANSPLANT RECIPIENTS. Isabelle Aujoulat,1,2 Magda Janssen,2 Alain Deccache,1 Isabelle Aujoulat,1 Alain Deccache,1 Raymond Reding.1 Health & Patient Education Unit RSEO, Université Catholique de Louvain, School of Public Health, Brussels, Belgium; 2 Pediatric Surgery & Transplant Unit, Université Catholique de Louvain, St-Luc University Clinics, Brussels, Belgium.

PURPOSE: Our program has performed over 800 paediatric liver transplantations since 1984. Half the children are currently adolescents. Adherence in this population is the result of a complex process, in which medical and developmental issues are interrelated. We hypothesized that healthcare providers’ attitudes towards their educational role might be influenced by their personal understanding of the factors which influence non-adherent behaviours.

METHOD: We used a qualitative approach in a preliminary investigation, and conducted observer participation, individual in-depth interviews, and focus groups among 22 members of medical and paramedical staff.

RESULTS: Patient education in the context of paediatric liver transplantation was described as a very complex issue, which raises questions about the healthcare providers’ role, responsibility, and sense of competence. The healthcare providers’ attitudes towards their own educational role varied according to their professional identity and to the meaning they attached to non-adherent behaviours. Up to what point non-adherence should be predicted, detected or prevented was dependant on individual understandings of non-adherence as either a normal or a deviant phenomenon. Our results suggest that non-adherence could be seen as a normal risk taking behaviour, related to the developmental need for individuation which characterizes adolescence. This need should be better anticipated and accompanied in practice.

CONCLUSION: Taking care of adolescent transplant recipients challenges the values and representations of healthcare providers’ in many ways. We strongly recommend that these representations be explored and shared, as a first step towards experimenting patient education interventions that seek to take into account adolescents’ developmental needs, as well as their medical needs.

Abstract# 340
MULTIDISCIPLINARY TRANSITION CLINIC FOR ADOLESCENT KIDNEY TRANSPLANT RECIPIENTS: 1 YEAR RESULTS ON MEDICATION ADHERENCE. Rochelle Schmidt,1 Sandra Amaral.1,2 Transplant Services, Children’s Healthcare of Atlanta, Atlanta, GA, USA; 2 Pediatric Nephrology, Emory University, Atlanta, GA, USA.

PURPOSE: Five year (yr) graft survival rates for adolescents with kidney transplants are worse for any other age group except for those over the age of 65. Poor outcomes are often due to nonadherence. In June of 2007 our institution initiated a multidisciplinary kidney transplant adolescent clinic to improve adherence rates and ultimately improve health outcomes.

METHOD: Patients (pts) 14-20 yrs of age that are > 1 yr post transplant are automatically enrolled in the clinic. Pts are seen by a physician, pharmacist, transplant coordinator, psychologist, and social worker quarterly. A child life therapist and nutritionist see the pts twice yearly. Pharmacist interviews focus on medication management and self-reported adherence. Other topics discussed include sexual health, risk behaviors, and social support. Encounters form each provider are recorded within the context of an existing electronic medical record.

RESULTS: In the first year of the clinic, 66 pts were seen at least once. Forty-eight pts had 2 visits, 33 pts had 3 visits, and 25 pts had 4 visits. Mean age at transplant was 12.7 ± 4.3 yrs. Mean age at first visit was 17.6 ± 1.5 yrs. Pts were on an average of 6 ± 3 medications. Eighty-nine percent of pts were able to verbalize the repercussions of medication nonadherence yet 64% reported taking medications late or missing doses in the week preceding their first visit. At the second visit, only 41% of pts reported taking medications late or missing medications. The most often self-reported reason for medication nonadherence was due to interference with social activities.

CONCLUSION: Despite the ability to verbalize the consequences of nonadherence, almost two-thirds of patients reported medication nonadherence. Upon subsequent visits, there continued to be an improvement in self-reported medication adherence rates. Longitudinal analysis will further clarify the impact of medication adherence and overall health outcomes.

Abstract# 341
A COST-BENEFIT ANALYSIS OF INTERVENTIONS TO MINIMIZE NON-ADHERENCE AND PREVENT REJECTION IN PEDIATRIC LIVER TRANSPLANT RECIPIENTS. Jennifer L. Paruch,1 Mitesh S. Patel,1 Emily M. Fredericks,2 M. James Lopez,2 Michael J. Englesbe,1 John C. Magee.1 Department of Surgery, Transplant Division, University of Michigan, Ann Arbor, MI, USA; 2 Department of Pediatrics, University of Michigan, Ann Arbor, MI, USA.

PURPOSE: Non-adherence is a significant problem in pediatric liver transplantation. While rejection episodes can be treated, they come at significant cost to the patient and health care system. We compared the costs of acute rejection with an intervention designed to promote adherence to determine whether preventing these rejection episodes would be cost effective.

METHOD: Clinical and financial data were collected on pediatric liver transplant recipients transplanted at our center between January 1998 and January 2006. Rejection costs were calculated in patients receiving their first transplant who had a biopsy confirmed acute rejection episode in the first year following transplant discharge. Financial data was gathered using a cost-based accounting system and all costs were adjusted to 2006 dollars. The cost of the intervention was calculated based on the need for a 10% effort of a pediatric psychologist.

RESULTS: During the first year post transplant, an episode of acute rejection occurred in 27% of patients. Based on an annual volume of 12.5 transplants, there would be 3.4 rejections per year. Assuming half of the rejections may be amendable to behavior based interventions, and calculating a 77% efficacy rate of such an intervention, 1.7 rejections per year could be prevented. The total cost of inpatient treatment for one acute rejection episode was $12,989. Taking these findings into consideration, the calculated annual cost of rejection that could be prevented with our intervention strategy was $14,937. In comparison, the annual cost of the proposed intervention was $10,426.

CONCLUSION: We determined that a behavior based intervention program to prevent non-adherence and rejection among pediatric liver transplant patients can be financially beneficial for the health care system, and may also result in better clinical outcomes in this population.

Abstract# 342
RE-TRANSPLANTATION AND TRANSITION – MEETING THE CHALLENGES SIMULTANEOUSLY. Jo Wray,1 Lorraine Priestley-Barnham,1 Tracy Lunnon-Wood,1 Helen Spencer.1 Cardiothoracic Transplantation, Great Ormond Street Hospital for Children, London, United Kingdom.

PURPOSE: Lung transplantation is now the treatment of choice for children with end stage lung disease and worldwide more than 1000 lung transplants have been carried out. Patients under 17 years of age account for over 25% of all lung transplants. As survival continues to improve, increasing numbers of young people will transition to adult services, with the inherent challenges associated with that. However, despite significant improvements in surgical and
medical management of recipients, more patients are requiring consideration for re-transplantation. Whilst re-transplantation may be a useful procedure for selected patients, donor organ shortage and poor post-operative survival preclude it as an option for all patients. The purpose of this study was to review the lung transplant experience to date at our Institution, addressing the particular challenges of transition and re-transplantation.

**METHOD:** Patient data-bases were reviewed to determine the predicted number of patients who will transition to adult services within 5 years and to examine the likelihood of any of these patients requiring consideration for re-transplantation during the transition period.

**RESULTS:** Since 1988, 126 heart-lung, single lung or bilateral lung transplants have been carried out at our Institution in patients aged 3-16 years. Within the current era (2002-2007) 50% median survival is 7 years. At the present time we have 28 patients under follow-up, 20 of whom are predicted to transition within the next 5 years. It is estimated that at least one patient per year will require transition during a period of instability where re-transplantation or palliation will be necessary.

**CONCLUSION:** Meeting the simultaneous challenges of transition and consideration for re-transplantation throws up a number of ethical dilemmas around issues such as implantation of the graft (GBWR: 1,2%) and postoperative course. One year post-transplant, work after repair of a limited scar dehiscence. The recipient was a non-resident, 12 yr post-transplant. Anxiety of a small-size recipient, without financial compensation and full respect of anonymity.

**Abstract # 343**

**CHALLENGES IN ESTABLISHING A PEDIATRIC CARDIOTHORACIC TRANSPLANT CLINICAL PSYCHOLOGY SERVICE.** Amy McNaughton, Julie Flett, Asif Hasan, Richard Kirk.

**1 Pediatric Cardi thoracic Transplant Unit, Freeman Hospital, Newcastle Upon Tyne, United Kingdom.**

**PURPOSE:** To review the challenges encountered when setting up a clinical psychology service within an established pediatric cardiothoracic transplant unit.

**METHOD:** In August 2006 an appointment was made to provide psychological support for children and families post cardiothoracic transplantation. Contemporary notes made of practical difficulties and successes have been used as the basis of this report.

**RESULTS:** The first hurdle was to persuade the National funding body to give financial support. Eventually, 1.5 days of clinical psychology support was funded for the pediatric cardiothoracic transplant unit undertaking 15 transplants per annum with 70 families under active follow up.

As time was limited, input was initially targeted at patients post transplantation. Pre transplantation assessments and work with bridge to transplant patients were identified as a need, and in May 2007 a further 1 day a week was funded to address this need. Non clinical projects also became possible - co-ordination of a transition package for patients moving to adult services and an audit with staff and patients requiring bridge transplantation.

There have been many practical challenges in developing the service: a vast geographical area, difficulty in referring health related issues to local mental health services and finding space to see patients in busy medical clinics.

There have also been personal and professional challenges: introducing the role of a clinical psychologist to staff and patients where there was no previous contact, a steep learning curve to understand medical aspects of re-transplantation, concepts with the high level of distress of families, maintaining personal and professional boundaries in order to stay well physically and emotionally in such an environment, and a period of adjustment to working in an acute health setting.

**CONCLUSION:** Whilst the initial funding was recognised to be inadequate it allowed a service to begin and sound clinical arguments to be made for its expansion which were then forthcoming. Clinical psychology is now an accepted and valued element of a service to begin and sound clinical arguments to be made for its expansion which was not the case several years ago.
CONCLUSION: This work summarizes the process undertaken to develop this protocol and highlights a recent case to demonstrate how it will facilitate the process of transplant for challenging patients and the health care team. This work addresses an issue that is both poorly understood and researched.

Abstract# 347

BEYOND CONSENT: THE PSYCHO/SOCIAL TRAUMA OF PEDIATRIC DONOR AND RECIPIENT FAMILIES. Edward L. Eckenrod. Family Care, Tennessee Donor Services, Knoxville, TN, USA.

PURPOSE: To understand the psycho/social trauma the pediatric donor and recipient families experience. To help transplant teams realize the impact that organ donation and transplantation has on families. To explore secondary issues that affect families-grief, loss and trauma recovery. Also, to give intervention strategies to family care professionals to help integrate the donation and transplant experience into the donor’s recipient’s family life.

METHOD: The method is related to case experiences. To review actual cases and the methodology employed in the presented cases. The ability for family care professionals to provide a plan of care for donor/recipient families. The importance to address these issues for pediatric families to have a meaningful and positive experience of donation and transplantation.

CONCLUSION: The conclusion is to provide a seamless continuum of care for pediatric donor and recipient families. The importance to address these issues for pediatric families to have a meaningful and positive experience of donation and transplantation. Also to help look beyond the clinical practice and procedures to the holistic care of the donor/recipient family.

Abstract# LB 18

THE PeLTQL: A NOVEL DISEASE-SPECIFIC HEALTH-RELATED QUALITY OF LIFE QUESTIONNAIRE FOR PEDIATRIC LIVER TRANSPLANTATION PATIENTS. A. Otley,1 V. Ng,1 A. Dhawan,1 R. Taylor,1 D. Nicholas,1 M. Stormon,1 L. Es,1 R. Schreiber,1 N. Yazigi,1 S. Gilmour.1

PURPOSE: This item reduction (IR) study aimed to determine the items of key importance to be included in a disease-specific quality of life (QOL) tool for pediatric liver transplantation (LT).

METHOD: A 76-item IR tool was given to patients >1 yr post-LT and their parents. This study involved 8 sites in Canada, US, Australia and UK. Parents were asked to respond from the perspective of their child. For each item subjects rated how often it was of concern and how important it was on a 5 point Likert scale. An ‘impact’ score was derived from the sum of the concern and importance ratings for each item. Data was organized by impact ranking of items across age groups, study centre, and reason for LT.

RESULTS: 209 LT patients were represented by a combination of individual patients, individual parents, and patient/parent dyads. Patients were divided into 2 age strata:[54]8-12 and [44]13-17 yrs inclusive, with 4 parent groups (parents of [39]1-4yrs/8-12 yrs and [51]13-17 yrs old). The LT patients represented were a median 5.9 yrs post-LT, with 96 (46%) female. Reasons for transplant included: 163 (78%) non-traumatic. The C-Med, 23 (14%) fulminant and 16 (8%) malignant. The top three ranked items for 8-12 and 13-17 yr olds were: worrying when you miss taking your medicine; worrying about rejection of your liver; and feeling that your parents are too overprotective.

CONCLUSION: Though Pred-MMF may be preferred for some kidney transplant recipients due to its low toxicity profile, it seems to fail as maintenance immunosuppressive therapy for others.

Abstract# 349

LIMITED SAMPLING STRATEGIES FOR SIROLIMUS AFTER PEDIATRIC RENAL TRANSPLANTATION. Guido Filler,1 Nauzer Forbes,1 Abeer Yasin,1 Ajay P. Sharma,1 Asher Schacter.1 Pediatrics, University of Western Ontario, London, ON, Canada; 2Department of Medicine, Children’s Hospital Boston, Harvard Medical School, Boston, MA, USA.

PURPOSE: Sirolimus (SRL) has been increasingly used in renal transplantation, but limited sampling approaches for estimation of area under the concentration-time curve (AUC) remain elusive.

METHOD: A post-hoc analysis of 94 PK profiles in 75 patients from 4 previous studies was performed to generate limited sampling approaches for approximation of AUC based on two to four time points for both twice daily (BID) and once daily (OD) SRL dosing. AUC was calculated using the trapezoidal rule. Stepwise linear regression was performed to generate an abbreviated AUC from the limited sampling approaches.

RESULTS: For BID dosing, complete AUC had a strong correlation with the trough levels (r²=0.832, p < 0.0001) and with C2 level (r²=0.9025, p < 0.0001). A three-point and a four-point limited sampling approach showed improved agreement with complete AUC compared to single-point sampling. A convenient and accurate (r²=0.992) four-point limited sampling approach reads:

\[
\text{AUC} = 10^y (1.085 + 0.117 \times \log C0 + 0.164 \times \log C1 + 0.131 \times \log C2 + 0.823 \times \log C4).
\]

Similarly, complete AUC had a statistically significant correlation with the trough levels (r²=0.549, p < 0.0001) and with C2 level (r²=0.716, p < 0.0001) for OD dosing. The estimation of AUC for OD dosing was improved over single-point sampling (r²=0.951) using the formula:

\[
\text{AUC} = 10^y (1.100 + 0.115 \times \log C0 + 0.803 \times \log C4).
\]

CONCLUSION: This study represented the first limited sampling approach for SRL. Further studies are required to determine the optimal SRL target AUC.

Abstract# 350

MONITORING OF TACROLIMUS IN INFANTS AND ITS RELATION WITH INTESTINAL TRANSIT TIME. Maria C. Sanchez,1 Daniel DAcostino,2 Gustavo Boldrini,1 Hernan Invenenato,4 Miguel A. Ciardullo.2 Pediatrics Gastroenterology, Hepatology and Liver Transplant Center, Hospital Italiano de Buenos Aires, Ciudad Autonoma de Buenos Aires, Buenos Aires, Argentina.

PURPOSE: Evaluate Tacrolimus (Tac) absorption and perform the pharmacokinetics study in children under 3 years of age. Correlate Tac serum concentrations with intestinal transit.

METHOD: Open prospective study in 14 patients with a median age of 2.3 years (r 1-3) after at least 6 months of liver transplantation and being clinically stable. Before Tac intake, a 1 ml basal sample (Co) was obtained, and after a Tac intake of 0.15 mg/kg, 7 samples were obtained at different times: 30min, 60min, 90min), 120 min, 240min, 360min and 540min. Concomitantly they were orally administered Rojo Alhura El 29 to define intestinal transit time. An intestinal time lower than 24 hours was defined as normal and longer than 24 hours slow.

RESULTS: Co mean value of 7.1 mg/ml +/- 2.6 mg/ml and C(t) trough mean value of 7mg/ml +/- 2.6 mg/ml, with no statistical difference between these concentrations.
Conversion from Cyclosporin A to Tacrolimus After Heart and Heart Lung Transplantation in Children

Alexandra T. Fuchs, Julia Diterich, Simon Urschel, Rainer Kozlik-Feldmann, Heinrich Netz, Department of Pediatric Cardiology, University Hospital Großhadern, Munich, Germany.

Purpose: In a prospective study we investigated the effects of conversion from Cyclosporine A (CsA) to tacrolimus (TAC) in pediatric recipients of cardiac allografts. Side effects of CsA led to a switch in the immunosuppressive regimen.

Method: 22 heart (ht) and 3 heart lung (hlt) transplanted patients (pts) with stable graft function were assigned to the conversion to TAC. Indications for the switch to TAC were severe hypertrichosis in 7 pts, gingival hyperplasia in 5 pts, renal insufficiency in 5 pts, hyperpigmentation in 3 pts, and atopic eczema in 2 pts. Demographic data: n=25, 15 boys and 9 girls, weight 47.5±20.9 kg, age 10±7.5 years (yrs), follow-up time 23±4.5 months. Diagnosis leading to transplantation were idiopathic pulmonary hypertension: n=1, congenital heart disease: n=12.

Results: Renal insufficiency was evaluated in serum creatinine and creatinine clearance, atopic eczema was assessed by calculating the Scorad score, hypertrichosis by calculating the Ferriman-Galway-Index. TAC was introduced directly after CsA interaction. Tacrolimus pharmacokinetics profile in children under 3 years of age showed a good bioavailability. These results suggest a good AUC correlation and predictability with all points. Intestinal transit time does not affect Tac concentrations. New studies in patients with rapid intestinal time (diarrhea) should be performed.

Conclusion: Conversion from CsA to TAC in pediatric heart transplanted pts is effective. CsA related side effects improved within a few months, resulting in a better quality of life and in an improved cardiovascular risk profile.

Abstract #352

Cyclosporin A1B Gene Polymorphism and the Verapamil/Cyclosporin Interaction in Pediatric Renal Allograft Recipients

María Medeiros,1 María del Pilar García-Roca,1 Herlinda Reyes,2 Saúl Valverde,3 Ana Maria Hernandez,1 Lourdes Ortiz,1 Octavio Reyes-Hernandez,1 Guillermo Elizondo,1 Gilberto Castañeda-Hernandez,2 Nefrologia, Hospital Infantil de Mexico Federico Gomez, Mexico City; DF, Mexico; 2Section Externa de Farmacologia, CINVESTAV, IPN, Mexico City, DF, Mexico.

Purpose: Verapamil (VP) is known to alter cyclosporine (CsA) bioavailability. However, not all patients respond to this interaction. Hence, we conducted a prospective open study to examine the impact of CYP3A4*1B genotype on the VP-CsA interaction.

Method: Children with stable renal allograft function for a minimum of 6 months receiving CsA with or without VP were included. In the first study visit, a two-point (2h and 12h) CsA pharmacokinetic profile was obtained, along with DNA sample for CYP3A4*1B genotyping by real-time PCR. Serum creatinine and IL-2, TGF-beta1, and TGF-beta2 protein levels (ELISA) were also determined. After the initial visit, patients were either withdrawn of VP if the patient was ALREADY receiving VP) or started on VP 2mg/kg/day (if the subject was NOT receiving VP). Two weeks after the discontinuation or the introduction of VP, evaluations were carried out as for the first visit.

Results: Twenty-two patients were included, mean post-transplant time was 4.8 years, mean CsA dose being 3.4mg/Kg/day. Five patients had the CYP3A4*1B allele, and showed no changes in CsA bioavailability, creatinine or IL-2 and TGF-beta serum levels during the study, whereas 17 patients with CYP3A4*1A allele showed statistically significant increase in CsA bioavailability, and reduction in serum creatinine while receiving VP. No significant difference was observed in IL-2 and TGF-beta protein levels.

Conclusion: The prevalence of CYP3A4*1B allele in Mexican children with renal transplant was 22.7%, higher than the previously found in Tepanucho and Mestizo population (8%). Patients with CYP3A4*1A genotype may be benefit of the VP-CsA interaction.

Abstract #353

Liver Transplant Following BMT from Same Donor – Long Term Survival Without Immunosuppression

Esther Granot,1 Eitan Jakobovich,1 Mehemet Aker,2 Raymond Reding,4 Etienne Sokal,1 Kaplan Medical Center, Rehovot, Israel; 1Hadassah Medical Center, Jerusalem, Israel; 2Hebrew University-Hadassah Medical School, Jerusalem, Israel; 3Univ. Catholique de Louvain & Cliniques St Luc, Brussels, Belgium.

Purpose: Bone marrow transplantation may induce specific tolerance to donor organs. Patients undergoing renal transplant for renal failure developing after BMT require little or no maintenance immunosuppression, when kidney and BM are from the same donor. There is scant data regarding living related liver transplant following BMT from same donor.

Method: Report of living related liver transplant performed without immunosuppression, 7.5 years after BMT from same donor.

Results: A 14.5y old boy underwent, at age 2.5y, allogeneic BMT from his father because of juvenile CML. Following BMT he suffered from severe GVHD and progressive deterioration of liver function. 7.5y later he underwent a liver tx. from his father (segment II)

Conclusion: Prior BMT can result in tolerance of a subsequent liver transplant from the same donor.Caution is urged when interpreting early post tx. histological biopsy changes as these may simulate rejection and lead to administration of unnecessary, potentially harmful, immunosuppressive therapy.
Abstract# 355
C2 MONITORING AND LONG TERM OUTCOMES IN PEDIATRIC LIVER TRANSPLANT RECIPIENTS. ONE SINGLE CENTER EXPERIENCE. Luis Rojas, Carlos G. Cambaceres, Maria Fernandez, Nieves Licciardone, Oscar Ferreyra, Azucena Diaz, Alicia Moroni, Alexia D. Moreno, Oscar Inventzarr. Liver Transplantation, Hospital Prof JP Garrahan, Buenos Aires, Argentina; Liver Transplantation, Hospital Prof JP Garrahan, Buenos Aires, Argentina; Liver Transplantation, Hospital Prof JP Garrahan, Buenos Aires, Argentina; Laboratory, Hospital Prof JP Garrahan, Buenos Aires, Argentina; Laboratory, Hospital Prof JP Garrahan, Buenos Aires, Argentina; Laboratory, Hospital Prof JP Garrahan, Buenos Aires, Argentina; Pediatric Nephrology, Hospital Prof JP Garrahan, Buenos Aires, Argentina; Liver Transplantation, Hospital Prof JP Garrahan, Buenos Aires, Argentina.

PURPOSE: C2 monitoring program in pediatric liver transplant recipients with more than 1 year after OLT began in 2005. Inform clinical results after 2 years of follow up.

METHOD: A total of 128 patients were included, 50.8% male, 64.8% cadaveric donors, 43.8% transplant were due to acute liver failure and 37.5% biliary atresia. Mean age at time of transplantation for males was 5.4 SD 4.5 and females 3.4 SD 3.3 years old. Mean age at the beginning of C2 monitoring was 8.9 SD 4.8 years and the time elapsed since transplantation 53.6 8 SD 36.4 months. Initial Csa dose was 5.54 SD 4.98 and by month 24: 4.51 SD 1.52 mg/kg/day. Glomerular Filtration Rate (GFR) was studied by Schwartz formulae.

RESULTS: Baseline C2 mean blood levels were: 123.2 SD 53.8 and at 24 months: 111.4 SD 65.3 mg/ml. Baseline C2 was 550.7 SD 327.7 and 24 months was: 566 SD 193.6 mg/ml. Baseline serum creatinine was 0.73 SD 0.49 and at month 24: 0.69 SD 0.20 mg/dl. GFR was 111.99 SD 228.27 and at 24 m 122.56 SD 24.47 ml/min/1.73m2 (p < 0.05) Acute rejection in 8 patients, chronic rejection in 4. PTLD 3 patients and 2 died.

CONCLUSION: C2 monitoring allowed long term cyclosporine dose reduction. A significant improvement in renal function was observed. Acute/chronic rejection was low which proved the monitoring to be an effective way to control therapy even with the administration of lower doses. Low incidence of PTLD and patient survival showed an adequate safety profile.

Abstract# 356
OUTCOME OF PEDIATRIC KIDNEY TRANSPLANT UNDER 2 IMMUNOSUPPRESSANT REGIMENS. A DECADE OF EXPERIENCE. Rafik A. Elshabrout,1 Rana S. Abdelhalim,2 Robert Weiss,2 Khalid M. Butt,1 Wael Eldkady.1 Transplantation/Vascular Surgery, New York Medical College, Valhalla, NY, USA; 2Pediatrie, New York Medical College, Valhalla, NY, USA.

PURPOSE: To assess the long term graft and patient survival in pediatric kidney transplant under tacrolimus immunosuppression regimen combined with sirolimus vs. mycophenolate mofetil.

METHOD: We reviewed electronic and physical charts of (90) pediatric patients who received their kidney allograft between January 1996 till June 2007. We evaluated donor and recipient characteristics and demographics, early and delayed graft function, induction therapy and maintenance immunosuppression, post transplant surgical complications, malignancy, graft and patient survival.

RESULTS: The mean age of patients was 11 years (range 1-18). Congenital anomalies were the commonest indication for kidney transplant (19, 21%). The majority were primary transplants (75, 83%), and recipients of living donor transplants (73, 81%). Antibody induction was used in (31; 34%) patients, 30 patients (33%) were maintained on MMF, vs 60 patients (67%) on sirolimus. Delayed graft function occurred in DGF in 5 patients (5.5%) and was significantly associated with the cold ischemic time (p<0.001) and was not correlated with graft survival or patient survival. One, three and ten year graft survival was 95%, 81%, 72%, while patient survival was 97.7, 94, 94% over the same period of time. The incidence of acute rejection was (11; 12.2%) and it was experienced more in the group with no induction and those maintained on mycophenolate mofetil (P<0.03). Surgical complications were mainly venous thrombosis; 8/90 and was significantly associated with graft loss (P<0.03) and lymphocoele 3; 3.3%. PTLD occurred in (5; 3.3%) patients and was associated with acute rejection (P<0.003) and immunosuppression level at one year (P<0.0001).

CONCLUSION: Pediatric patients experience low incidence of surgical complications and significant graft improvement in long term graft outcome under sirolimus-tacrolimus regimen with low incidence of malignancy including PTLD.
Abstract# 359
PEDIA TRIC VIVER GRAFTS SALVAGED WITH AGGRESSIVE TREATMENT OF LATE ACUTE REJECTION. Nanda Kerkar,1 Sukru Emre,2 Tamir Miloh,1 Ronen Arnon,1 Frederick Suci,1 Sturdevant Mark,3 Rodriguez-Laz Gonzalez,1 Juan Del Rio Martin,1 Kishore Iyer.1 RMTI, Dept of Surgery & Dept of Pediatrics, Mount Sinai school of Medicine, New York, NY, USA; 2Surgery, Yale School of Medicine, New Haven, CT, USA.
PURPOSE: We report a preliminary single center experience of aggressive treatment of late rejection accompanied by cholestasis without loss of grafts.
METHOD: Retrospective chart review after IRB approval.
RESULTS: Between 2003-2007, 10 pediatric recipients presented with liver graft dysfunction and jaundice (direct bilirubin >4 mg/dl). Median age at Tx: 13.4 years, 7 male. Indications for Tx: fulminant liver failure (4), autoimmune hepatitis (4) and biliary atresia (2). Initial immunosuppression: tacrolimus based (8) and cyclosporine (2). Nine were non-adherent. Median interval between Tx and graft dysfunction: 4.1 years (range 1.1-10.5). Median total/direct bilirubin: 11.57/5.7 mg/dl. Liver biopsy at presentation was consistent with moderate to severe acute rejection. Nine recipients received thymoglobulin, 1 OKT3 alone and 1 OKT3 after failing thymoglobulin. Thymoglobulin/OKT3 was first line therapy in 5 and started for persistent cholestasis despite high dose steroid treatment in 4. All were discharged on augmented Tacrolimus based immunosuppression with addition of a third agent (Mycophenolate mofetil/ Azathioprine/Sirolimus). Eight achieved completely normal liver function at a median time of 16 weeks (range 10-52 weeks), 2 non-adherent recipients have direct bilirubin of 0.4 and 1.2 mg/dl respectively. No patient developed post Tx lymphoproliferative disease. All recipients have survived without need for re-Tx at a median follow-up of 1.5 years (range 0.1-5).
CONCLUSION: Our limited experience suggests that presence of significant cholestasis in this setting, biochemically and histologically may be a surrogate for higher risk of graft loss and thus warrant earlier institution of aggressive antibody therapy. Recognized risks of such significant amplification of immunosuppression, may be justified by improved graft survival and prevention of reTx.

Abstract# 360
THE USE OF MTOR INHIBITORS IN PEDIATRIC LIVER TRANSPLANTATION. ANALYSIS OF ITS EFFECTIVITY. J. Bueno, C. Venturi, J. Quintero, J. Ortega, R. Charco. Pediatric Liver Transplant Unit, Hospital Valle de Hebron, Barcelona, Spain.
PURPOSE: Mammalian target of rapamycin (MTOR) (rapamidine and everolimus) are new immunosuppressors with antimural capacity and without the CNI adverse effects (nephrotoxicity, hypertension, neurotoxicity and diabetes). Its effectivity in children with liver transplantation has been not well described in the literature. The purpose of this study is to describe our experience with MTORi in pediatric liver transplantation.
METHOD: Between 2000 and 2008, 17 patients (mean age 12 years) received MTORi at a mean of 8.4 y. (r: 1.4-19 y.) after transplantation. Indications of MTORi were: severe acute rejection steroid resistant (AcRs) (5), chronic rejection (CR) (4), CNi's (3), hypereosinophilia (2), cryptogenic cholestasis (2) and cyclosporine (2). Nine were non-adherent. Mean interval between Tx and graft dysfunction: 4.1 years (range 1.1-11). Median total/direct bilirubin: 11.57/5.7 mg/dl. Liver biopsy at presentation was consistent with moderate to severe acute rejection. Nine recipients received thymoglobulin, 1 OKT3 alone and 1 OKT3 after failing thymoglobulin. Thymoglobulin/OKT3 was first line therapy in 5 and started for persistent cholestasis despite high dose steroid treatment in 4. All were discharged on augmented Tacrolimus based immunosuppression with addition of a third agent (Mycophenolate mofetil/ Azathioprine/Sirolimus). Eight achieved completely normal liver function at a median time of 16 weeks (range 10-52 weeks), 2 non-adherent recipients have direct bilirubin of 0.4 and 1.2 mg/dl respectively. No patient developed post Tx lymphoproliferative disease. All recipients have survived without need for re-Tx at a median follow-up of 1.5 years (range 0.1-5).
CONCLUSION: Our limited experience suggests that presence of significant cholestasis in this setting, biochemically and histologically may be a surrogate for higher risk of graft loss and thus warrant earlier institution of aggressive antibody therapy. Recognized risks of such significant amplification of immunosuppression, may be justified by improved graft survival and prevention of reTx.

Abstract# 361
PHARMACOKINETICS OF MYCOPHENOLIC ACID AND ITS GLUCURONIDATED METABOLITES IN HEMATOPOIETIC STEM CELL TRANSPLANTATION: A CASE REPORT. Anne-Laure Lap耶yraque,1 Yves Th耶r耶or耶,1 Martin A. Champagne,2 Francoise Le Doist,1 Catherine Litalien.1 Unit耶 de Pharmacologie Clinique, CHU Ste-Justine, Montreal, QC, Canada.
PURPOSE: Mycophenolate mofetil (MMF) is increasingly used in hematopoietic stem cell transplantation (HSCT) to prevent graft versus host disease (GVHD). It is hypothesized that MMF efficacy is related to its pharmacokinetics. Since MMF is rapidly converted to mycophenolic acid (MPA) and to phenolic and acyl glucuronides (MPAG and AcMPAG), we investigated the total and free (f) levels of these substances in a patient with terminal renal failure who experienced prolonged neutropenia following donor cell engraftment.
METHOD: Pharmacokinetic parameters for MPA and glucuronidated metabolites were determined after a double-cord HSCT in a 20 years old male with renal failure. GVHD prophylaxis consisted of cyclosporine and MMF (1 g/x3/day). MPA exposure was assessed by collecting blood samples at different time points. Isolation of MPA, MPAG and AcMPAG was done by ultrafiltration, MPA and MPAG plasma and ultrafiltrate levels were determined by HPLC-MS. AUCs and Cmax calculated using the trapezoidal rule were normalized to 12h.
RESULTS: Total MPA exposure falls below the suggested therapeutic range in solid organ transplantation (AUC0-12 = 30-60 µg/ml; Cmax =1-3.5 µg/ml). However, since hypoalbuminemia was present (24 g/l), the percentage of IMPA and IMPG was 2-4 times higher than that seen in patients with unaltered protein levels (IMPA = 3%; IMPG = 20%). fMPA exposure is estimated to be higher than the one identified as a significant risk factor for leukopenia (1.5 µg/ml vs 0.4 µg/ml). Exposure to total and free AcMPAG, a metabolite possibly involved in MMF efficacy and toxicity, appears to be higher than that to MPA.

Abstract# 362
CAMPATH I-H PRETREATMENT OF THE LIVE DONOR KIDNEY GRAFT RECIPIENTS. DOES IT PROMOTE DONOR-SPECIFIC TOLERANCE IN CHILDREN? Michael M. Kaabab,1 Nadezda N. Babenko, Alan K. Zokoyev, Alexey A. Maschan.2 1Organ Transplant Department, Russian Scientific Center of Surgery RAMS, Moscow, Russian Federation; 2Institution for pediatric Haematology, Moscow, Russian Federation.
PURPOSE: CAMPATH 1-H (CD28-B7) is considered to play a key role in the decision of the host immune system what to do with foreign antigen-bearing cells, and is realizing mostly through the mesenchmal cell. CamPATH-IH is able to deplete these cells. We tried next hypothesis: CamPATH-IH infusion 2-3 week prior to transplantation will promote donor-specific tolerance.
METHOD: Patient population: 24 patients (13 male), age from 0.7 to 16 years (10±6), transplanted from September 2006 to May 2007. Patients were followed 282-541 days (419±79). All recipients were first and from live donors, two were ABO incompatible.
Immunosuppression apprat CamPATH: Steroids were withdrawn at day 14. Cyclosporine was withdrawn gradually within 12 hours after surgery, with target trough level 100-200 µg/ml first week, and 50-100 ng/ml after one month. After one year CNIs considered to be withdrawn. Micophenolates were added after WBC recovery (2-6 month). Follow up: besides routine kidney transplant patient monitoring we checked their blood and urine for DNA of CMV, EBV and BKV. Rising viral load was a signal to decrease total amount of immunosuppression. Immunosuppression: AUCs 0-8 µg/ml; Cmax (µg/ml).
RESULTS: One patient had delayed graft function due to urinary tract clotting. Five patients (21%) developed acute rejection at 21-214 days post TX (87±75). Two patients died 162 and 452 days post TX. Uncensored Kaplan-Mayer one-year graft and patient survival is 96%. In one patient (graft from haploidentical mother) immunosuppression was stepwise decreased until total withdrawal at day 76, and this patient lives with functional graft.
CONCLUSION: The pretreatment of kidney allograft recipients with CamPATH-IH infusion 1-2 weeks prior to transplantation allows to reach satisfactory short-term results with little immunosuppressant treatment and some patients develop donor-specific tolerance. The available tools of tolerance diagnosis in clinical practice need to be improved.

Abstract# 363
SINUS TACHYCARDIA RELATED TO TACROLIMUS AFTER KIDNEY TRANSPLANTATION IN CHILDREN AND YOUNG ADULTS. Yelda Bilginer,1 Ilker Erdogan,2 Ali Duzova,1 Nesrin Besbas,1 Fatih Ozaltin,1 Seza Ozen,2 Rezan Topaloglu,2 Ayşin Bakkaloglu,1 1Pediatric Nephrology, Hacettepe University Faculty Medicine, Ankara, Turkey; 2Pediatric Cardiology, Hacettepe University Faculty Medicine, Ankara, Turkey.
PURPOSE: Cardiovascular adverse effects related to tacrolimus, a major immunosuppressive drug in renal transplantation, are anginal pain, palpitation,
electrocardiographic changes, or myocardial hypertrophy. Our aim is to present eight patients who complained of palpitation during tacrolimus therapy after kidney transplantation.

**METHOD:** Eight out of 31 patients (25.8%) who received tacrolimus after kidney transplantation suffered from tachycardia. Restricting electrocardiography, Holter monitoring and two dimensional echocardiography were performed, and serum levels of cardiac troponin T, creatine kinase, CKMB, brain natriuretic peptide (BNP) and tacrolimus were measured.

**RESULTS:** The median time to tachycardia after kidney transplantation was 30 days (range: 21-60 days) in seven patients, and five years in one patient. There was no significant difference between patients with palpitation and asymptomatic patients in terms of type of replacement therapy, duration of dialysis, age at kidney transplantation, immunosuppressive therapy, living or cadaveric donor, and anti hypertensive usage. Cardiovascular assessment, restricting electrocardiography and Holter monitoring revealed sinus tachycardia in all patients. Thickening of left ventricular wall was detected in one patient. Troponin T and BNP levels were within normal limits in all patients. Serum tacrolimus concentration level was below 10 ng/mL in all patients. Beta blocker was instituted in five patients. In three to four months all patients were asymptomatic.

**CONCLUSION:** Transient sinus tachycardia is a frequent adverse event during tacrolimus therapy in kidney transplantation in children and young adults. This effect was not associated with myocardial damage or blood tacrolimus level. These patients may benefit from beta blockers according to symptomatology of the patients after cardiovascular assessment.

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**Abstract# 364**

**THE ASSESSMENT OF CARDIOVASCULAR RISK FACTORS IN PAEDIATRIC LIVER TRANSPLANT RECIPIENTS CONVERTED FROM CYCLOSPORINE TO TACROLIMUS.** Alzona Wierzbicka,1 Joanna Pawlowska,2 Pietro Socha,2 Pietro Czubkowski,3 Irena Jankowska,2 Mikolaj Teisseyre4, Joanna Teisseyre4

**METHOD:** To assess the cardiovascular risk factors in paediatric patients after liver transplantation before and 12 month after the conversion from cyclosporine to tacrolimus. One center, prospective study.

**RESULTS:** No difference was found in serum/plasma total cholesterol-TG, LDL-C-HDL-C, Apo A1, Apo B, Apo E, LCAT, glutathione (GSH) and GpX activity. Significant differences was found only for asymmetric dimethylarginine (ADMA) 0.92 μmol/L vs. 0.59 μmol/L and oxidized LDL (oxyLDL) 425.8 μmol/L vs. 323.5 μmol/L. Increased ADMA and oxyLDL concentrations on CsA therapy normalised after conversion to Tac.

**CONCLUSION:** In paediatric liver transplant recipients lipid metabolism was not significantly disturbed. CsA seems to have the strongest untoward effect on cardiovascular risk factors. The study was supported by KBN grant PB 1977/P01/2007/32

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**Abstract# 365**

**RITUXIMAB AND SEVERE REJECTION IN ABO NON-IDENTICAL LIVER TRANSPLANT.** Antonio P. Campos,1 Ana C. Brett,1 Carla R. Pinto,1 Maria A. Cipriano,1 Isabel M. Goncalves,1

**METHOD:** The study group consisted of 8 children (5 girls and 3 boys) with a mean age of 12.8 ± 2.8 years (range 9-18 years) with good liver function. Patients received ciclosporin A (CsA) for at least 5 years. Conversion to tacrolimus (Tac) was started 24 hours after the last dose of CsA. Blood concentration of Tac was in the range of 5-8 ng/mL. In all children lipid parameters and lipid peroxides were measured on fastum before and 12 month after conversion.

**RESULTS:** No significant differences was found in serum/plasma total cholesterol-TG, LDL-C-HDL-C, Apo A1, Apo B, Apo E, LCAT, glutathione (GSH) and GpX activity. Significant differences was found only for asymmetric dimethylarginine (ADMA) 0.92 μmol/L vs. 0.59 μmol/L and oxidized LDL (oxyLDL) 425.8 μmol/L vs. 323.5 μmol/L. Increased ADMA and oxyLDL concentrations on CsA therapy normalised after conversion to Tac.

**CONCLUSION:** In paediatric liver transplant recipients lipid metabolism was not significantly disturbed. CsA seems to have the strongest untoward effect on cardiovascular risk factors. The study was supported by KBN grant PB 1977/P01/2007/32

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**Abstract# 366**

**TDM (THERAPEUTIC DRUG MONITORING) OF CYCLOSPORIN A IN IRANIAN CHILDREN WITH KIDNEY TRANSPLANTATION.** Hasan Otukesh, Rozita Hoseini, Masoomeh Motavaleian, Majid Chalian, Hamid Chalian. Labafi Nejad Hospital, Shaheed Beheshti University, Tehran, Islamic Republic of Iran; Labafi Nejad Hospital, Shaheed Beheshti University, Tehran, Islamic Republic of Iran; Pharmacology Department, Iran University, Tehran, Islamic Republic of Iran; Ali Asghar Children Hospital, Iran University, Tehran, Islamic Republic of Iran.

**PURPOSE:** Cyclosporin A (CsA) is an immunosuppressant with a narrow therapeutic window and Intra patients can be successfully monitored by CsA blood level monitoring in transplant patients. The purpose of the present study was to evaluate CsA blood concentrations in order to find out the best time for sampling in Iranian children with kidney transplantation.

**METHOD:** CsA levels were determined using a radioimmunoassay (RIA) in 29 (16 boys and 13 girls) pediatric transplant recipients with stable renal function. Results: Mean age was 14.5 ± 2.3 years. The mean CsA dose, was 4.7 ± 0.4 mg/kg/day. There was a high correlation between CsA dose, serum creatinine and C1.5 level. There was no correlation between C0 and above mentioned parameters. **CONCLUSION:** In conclusion, for using single point monitoring, C1.5 CsA levels seems more accurate than C0 in Iranian pediatric transplantation patients.

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**Abstract# 367**

**HEMOLYTIC UREMIC SYNDROME FOLLOWING RENAL TRANSPLANTATION.** Yelda Bilgincer,1 Nermin Besbas,1 Ali Dizova,1 Fazil T. Aki,2 Ayşin Bakkaloglu,1 1Pediatric Nephrology, Hacettepe University Faculty of Medicine, Ankara, Turkey; 2Urology, Hacettepe University Faculty of Medicine, Ankara, Turkey.

**PURPOSE:** Hemolytic uraemic syndrome (HUS) is a well recognized serious complication of renal transplantation. We present a case that developed HUS at 1 month post-transplant. The clinical picture resolved after cessation of cyclosporine therapy, without plasma exchange.

**METHOD:** A 6-year-old male underwent cadaveric kidney transplantation. The etiology of end stage renal disease was infantile polycystic kidney disease. Immunosuppressive therapy consisted of basiliximab (12 mg/m² on day 0 and 4), cyclosporine (3 mg/kg/day), azathioprine (2 mg/kg/day) and prednisolone therapy. Valganciclovir prophylaxis for CMV was instituted. After one month with stable renal function, the patient was admitted to hospital with high fever. Physical examination was unremarkable. Serological tests for CMV and EBV were negative. Creatinine rose up to 5.9 mg/dl within three days; laboratory investigation revealed anemia, thrombocytopenia and hemolysis. Urinalysis revealed hematuria and moderate proteinuria (660 mg/day). C2 and trough levels of cyclosporine were within normal limits.

**RESULTS:** Cyclosporin was discontinued and bolus steroid was given (500 mg/kg/day) for five consecutive days. Hemodialysis had to be performed twice. Renal biopsy confirmed the diagnosis of hemolytic uraemic syndrome. After one week of treatment, renal function began to resolve gradually and tacrolimus was started. The patient was discharged with a creatinine level of 0.6 mg/dl.

**CONCLUSION:** HUS is a serious post-transplant complication. In this patient early diagnosis, bolus steroid, switch to tacrolimus and prompt supportive treatment resulted in an excellent outcome.

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**Abstract# 368**

**PERMEABLE FACIAL PARALYSIS IN A CHILD WITH RENAL TRANSPLANT: A RARE CYCLOSPORINE ASSOCIATED NEUROTOXICITY.** Yelda Bilgincer,1 Rezan Topaloglu,1 Nermin Besbas,1 Ayşin Bakkaloglu,1 Mehmet Bakkaloglu,1 1Pediatric Nephrology, Hacettepe University Faculty of Medicine, Ankara, Turkey; 2Urology, Hacettepe University Faculty of Medicine, Ankara, Turkey.

**PURPOSE:** Renal transplantation is the best choice for children with end stage renal disease but one should be aware of the side effects of the immunosuppressive therapy. We present a kidney transplant recipient who developed peripheral facial paralysis during treatment with oral prednisone cyclosporine and mycophenolate mofetil.

**METHOD:** A 16-year-old girl with end stage renal disease secondary to FSGS underwent a successful living donor renal transplantation in 2005. On her third year of after reinforcing immunosuppression (steroid bolus, basiliximab, mycophenolate mofetil and sirolimus). Plasma exchange was tried with little improvement, so rituximab was initiated as rescue therapy in month 2.

**RESULTS:** After six sessions of rituximab, clinical and laboratory improvement was achieved. In month 7 post-transplant, the patient is clinically stable with normal LFT’s and histology.

**CONCLUSION:** Rituximab is a safe and effective treatment for several immune disorders. In ABO non-identical LT, graft dysfunction has different aetologies and early use of rituximab should be considered. In our case it allowed graft survival and patient recovery from a severe clinical condition.
follow up she complained of earache. Her physical examination showed right peripheral facial paralysis. The patient demonstrated flattening of the forehead and nasolabial fold on the right side of her face, and was not able to close her right eye completely. Her face became distorted and lateralized to the left when she was asked to smile. Laboratory tests were as follows: creatinine: 1 mg/dl, blood area nitrogen: 18 mg/dl and plasma cyclosporine level was 22.4 mg/ml. Serological examinations for cytomegalovirus, Ebstein- Barr virus and herpes simplex virus were negative. Cranial magnetic resonance imaging was normal.

RESULTS: Since no cause was determined, cyclosporine associated neurotoxicity was suspected and cyclosporine was discontinued. Apart from this ayclovir was started and continued for 10 days. Her facial paralysis improved gradually and returned to normal after 7 days.

CONCLUSION: Cyclosporine is widely used in the transplantation area and common side effects are well known. The case presented here had a rarely seen neurotoxicity during treatment with oral cyclosporine.

Abstract# 369

INDUCTION IMMUNOTHERAPY WITH RITUXIMAB IN HIGHLY SENSITIZED KIDNEY TRANSPLANT PATIENT – TWO CASES REPORT.

In Sung Moon,1 Sun Cheol Park,1 Soo Hyun Kim,2 Ji Il Kim,3 Chul-Woo Yang,2 Department of Surgery, The Catholic University of Korea, Seoul, Korea; 2Department of Internal Medicine, The Catholic University of Korea, Seoul, Korea.

PURPOSE: The transplantation in highly sensitized patient is one of the major concerns in kidney transplantation. The development of new immunosuppressive agents is designed to reduce the early acute post-transplant rejection. Recently, several new protocols have been developed to allow the transplantation of highly sensitized patients. One potential target for more specific immunosuppressive therapy with monoclonal antibodies is to be effective, less toxic than the oral long-term maintenance agents and well-tolerated in kidney transplant recipients. Rituximab is a high-affinity CD 20 specific antibody that depletes the B-cell compartment by inducing cellular apoptosis.

METHOD: We successfully performed kidney transplantation in high sensitized patients and we report our experience with rituximab induction protocol involving pretransplant plasmapheresis, intravenous immunoglobulin. One case was a 43 year-old man for third kidney transplantation with high panel-reactive antibodies (PRA class I: 96.4%, class II: 58.3%) and positive flow cytometric crossmatch (T: 15%; B: 10%). Another case was 51 year-old woman with donor specific antibody positive (anti-A11, anti-A33), high panel-reactive antibodies (PRA class I: 39.3%, class II: 33.3%) and positive flowcytometric crossmatch.

RESULTS: Preoperative Rituximab induction therapy is effective in high risk kidney transplant patients but we must keep in mind that rituximab is associated with a high rate of infectious complications.

CONCLUSION: In conclusion, Rituximab can be safely administered and may be an effective agent to reduce high anti-HLA antibodies in patients awaiting kidney transplantation with increased percentage of PRA as a result of prior exposure to blood transfusions or transplantation. And we must keep in mind that rituximab is associated with a high rate of infectious complications.

Abstract# LB 19

RESULTS OF CONVERSION FROM CNI TO SRL IN PEDIATRIC RENAL TRANSPLANT. Rejane de Paula Menezes,1 Ricardo Jeczmionski,2 Antonio Carlos Camargo Junior,3 Jassara Fontes,3 Romilda Vieira dos Santos.1 Pediatric Nephrology Division, Hospital Pequeno Principe, Curitiba, Paraíba, Brazil.

PURPOSE: Sirolimus (SRL) is a potent immunosuppressive agent with no nephrotoxic effect. Combination of CNI and SRL is an excessive immunosuppression and can be associated with a high incidence of viral infections and PFTLD. These data actually suggest that a CNI-free maintenance immunosuppression may be suitable for a long-term immunosuppression and conversion has been indicated. The aim of our study is to analyze a 12 months follow-up of pediatric recipients after conversion from CNI to SRL.

METHOD: Kidney transplanted children that converted from CNI to SRL and followed at least by 2 months were selected. Clinical and laboratorial data - Systolic blood pressure at least by 2 months were selected. Clinical and laboratorial data - Systolic blood pressure started and continued for 10 days. Her facial paralysis improved gradually and returned to normal after 7 days.

CONCLUSION: Cyclosporine is widely used in the transplantation area and common side effects are well known. The case presented here had a rarely seen neurotoxicity during treatment with oral cyclosporine.

Abstract# 371

POSTOPERATIVE CARE AFTER PEDIATRIC COMBINED LIVER/KIDNEY TRANSPLANTATION (CLKTx), Markus J. Kemper,1 Rainer Ganschow,2 Knut Helmke,2 Lutz Fischer,3 Björn Nashan,1 Dirk E. Mueller-Wiefel,1 Egmont Harps,1 Departments of Pediatrics, University Medical Center, Hamburg, Germany; 1Pediatric Nephrology, University Medical Center, Hamburg, Germany; 1Pediatric Radiology, University Medical Center, Hamburg, Germany; 2Transplantation Surgery, University Medical Center, Hamburg, Germany; 3Pediatric Intensive Care, University Medical Center, Hamburg, Germany.

PURPOSE: CLKTx may be indicated for structural disorders involving kidney and liver (e.g. autosomal recessive polycystic kidney disease, ARPKD) or metabolic disorders where the hepatic enzyme defect results in damage of the kidney (e.g. primary hyperoxaluria, PH1). There are few data on post-operative care of patients after CLKTx.

RESULTS: A total of 10 children were included in the study. 8 (80%) were males and 2 (20%) were females with a ratio of 4:1. Eight patient received their graft from deceased donor while two from living related donor. Two patients received a Campath dose of 20mg for 2 doses and the rest received one dose of 20mg. Nine patients were maintained with Tacrolimus and MMF and one patient on Cyclosporine and MMF. None received maintenance steroids. Leukopenia and lymphopenia was seen at 2 weeks and eventually improved at nine weeks Hypertension and hyperlipidemia was not noted among the patients. Acute rejection episode was seen in 3 patients. Graft and patient survival was 100% & 100% at 3-months, 100% & 100% at 6-months, 100% & 100% at 1-year and 75% & 100% at 2-years.

CONCLUSION: Campath 1-H is safe to use as induction therapy in pediatric kidney transplant patients.
METHOD: Retrospective chart review of 10 children, that underwent CLKTx since 1998 in our center, including 4 children with ARPKD and 6 with PH1. This included 3 girls and 6 boys with a median age of 8.1 years (range 1.5-15.9) and a median weight of 16 kg (range 9.7-55).

RESULTS: All patients survived. Median stay of ICU was 8.5 days (range 5-59). Mechanical ventilation varied significantly: 5 children could be extubated within 24 h after CHRTx, while 3 required ventilation for longer than 25 Days (24, 34 and 42, respectively). Renal replacement therapy was necessary in 7 patients, mostly to decrease plasma oxalate load in PH1; median duration was 5 days (range 0-27). Median number of transfused erythrocyte units was 2 (0-31), median units of FFP were 2 (0-31) and for platelet transfusion units 1 (0-12). Complications included bleeding, infections, primary graft failure and rejection. One patient required a second CHRTx and later a third liver graft. All patients were discharged from ICU in stable condition, there was no mortality.

Long-term graft function was excellent in all patients, one patient required a second kidney transplant after 9 years to oxalate deposition.

CONCLUSION: In summary and conclusion CHRTx is a multidisciplinary challenge especially in the early post-operative period and patients and team have to face a variety of complications. On the other hand, some patients do extremely well. Long-term results are excellent.

Abstract# 372
ANALYSIS OF GLOMERULAR AEIOLOGY FOR ESRD IN PAEDIATRIC TRANSPLANT IN A TROPICAL COUNTRY – INDIA.

Tirumalarasi Veerasamy, George Tharayil John, Chakko Korula Jacob, Timothy Rajamanickam, Santosh Varughese. Nephrology, Christian Medical College, Vellore over a period of 17 years and 8 months.

METHOD: The mean age of the recipients was 15.1 ± 3.0 (6, 18 years) accounting for 6.1% of all the total renal transplants done at our centre (104/1700). 96% of patients received kidneys from live related donors and 4% were cadaver donors. Among the donors, mothers contributed the majority with 59% and then the fathers at 26%. The major causes of ESRD were glomerulonephritis in 31(30%) and urological abnormalities in 23(22%), while the aetiology was unknown in 50(48%). Among glomerular diseases, FSGS was the commonest aetiology in 10(9.6%), RPGN in 6.5%, IgA and mesangial proliferative glomerulo nephritis in 4%, MPGN in 2(1.9%) and SLE, PIGN, Alport's, HUS (D) and good pastures disease in 1(1%) each respectively.

CONCLUSION: Among the aetiology for ESRD in paediatric renal transplants, unknown cause is seen in 50(48%) of cases. It is attributed to the children presenting very late in the stage of CKD. Among the known causes, glomerular aetiology is the commonest with FSGS constituting the majority and then is followed by crescentic glomerulo nephritis.

Abstract# 373
IMAGING FINDINGS IN ASYMPTOMATIC CONGENITAL ABSENCE OF PORTAL VEIN IN INFANCY. Settimio Caruso,1 Marco Spado,1 Martina Spadola,1 Caterina Spadola,2 Gianmario Maggiore,1 Angelo Luca,1 Bruno Gridelli.1 Radiology, ISMETT, Palermo, Sicily, Italy; 1Pediatric Transplant Surgery, ISMETT, Palermo, Sicily, Italy; 1Pediatric Transplant Surgery, ISMETT, Palermo, Sicily, Italy; 2Pediatric Transplant Surgery, ISMETT, Palermo, Sicily, Italy.

METHOD: A retrospective analysis of 104 paediatric renal transplants (age < 18 yrs) done in Christian Medical College, Vellore over a period of 17 years and 8 months.

RESULTS: The mean age of the recipients was 15.1 ± 3.0 (6, 18 years) accounting for 6.1% of all the total renal transplants done at our centre (104/1700). 96% of patients received kidneys from live related donors and 4% were cadaver donors. Among the donors, mothers contributed the majority with 59% and then the fathers at 26%. The major causes of ESRD were glomerulonephritis in 31(30%) and urological abnormalities in 23(22%), while the aetiology was unknown in 50(48%). Among glomerular diseases, FSGS was the commonest aetiology in 10(9.6%), RPGN in 6.5%, IgA and mesangial proliferative glomerulo nephritis in 4%, MPGN in 2(1.9%) and SLE, PIGN, Alport's, HUS (D) and good pastures disease in 1(1%) each respectively.

CONCLUSION: Among the aetiology for ESRD in paediatric renal transplants, unknown cause is seen in 50(48%) of cases. It is attributed to the children presenting very late in the stage of CKD. Among the known causes, glomerular aetiology is the commonest with FSGS constituting the majority and then is followed by crescentic glomerulo nephritis.

Clinical examination at age 18 months showed an enlarged liver without splanenomegaly; AST 1.2 x N, ALT 1.3 x N. Abdominal MR showed an absence of portal vein with a common venous trunk draining superior mesentric and splenic vein into the inferior vena cava. Hepatic artery originates from the superior mesentric artery.

CONCLUSION: CAPV may be discovered by US in infants with minimal abnormalities of liver function tests. Associated malformations and/or chromosome abnormalities should to alert to suspect CAPV and to perform diagnostic imaging studies.

Abstract# 374

PURPOSE: To determine the relationship between blood pressure and short-term (1-yr) allograft function among pediatric kidney transplant patients seen at the National Kidney and Transplant Institute from January 2000 to August 2005.

METHOD: Review of medical records from all pediatric kidney transplant patients seen at NKTI from January 2000 to August 2005. Only those patients with complete data and who were followed up for at least 1 year were included in the study. Patients with incomplete data, or did not have at least 1 year follow-up, and those who died before 1 year were excluded. The Primary outcome of the study is renal allograft function at 1 year post KT. Average monthly SBP and DBP measurements were calculated from 1 month pre-KT up to 12 months post-KT. BP was standardized for differences in age and size. The association between variables were assessed by using Spearman correlation analysis. Regression analysis was performed to assess whether there were independent predictors for the 1-yr GFR. A P-value of <0.05 was considered statistically significant.

RESULTS: A total of 14 patients were included in the study. Mean age was 12.78 ± 2.26 years with predominance of males (78%). The most common native kidney disease was chronic glomerulonephritis (50%). The most common mode of renal replacement therapy before transplant was CAPD (55%). Majority (55%) had living related donors. Only 2 patients (11%) had acute rejection during the first year after transplant. Median cold ischemia time was 18.5 minutes (7-1080 minutes). The study failed to show evidence of association between blood pressure and 1-year post KT GFR. There was, however, evidence of a possible correlation between pre-KT DBP and 1-year GFR.

CONCLUSION: The study showed no evidence of association between post-KT DBP and SBP and 1-year post KT GFR but there was evidence of a possible association between pre-KT DBP and 1-yr GFR and should be further studied.

Abstract# 375
COMPLIANCE IN CHILDREN/ADOLESCENTS AFTER RENAL TRANSPLANTATION. Helena M.E. Kärrfelt,1 Ulla B. Berg.2 Division of Child Psychiatry, Department of Clinical Science, Intervention and Technology, Stockholm, Sweden; 2Division of Pediatrics, Department of Clinical Science, Intervention and Technology, Stockholm, Sweden.

PURPOSE: The aim of the study was to investigate the adherence to medication among children after renal transplantation.

METHOD: An invitation letter was sent to 45 patients aged 9-18 years asking them to participate in a semi-structured interview and a questionnaire with regard to their medication.

RESULTS: 28 patients replied and seven explicitly replied that they did not want to participate.

At the time of the interview the children were 14.8 ± 2.4 years of age, and the time after transplantation varied from 1 to 17 years (median 9). All except three children had their first graft, one had her second graft and two were on dialysis after graft loss.

In almost all families the parents supported the child to take their medication. Most children, however, remembered to take their medication but a few had to be reminded by their parents. Three children managed all by themselves. When the children were asked in the interview about how they handled a forgotten medication opportunity, 78% responded that they took the drugs as soon as they remembered while the others waited to the next occasion. 48% of the children stated that they took the immunosuppressives every 12 h and among the others the time interval varied.

On the questionnaires, 65% stated that they always took their medication. 22 % stated that they took the drugs every 12 h and among the others the time interval varied.

The study showed no evidence of association between post-KT DBP and SBP and 1-year post KT GFR but there was evidence of a possible association between pre-KT DBP and 1-yr GFR and should be further studied.

In summary and conclusion CHRTx is a multidisciplinary challenge especially in the early post-operative period and patients and team have to face a variety of complications. On the other hand, some patients do extremely well. Long-term results are excellent.
Abstract# 376
THE ROLE OF THE CHILD LIFE SPECIALIST INPATIENT AND OUTPATIENT: WITHIN THE PEDIATRIC TRANSPLANT CENTER. Kirsten N. Fowler. Child Life Services Pediatric Transplant Center, Children’s Hospital Boston, Boston, MA, USA.
PURPOSE: As a Pediatric Transplant Center, we strive to provide child and family centered care. Using a multidisciplinary approach, we work as a team to support the patient and family medically, socially, emotionally, financially, and spiritually throughout their transplant journey.

The purpose of this poster is to demonstrate that child life specialists (CLS) are important members of the health care team and seek to enhance patients’ emotional, social and cognitive growth. CLS use developmental interventions and play to help patients and families adjust to and understand health care experiences, taking into consideration culture and stage of development.

METHOD: When inpatient, CLS work with patients and families, providing developmentally appropriate interventions including generalized play and medical play. CLS also normalize the hospital environment and daily schedule for patients supervising art therapy, occupational therapy, play, art, music, pet, and volunteers. Expertise in child development allow CLS to prepare and distract children, in addition to helping patients cope with different procedures including surgery, nasogastric tubes, Foley catheters, and IVs. Transplant teaching tools such as dolls, books, and toys aid in the teaching process.

When transitioning between outpatient and inpatient, CLS provide appropriate resources and programs such as the Back to School program, to help children in school re-entry following transplant.

RESULTS: The medical team and family report that the CLS role improves the quality of life for patients and families. Inpatient, hospital routine is normalized through opportunities for developmentally appropriate interventions and play, helping kids to be kids. Outpatient, CLS help to increase and foster communication between the medical team and schools.

CONCLUSION: The role of the CLS is vital in providing family centered care, where the child is at the heart. The medical team relies on the CLS to provide developmental assessments on developmental milestones, understanding and coping throughout the transplant journey. CLS are often considered to be the “child’s voice” and “hospitals conscience.”

Abstract# 377
PEDIATRIC PATIENT QUALITY LIFE AFTER LIVER TRANSPLANT. Sabrina Egman. Educational, IsMeTT, Palermo, Italy.

PURPOSE: Evaluating the quality of life in a transplant pediatric patient population is double-sided; social-healthy privilege, the outcome of economic, cultural, care investments feasible thanks to the synergy among healthcare facilities, society and population. Grafs are a “limited” gift, with huge therapeutic possibilities, provided by the society.

Today the levels of health care are better evaluated by an improved consideration of QOL standards in the pediatric age. For this study, seven areas of interest were identified (see bibliography), each investigated with four questions.

Answers will be pre-determined by the authors of the questionnaire and associated with a score to detect the different score layers identifying the levels of quality of life detected.

RESULTS: There is no better indicator to monitor the effectiveness of a treatment in its entirety than QOL life, not only in terms of good health conditions but also of reintegration in social, cultural and work activities. However, is returning to social normality possible for the majority of patients? The goals of transplantation are several and of multi-disciplinary competence. With this study we hope to define better what common sense and clinical experience had anticipated; to effectively promote organ donation, in terms of quantity and quality is the key point to change the life of our patients.

CONCLUSION: In order to have a wide and comprehensive knowledge of the real situation of life in the population tested, a table will be utilized for objective data collection to review the seven areas of the questionnaire. Questions will be possibly answered in a close and pre-definite way in order to make the tested population simpler and identifiable in groups. The analysis and quantification method of the questionnaire will be reviewed by the transplant coordinators to analyze and process the data collected.

Abstract# 378
CLINICAL IMPORTANCE OF MEAN PLATELET VOLUME IN CHILDREN WITH CHRONIC RENAL FAILURE. Esra Baskın,1 Hale Sakalli,1 Umut Selda Bayrakçı,1 Kaan Gulleroğlu,1 Nurcan Cengiz,1 Mehmet Haberal,2,3 Pediatric Nephrology, Baskent University, Ankara, Turkey; 2General Surgery, Baskent University, Ankara, Turkey.

PURPOSE: Bleeding problems and thrombotic complications are frequently seen in chronic renal failure (CRF). Recently, mean platelet volume (MPV) has been recommended to be an easy and useful parameter in order to indicate the bleeding problems and thrombotic events in adults. We aimed to investigate the factors which effect MPV and their clinical importance in children on hemodialysis (HD) and peritoneal dialysis (PD).

METHOD: 109 patients with CRF undergoing either HD (n=54), F/M=24/30 or PD (n=55) F/M=25/30 were included in the study. The etiology of CRF, dialysis modality, the problems of arteriovenous fistulas, duration of dialysis, medications, dose of erythropoietin were recorded and laboratory parameters were evaluated.

RESULTS: Although the MPV levels of patients in HD group (8.05±1.13) were higher than PD group (7.9±1.0), there was no significant difference between them (p=0.05).

In the HD group, MPV of patients receiving erythropoietin at a dose of >150 U/kg/wk were significantly higher than the others (p=0.017). There was no relation between erythropoietin doses and MPV levels in PD group. In the HD group, MPV levels of patients having problems of arteriovenous (A-V) fistulas were significantly higher than the others (p=0.017). MPV levels of patients who were receiving ACE Inhibitors in HD group were significantly lower than the others, and there was a negative correlation between the usage of ACE inhibitors and MPV levels (r= -0.30, p= 0.026).

CONCLUSION: The significant relationship between MPV levels and erythropoietin doses in HD patients and the higher levels of MPV in patients with A-V fistulas problems revealed that higher MPV levels may contribute to the tendency of thrombosis in CRF. Measurement of MPV is an easy and simple way to predict the risks for fistula problems in patients with CRF.

Abstract# 379
ADVANCING PEDIATRIC NURSING EDUCATION THROUGH SIMULATION. Santa Giammona. Intensive Care Unit, ISMETT, Palermo, Sicily, Italy.

PURPOSE: Transplantation centres are more concentrated in the North of our country. Nursing students don’t get enough or any pediatric transplant experience in the southern nursing universities.

The purpose of this project was to demonstrate, evaluate and disseminate an innovative education and training program for nurses using medical simulation to enhance knowledge about pediatric patient safety practices and to promote a positive safety environment.

METHOD: Evaluation of performance based development system revealed that basic new nurses’ clinical competencies in pediatric transplantation were not enough for taking care of transplanted patients, risking patients safety.

To create the most effective and efficient ways of teaching nursing in pediatric transplantation, our institution needed to develop a wide range of methods of engaging students in learning activities, including simulation. By incorporating collaborative simulation technologies into nursing courses, faculty began to explore the impact of such strategies on learning, critical-thinking, and problem-solving skills.

RESULTS: The most obvious advantage of clinical simulations over traditional patient-based training is that clinicians learn skills through “hands-on experience” without risking harm to real pediatric patients, providing trainees with a broad range of learning experiences, including the treatment of uncommon conditions unlikely to be encountered in traditional patient-based training.

CONCLUSION: Nursing courses for new hires, simulating pediatric transplantation care, are now available in our simulation centre. This exploratory, multi-site project brings us to study various parameters related to the use of simulation in basic nursing education programs and selected student outcomes.

Abstract# LB 25
NON-ADHERENCE IN ADOLESCENT TRANSPLANT RECIPIENTS: IS PATIENT EDUCATION PRACTICE CONGRUENT WITH HEALTH-CARE PROVIDERS’ BELIEFS? Aujoulat Isabelle,1 Deccache Alain,2 Charles Anne-Sophie,2 Janssen Magda,2 Struyf Catherine,2 Reding Raymond,3 1Health and Patient Education Unit, School of Public Health, Université Catholique de Louvain, Bruxelles, Belgium; 2Pediatric Surgery and Transplant Unit, St-Luc University Clinics, Université Catholique de Louvain, Bruxelles, Belgium.

PURPOSE: Our programme has performed over 800 pediatric liver transplantations (PLT) since 1984. Half the children are currently adolescents. We hypothesized that healthcare providers’ (HCP) practice of patient education regarding adherence in this population is influenced by their personal beliefs regarding their educational role and the determinants of non-adherence.

METHOD: Observant participation and exploratory in-depth interviews (n=22), as well as self-administered questionnaires to all members of the medical and paramedical staff in our programme.

RESULTS: We analysed 28 questionnaires: 8 doctors (29%); 20 paramedical staff (71%); mean age: 38 yrs; mean time in the profession: 14 yrs; mean time in the field of PLT: 7 yrs; mean time in the programme: 13 yrs. Our qualitative data show that HCPs tend to promote adherence by emphasizing HCPs’ attitude in practice, their inner belief is that non-adherent behaviors are inherent to attitude in practice, their inner belief is that non-adherent behaviors are inherent to attitude in practice, their inner belief is that non-adherent behaviors are inherent to attitude in practice, their inner belief is that non-adherent behaviors are inherent to attitude in practice, their inner belief is that non-adherent behaviors are inherent to attitude in practice, their inner belief is that non-adherent behaviors are inherent to attitude in practice, their inner belief is that non-adherent behaviors are inherent to attitude in practice, their inner belief is that non-adherent behaviors are inherent to attitude in practice, their inner belief is that non-adherent behaviors are inherent to attitude in practice, their inner belief is that non-adherent behaviors are inherent to attitude in practice, their inner belief is that non-adherent behaviors are inherent to attitude in practice, their inner belief is that non-adherent behaviors are inherent to attitude in practice, their inner belief is that non-adherent behaviors are inherent to attitude in practice, their inner belief is that non-adherent behaviors are inherent to attitude in practice, their inner belief is that non-adherent behaviors are inherent to attitude in practice, their inner belief is that non-adherent behaviors are inherent to attitude in practice, their inner belief is that non-adherent behaviors are inherent to attitude in practice, their inner belief is that non-adherent behaviors are inherent to attitude in practice, their inner belief is that non-adherent behaviors are inherent to attitude in practice, their inner belief is that non-adherent behaviors are inherent to attitude in practice, their inner belief is that non-adherent behaviors are inherent to attitude in practice, their inner belief is that non-adherent behaviors are inherent to attitude in practice, their inner belief is that non-adherent behaviors are inherent to attitude in practice, their inner belief is that non-adherent behaviors are inherent to attitude in practice, their inner belief is that non-adherent behaviors are inherent to attitude in practice, their inner belief is that non-adherent behaviors are inherent to
Abstract@ 380
ASCITES AFTER PAEDIATRIC LIVER TRANSPLANTATION: DEFINITION AND OUTCOME. Sara Gaggianni,1 David Mayer,2 Paolo Muijsan,2 Darius Mirza,1 Khalid Sharif.1 'Liver Unit, Birmingham Children’s Hospital, Birmingham, United Kingdom; 2Liver Unit, Queen Elizabeth Hospital, Birmingham, United Kingdom.

PURPOSE: Post transplant ascites (As) in children is less well understood and lacks a clear definition. The objective of this study was to evaluate our experience of As post paediatric liver transplantation (LT) and to compare this with previously defined criteria for As: loss of fluid through drains lasting longer than first 10 post operative days with a peak volume of >10 ml/kg/day.

METHOD: A retrospective review of all patients who underwent primary LT between May 2007 and July 2008 was performed. Patients demographic and data for As were collected, including drain volumes and duration of As, as well as eventual outcome. A total of 24 patients (12 male) with mean age at LT 4.8 years (range 0.6-16 years), mean weight 15.8 kg (range 6.3-38 kg) were included. Details of imaging and intervention in patients with troublesome ascites was also recorded.

RESULTS: Pre-transplant As was present in 54% patients. In 51% intraoperative ascites was found (mean volume 668 ml). A total of 75% of children had inferior vena cava preservation with Brisbane type left hepatic vein to a “triangulated” IVC reconstruction. Minimal drain losses after LT were observed in 9 children (37.5%) and the surgical drain was removed within the first 9 post operative days. A total of 15 children (62.5 %) had persistent drain losses after post operative day 10 and were reviewed. Of these, 8 patients had ascitic drain volumes <25 ml/kg/day and the mean day of drain removal was day 12. The remaining 7 children had drain losses of >25 ml/kg/day and the mean day of drain removal was post operative day 18 The mean volume of drain losses post transplant in this subgroup was 65 ml/kg/day. As was treated conservatively with replacement of drain fluid in 6 children. Only one patient required hepatic venous stenting for suspected venous outflow obstruction.

CONCLUSION: A revised definition of ascites in paediatric population post LT of drain losses >25 ml/kg/day after post operative day 10, is a better predictor of troublesome As resulting in prolonged admission prior to eventual delayed drain removal.
Abstract# 383
PORTAL VEIN STENOSIS AFTER PEDIATRIC LIVER DONOR TRANSPLANT: LONG-TERM RESULTS. Hamdi Karakayali,1 Fatih Boyvat,1 Figen Ozcyaz,1 Sinasi Sevmis,1 Mehmet Haberal,1 General Surgery and Transplantation, Baskent University, Faculty of Medicine, Ankara, Turkey; 2Radiology, Baskent University, Faculty of Medicine, Ankara, Turkey; 3Pulmonary Medicine, Baskent University, Faculty of Medicine, Ankara, Turkey;

PURPOSE: Portal vein stenosis is a relatively rare complication after liver transplant (LT), which sometimes leads to a life-threatening event due to gastrointestinal bleeding or graft failure. The aim of this study was to evaluate the diagnoses and management of portal vein stenoses in pediatric LT recipients at our center.

METHOD: Between September 2001 and June 2008, 103 living-donor LT (LDLT) procedures were done in 100 children at our center, among which 91 children with a functioning graft at 3 months after LDLT are included in this analysis. Five instances of portal vein stenosis (4.8%) were diagnosed, and these were analyzed retrospectively.

RESULTS: The median age of the patients was 3.1 years (range, 6 months to 11 years); the median body weight was 17 kg (range, 6.3-37 kg). Portal vein stenoses were detected at 6, 8, 10, 11, and 14 months after LDLT. While splanchnomaly and massive ascites were observed in 1 child, the remaining 4 children were asymptomatic at the time of diagnosis. All children were treated with transhepatic balloon dilation. We did not observe any treatment-related complications. The mean pressure gradient decreased from 13 to 2.06 mm Hg after treatment. Portal venous patency was maintained in all children at 4, 19, 35, 36, and 38 months' follow-up. There were no recurrences of stenosis during follow-up.

CONCLUSION: Percutaneous transhepatic balloon angioplasty is an effective treatment for the portal vein stenoses that occur after LDLT. Our center has had good results with this technique.

Abstract# 384
LEFT LATERAL SEGMENT LIVER TRANSPLANT FROM A LIVING DONOR IN PEDIATRIC PATIENTS. Mehmet Haberal,1 Sinasi Sevmis,1 Hamdi Karakayali,1 Figen Ozcyaz,1 Adnan Torgay,1 Gokhan Moray,1 Banu Bilezikci,1 Gulnaz Arslan,1 General Surgery, Baskent University, Faculty of Medicine, Ankara, Turkey; 2Pediatrics, Baskent University, Faculty of Medicine, Ankara, Turkey; 3Anesthesiology, Baskent University, Faculty of Medicine, Ankara, Turkey; 4Pathology, Baskent University, Faculty of Medicine, Ankara, Turkey;

PURPOSE: Living-donor liver transplant with a left lateral segment for small pediatric patients is a well-accepted procedure; however, the size of the graft may be too large, especially for children weighing less than 10 kg and aged younger than 1 year. In this study, we evaluate our experience with left lateral segment liver graft.

METHOD: Since September 2001, 111 liver transplants have been done in 108 children at our center. Living-donor liver transplant was done using the donor’s left lateral segment in 65 children. Children were divided into 2 groups: group 1 consisted of 33 children who had graft-to-recipient weight ratios less than 3%, and group 2 consisted of 32 children who had graft-to-recipient weight ratios of 3% or more.

RESULTS: The median weights of the children in groups 1 and 2 were 18.5±6.6 kg and 4.1±0.8. Postoperative complications, acute rejection rates, and graft and patient survival rates were similar in both groups. Delayed abdominal closure was required in 1 child in each group. None of children required mechanical ventilation postoperatively. Daily Doppler ultrasonographic evaluations show no size-related graft perfusion problems. During a mean follow-up of 29.6±20.4 months, 8 children died (5 in group 1 and 3 in group 2). The remaining 57 children (90.4%) are alive at the time of this writing with good graft functioning.

CONCLUSION: Left lateral segment living-donor liver transplant is feasible for small babies with liver failure who weigh less than 10 kg and are aged younger than 1 year. Grafts with graft-to-recipient weight ratios larger than 3% may be used safely in children. This is significant clinically because it decreases the unnecessary need to reduce graft size, which may be time consuming and can lead to complications.

Abstract# 385
USE OF INHALED NITRIC OXIDE (iNO) AFTER LIVER TRANSPLANTATION IN CHILDREN AFFECTED BY HEPATOPULMONARY SYNDROME. C. Barbanti,1 S. Vedovati,1 M. Corno,1 M. Collodan,2 D. Codazzri,1 PICTU, OSP Riuniti di Bergamo, Bergamo, Italy; 2Liver and Lung Transplantation, OSP Riuniti di Bergamo, Bergamo, Italy.

PURPOSE: Hepatopulmonary syndrome (HPS) is a pulmonary vascular disorder characterized by the clinical triad of chronic liver disease, intrapulmonary vascular dilations, and arterial hypoxemia. The pathogenesis of intrapulmonary vasodilatation in HPS is unclear. Liver Transplantation (OLTx) is the only effective treatment. We investigated the impact of administration of inhaled NO (iNO) in children with echocardiographic diagnosis of HPS undergoing OLTx.

METHOD: In the period from March 2001 and August 2008, 13 children (M:F 4:9; median age 6.8 years range 0.6-11.4 median weight 22.8 kg, range 6-41) affected by HPS underwent OLTx. The underlying liver disease was biliary atresia in 7 children, cryptogenic cirrhosis in 2, Byler’s disease in 1, focal nodular hyperplasia in 1 and hepatopetal sclerosis in 1. All patients were sedated and mechanically ventilated at arrival to the operating room (rare PICU). If gas exchange failed to improve with standard ventilation modalities (PaO2/FiO2 < 200, with FiO2 up to 70% and PEEP up to 6 cmH2O), iNO (10-20ppm) was administered. In responders, defined as PaO2/FiO2 ratio increase >10% after 30 min, iNO was continued and progressively reduced until extubation.

RESULTS: Mean PaO2/FiO2 ratio of the study population at admission was 176.1±112.5. 8 pts (61%) were tested for iNO in persistent hypoxia (PaO2/FiO2 < 200 not responsive to standard ventilation modalities). Mean PaO2/FiO2 ratio pre-test was 91.8±24.2. All pts (100%) were responders. Mean PaO2/FiO2 ratio post-test was 152.0±27.5; the mean increase in PaO2/FiO2 ratio after the test was statistically significant (t* = 0.0156).

CONCLUSION: iNO administration may be useful in the treatment of hypoxia in children with HPS not responding to standard ventilatory support after OLTx.

Abstract# 386
RENAL FUNCTION AFTER LIVER TRANSPLANTATION IN CHILDREN. Jesper M. Kivelä,1 Mikko P. Pakarinen,2 Heikki Mäkiäalo,2 Hannu Jalanko,3 Christer Holmberg,4 Jouni Lauronen.1 Department of Pediatric Nephrology and Transplantation, Hospital For Children and Adolescents, Helsinki University Central Hospital, Helsinki, Finland; 2Department of Pediatric Surgery, Hospital For Children and Adolescents, Helsinki University Central Hospital, Helsinki, Finland; 3Department of Transplantation and Liver Surgery, Helsinki University Central Hospital, Helsinki, Finland.

PURPOSE: Although prognosis of pediatric liver transplantations (LTXs) is generally good, kidney function after LTX holds a great concern, mainly due to calcineurin inhibitor nephrotoxicity. Here we report long-term renal function in children after LTX using a measured glomerular filtration rate (GFR).

METHOD: During 1987-2007, 97 LTXs to 83 children were performed at the Hospital for Children and Adolescents in Helsinki. Cyclosporine, azathioprine and methylprednisolone immunosuppression was used for all patients and, if clinically indicated, cyclosporine or azathioprine was replaced with tacrolimus or mycophenolate, respectively. GFR was measured by clearance of 125Cr-EDTA before transplantation, on discharge, 1 year post-LTX and yearly thereafter, and corrected by using modified Bröchner-Mortensen equation. GFR values of deceased patients and of cases with 125Cr-EDTA distribution volume outside the range of 15% to 35% were excluded.

RESULTS: 57 children (31 male patients and 26 female patients) were included. Mean age at the time of LTX was 6.3 years (range 0.4-16.2). Diagnoses leading to LTX were biliary atresia (n=22), metabolic disorders (n=13), hepatic malignancy (n=8), and miscellaneous (n=7). One, 5- and 10-year patient and graft survivals were 82%, 76%, 73% and 66%, 63%, respectively. Mean GFR (ml/min/1,73m²) before LTX, at discharge, 1, 5 and 10 years after LTX were 88 (n=19), 63 (n=27), 86 (n=23), 83 (n=21), 70 (n=14), and 60 (n=10), respectively.

CONCLUSION: Our preliminary data indicates that after immediate reversible decrease of GFR, renal function remains stable for at least 5 years after LTX, but tends to decline thereafter. Thus, long-term follow-up of renal function is of utmost importance.

Abstract# 387
LIVING DONOR LIVER TRANSPLANTATION IN CHILDREN: 12-YEARS EXPERIENCE. Serguei V. Gautier,1 Olga M. Tsirulnikova,1 Alexander A. Ammosov,1 Vitaly N. Poptsov,1 Hizzy M. Hizroev,2 Dinara F. Bagjildina,1 Elena V. Chekletsova,4 Natalia S. Muratova,1 Jan G. Mojsjuk,1 National Research Institute of Transplantology and Artificial Organs, Moscow, Russian Federation.

PURPOSE: Twelve years experience of living donor liver transplantation (LDLT) is observed to evaluate special aspects of patients pool, surgical technique and outcome.

METHOD: Since March 1997 247 LDLT were performed in 239 patients. Among patients 168 were children of age from 6 months to 17 years and body mass from 3 kg to 92 kg. Left lateral sector was used in 82 patients with body mass not more than 15 kg (including 4 retransplantation). All the rest pediatric patients received right lobe...
Abstract# 388
EVIDENCE OF RENAL HYPERFILTRATION IN CHILDREN WITH BILIARY ATRESIA UNDERGOING LIVER TRANSPLANTATION. Tonya Kara,1 Simon E. Chin,2 Stephen Moutt,1 Helen M. Evans.1 1Department of Paediatric Nephrology, Starship Children’s Hospital, Auckland, New Zealand; 2Department of Paediatric Gastroenterology, Starship Children’s Hospital, Auckland, New Zealand. PURPOSE: Chronic kidney disease (CKD) is recognised as a long term complication of liver transplantation (LT). It is thought to be due to long term use of calcineurin inhibitors but peri LT factors (eg acute renal failure, infection & nephrotoxic drugs) & underlying disease (eg Alagille syndrome) may also play a role. Biliary atresia (BA) is a single organ disease with no known renal component. There have been reports of associated renal hypertrophy in BA. Hyperfiltration (kidney hypertrophy, proteinuria & hypertension which may be the precursors to irreversible glomerulosclerosis and CKD) has not previously been described in BA. The aim was to examine a cohort of BA children undergoing LT assessment for evidence of renal hyperfiltration & dysfunction prior to LT. METHOD: Retrospective review of the following renal parameters in 20 children with BA (10M, 10F; median age 8 mo (range 4 – 99 mo) undergoing LT assessment between 2006-8: blood pressure & content, creatinine & estimated (eGFR), renal lengths & contents on ultrasound & proteinuria (raised protein or albumin/creatinine ratios). RESULTS: Median creatinine was 22μmol/L (range –20 – 46). Median eGFR was 93mls/min/1.73m² (range 74 - 114). Median systolic BP was 90th centile, range 5-99th centile adjusted for height, sex, and age. 14/19 (74%) children had proteinuria. Median renal lengths were on the 95th centile for age, sex & height with 39/40 (98%) and 28/40 (70%) above the 50th & 90th centiles respectively. CONCLUSION: Children with BA had hypertension, renal hypertrophy & evidence of hyperfiltration prior to LT, despite seemingly normal renal function which may have been inaccurate due to low muscle mass & hyperbilirubinaemia. Cystatin C has thus been introduced as part of LT assessment to more accurately assess GFR. Further studies are needed to look for progression of these changes post LT & to assess BA children with successful Kasai who do not require LT to determine if these observations are disease specific or related to liver failure per se.

Concurrent Session V: Organ Specific: Kidney 5

Abstract# 389
PULSE WAVE VELOCITY IN CHILDREN FOLLOWING RENAL TRANSPLANTATION. Eva Kis,1 Orsolya Cseperekal,1 Attila J. Szabo,1 Adam Remport,1 Tivadar Tulassay,2 György Reusz.1 1First Department of Pediatrics, Semmelweis University, Budapest, Hungary; 2Research Laboratory for Pediatrics and Nephrology, Hungarian Academy of Sciences, Budapest, Hungary; 3Department of Transplantation and Surgery, Semmelweis University, Budapest, Hungary. PURPOSE: Arterial stiffness (AS) increases with age; a process accelerated by uremia and reversed by transplantation (Tx). Increased ASI results in elevated pulse wave velocity (PWV). METHOD: To compare the PWV of Tx patients (n=25, age=15.1 ±95%CI=13.5-16.7) and healthy controls, three control groups were formed: matched for age (A), for height and weight (H/W), and for age and height (A/H) respectively. To avoid the bias of the growth rate of Tx patients, scores of PWV were calculated (PWV-Z). Second, PWV-height (PWV/h) ratio was assessed. Pre-Tx serum Ca, P, PTH and the cumulative dose of calcitriol (cT) were also analyzed. Finally Tx patients were compared to ESRD patients (n=11). PWV was measured by applation tonometry. RESULTS: Tx were smaller than A and older than H/W. The PWV of Tx differed only and reversed by transplantation (Tx). Increased AS results in an elevated pulse wave velocity which may be the precursors to irreversible glomerulosclerosis and CKD. Hypertension was diagnosed by means of 24h ABPM in older and 3 single blood pressure measurements in younger. Spot urine samples were obtained. UA was detected using turbidimetric assay. Creatinine levels were estimated using modified Jaffé method. Urinary albumin/creatinine ratio (ACR) was calculated. Glomerular filtration was estimated using Schwartz formula or MDRD depending on age of a patient. RESULTS: 47 young renal transplant recipients were examined (mean age 18 year). Mean time after transplantation of 4 years (range: 4 months - 9 years). Hypertension was diagnosed in 40 patients (85%). Mean eGFR was 83±21 ml/min/1.73m². Increased ACR was observed in 28 patients (60%). Among hypertensive renal transplant recipients 24/39 had elevated ACR (61%). CONCLUSION: Hypertension and microalbuminuria as markers of progression of CKD and major risk factors for cardiovascular event in adults should be assessed in patients after renal transplantation regardless of age.

Abstract# 390
PREVALENCE OF METABOLIC SYNDROME IN PRE-TRANSPLANT KIDNEY RECIPIENTS. Mara Medeiros,1 Gabriela Amador,1 Saul Valverde,1 Pilar García-Roca,1 Luis Velasco-Jones,1 Georgina Toussaint,1 Benjamín Romero,1 Nefrología, Hospital Infantil de México Federico Gómez, Mexico City, DF; Mexico; 2Nefrología, Hospital Infantil de México Federico Gómez, Mexico City, DF, Mexico. PURPOSE: The Metabolic Syndrome (MS) is a cluster of cardiovascular risk factors that include: obesity, hypertension, low HDL level, high triglyceride level and impaired glucose metabolism. The aim of the study was to evaluate the prevalence of pre-transplant MS in pediatric kidney recipients. METHOD: A prospective cross sectional descriptive study was performed. Thirty-six pediatric children with end stage kidney disease (ESRD) in transplant protocol were included. The study was approved by the IRB, informed consent was obtained in all cases. From the clinical chart weight and height before renal transplant was obtained. Anthropometric measurements included weight, height, body mass index (BMI) and waist circumference. An eight hours fasting blood sample was drawn for serum creatinine, serum albumin, blood urea nitrogen (BUN), hemogram, serum total cholesterol, high density lipoprotein (HDL), low density lipoprotein (LDL), very low density lipoprotein (VLDL), triglycerides and a three hour glucose tolerance test (OGTT). Statistical analysis was performed using the software Graph Pad Prism version 5.0. RESULTS: The mean age of the patients was 13.8 ± 2.8 years. 14 of the 36 patients had MS (39.2%). High blood pressure, high triglyceride level and low HDL level was the most frequent combination. We found an abnormal glucose tolerance test in eleven patients (30.5%). There was no difference in age, gender, dialysis modality, BMI and cause of renal disease in patients with and without MS. CONCLUSION: The prevalence of MS in ESRD children was 39.2%. It is important to detect and treat the MS pre-transplant since renal transplant recipients will have additional risk factors that predispose them to cardiovascular disease, such as weight gain and impaired lipid and glucose metabolism due to the drugs used to prevent graft rejection (steroids and calcineurin inhibitors).

Abstract# 391
IL-6 GENE POLYMORPHISM IN CHRONIC ALLOGRAFT NEPHROPATHY. Sevgi Mir,1 Ebrou Yilmaz,1 Afgir Bedelli.2 1Pediatric Nephrology, Ege University, Izmir, Bornova, Turkey. PURPOSE: Post transplantation alloantigen-dependent and alloantigen-independent processes are both mediated by cytokines and chemokines. The cytokine and chemokine gene polymorphisms are associated with variable production, activity, expression, or ligand-receptor affinity. Chronic allograft nephropathy (CAN) is one of the main causes of graft loss in renal transplantation. Polymorphisms of cytokine genes have been associated with modified gene expression and increased cytokine production.
Inflammatory cytokines are thought to play an important role in various kidney graft diseases resulting in interstitial fibrosis and tubular atrophy. Interleukin 6 may contribute to monocyte recruitment results in tubulointerstitial damage. In this study role of IL 6 polymorphism was investigated in CAN in renal transplant patients.

**METHOD:** We studied 52 renal transplantation patients (cadaveric; n=31, living related; n=21) and 293 healthy volunteers. Renal allograft biopsy for histologic confirmation of CAN according to Banff classification was performed in patients with a gradual increase in serum creatinine levels more than 2 mg/dL or a 50% increase from the baseline levels for at least 6 months. Fifteen (32%) out of 52 patients were found to have CAN. IL 6 polymorphism was investigated by the PCR-RFLP and AS-PCR method.

**RESULTS:** The alleles and genotype distribution of IL6 gene was significantly different in control subjects than renal transplant patients (p<0.02). There were more patient with GG genotype in patient group than the control.

**CONCLUSION:** No association between IL 6 cytokine polymorphisms and the incidence of CAN was detected in renal transplant patients (ns). IL-6 174G/C polymorphisms had no effect on the incidence of CAN.

**Abstract #393**

**PREDICTORS OF GRAFT OUTCOMES IN PEDIATRIC KIDNEY TRANSPLANTATION: WHAT IS THE ROLE OF ETHNICITY?**

**Braddock, E, Shatat, 1 David J. Taber, 2 Nicole A. Weimert, 3 Emily B. Hammond, 2 Kenneth D. Chavin, 1 John K. Orak, 1 Prabhakar K. Baliga, 1 1Pediatric Nephrology, MUSC, Charleston, USA; 2Pharmacy Services, MUSC, Charleston, USA; 3Transplant Surgery, MUSC, Charleston, SC, USA.

**PURPOSE:** While significant racial disparities in outcomes still persist among adult kidney transplant recipients in the US, reports from Europe did not show similar differences. The aim of this study is to determine predictors of graft outcomes and examine the impact of ethnicity in pediatric kidney transplant recipients.

**METHOD:** Using a cross-sectional study design, records of 92 pediatric kidney transplant recipients performed at our institution between 7/99 and 4/07 were studied. Patients were grouped based on ethnicity (AA vs non-AA). Predictors of graft outcome were examined using multivariate-regression analyses.

**RESULTS:** Forty nine AA (mean age 12.5 ± 5 yrs) and 43 non-AA patients (mean age 11.6 ± 6 yrs) were studied. There were more females in the non-AAs (51% vs 27%; p<0.02). Table and figure display baseline characteristics and graft outcomes; AAs had significantly less age (p=0.004), P-Value 0.02. Rejection rates trended towards being higher in AAs.

**CONCLUSION:** Our cohort showed poorer graft outcomes in pediatric AA kidney transplant recipients compared to non-AA, potentially due to having less living donors and preemptive transplants. Preventing DGF and using tacrolimus may help maximize graft outcomes. Larger pediatric studies to examine the impact of ethnicity and predictors of kidney transplant outcomes are needed.

**Abstract #394**

**RENAAL TRANSPLANTATION IN CHILDREN: CRITICAL ANALYSIS OF AGE RELATED SURGICAL COMPLICATIONS.**

**Sabine Irtan, 1 Anne Maisin, 2 Véronique Baudouin, 3 Alaia El Ghoneimi, 1 Yves Nivoche, 1 Robin Azoulay, 1 Evelyne Jacqz-Aigrain, 1 Yves Aigrain, 1 Paediatric Surgery and Urology, Robert Debre Hospital, Paris, France; 2Paediatric Nephrology, Robert Debre Hospital, Paris, France; 3Paediatric Anaesthesia, Robert Debre Hospital, Paris, France; 4Paediatric Radiology, Robert Debre Hospital, Paris, France; 5Clinical Paediatric Pharmacology, Robert Debre Hospital, Paris, France.

**PURPOSE:** To retrospectively review the surgical complications of 202 renal transplantations in children.

**METHOD:** We performed a retrospective analysis of the data of 202 renal transplantation in 193 children between 1989 and 2007 at a single institution in Paris, in the aim of determining risk factors of urological and vascular complications.

**RESULTS:** Out of 193 grafts (combined renal and liver grafts were excluded), we observed urological complications in 42 cases (21.7%), leading to graft loss in 1 case and vascular complications in 27 cases (13.9%) leading to graft loss in 7. The urological complications were vesico-ureteral reflux (n=25, 12.4%), ureteral stenosis (n=10, 5.0%), anastomotic leak (n=4, 2%), ureteral necrosis (n=2, 1%) and inuducative pyelitis (n=1, 0.5%). Vascular complications were arterial stricture in 14 cases, arterial thrombosis in 4, venous thrombosis in 2 and others in 7. Donors aged less than 6 years were a risk factor of vascular complications leading to graft loss (p=0.0001). Overall graft survival is 84% at 5 years post transplantation.

**CONCLUSION:** In our serie, surgical complications remain a major cause of graft loss (12%) and morbidity in pediatric renal transplantation (38.9%). Young age of donors is the major risk factor of early graft loss due to vascular complication. However, donor selection based on age is limited by the shortage of organs.

**Abstract #395**

**ASSOCIATION OF BODY MASS INDEX, NUTRIENT AND FOLIC ACID INTAKE WITH DYSLIPIDEMIA IN CHILDREN AFTER RENAL TRANSPLANTATION.**

**Kristen L. Sgambat, 1 Jiaping He, 1 Asha Moudgil, 1 Nephrology, Children’s National Medical Center, Washington, DC, USA; 2Statistics, Children’s National Medical Center, Washington, DC, USA; 3Nephrology, Children's National Medical Center, Washington, DC, USA.

**PURPOSE:** Little data is available regarding the influence of body mass index percentile(BMI%) and nutrient intake on post-transplant dyslipidemia.

**METHOD:** Association of untreated fasting lipid profiles(LP) of 45 prevalent renal transplant recipients with demographics, BMI%, and nutrient intake was assessed. Dietary records were analyzed for intake of macro and micronutrients(% of recommended for sex and age). ANOVA and linear regression analysis were used for statistical association between LP and other parameters, adjusted R values are reported.

**RESULTS:** Children were a mean age of 14.1 yrs(range 2-21 yrs) and predominantly African American(75.5%). Overall prevalence of elevated total cholesterol(TC>200mg/dL) was 42%; LDL was elevated(>130mg/dL) and HDL was low(<35mg/dL) in 28.9% of children; 53.3% had triglycerides(TG) levels >95th percentile for-sex and-age. 48.8% of children had a BMI% >85th and 22.2% were obese(BMI%>95th). In multiple linear regression analysis, BMI% did not significantly correlate with TC, LDL, HDL or TG. LP was not associated with GFR, cause of ESRD, age, acute rejections, diabetes, or dialysis vintage. Total calories(p=0.043, R=0.22), total fat(p=0.034, R=0.23), and saturated fat(SF)intake(p=0.02, R=0.58) had weak positive associations with TC. Total fat(p=0.006, R=0.32),SF(p=0.008, R=0.31) and trans fat(p=0.010, R=0.30) intake correlated with LDL. Weak negative associations of folic acid intake with TC(p=0.049, R=0.21) and saturated fat intake with HDL(p=0.043, R=0.22) was observed.

**CONCLUSION:** 1. Dyslipidemia and overweight are prevalent in children after transplantation. 2. BMI% does not affect LP significantly. 3. Dietary intake of total calories, total fat, saturated fat and trans fat may be one of the factors contributing to dyslipidemia and should be limited post-transplant. 4. Decrease of ingested folic acid may be associated with dyslipidemia and warrants further investigation.

**Abstract #396**

**OSTEOPROTEGERIN IN CHILDREN ON DIALYSIS AND RENAL TRANSPLANTATION RECIPIENTS.**

**Nurcan Cengiz, 1 Ezra Baskin, 1 Nurzen Sezgin, 1 Umut Selda Buyrakci, 1 Yasemin Uslu, 1 Hamdi Karakayali, 1 Gulnaz Arslan, 1 Mehmet Haberal, 1 Pediatric Nephrology, Baskent University, Faculty of Medicine, Ankara, Turkey; 2Biochemistry, Baskent University, Faculty of Medicine, Ankara, Turkey; 3General Surgery, Baskent University, Faculty of Medicine, Ankara, Turkey; 4Anesthesiology, Baskent University, Faculty of Medicine, Ankara, Turkey.

**PURPOSE:** Osteoprotegerin (OPG) is produced by osteoblasts in response to PTH. The aim of this study was to investigate the importance of OPG in pediatric dialysis patients and renal transplantation recipients.

**METHOD:** Twenty-six patients on chronic hemodialysis (HD) (14 males, 12 females, aged 15.1±2.2 years) and 18 patients on continuous ambulatory peritoneal dialysis (CAPD) were included. Osteoprotegerin (OPG) was measured in serum samples from patients on dialysis and renal transplantation recipients.
RESULTS: The mean OPG levels of dialysis patients were significantly higher than those of the renal tx group and the control group (p<0.05). The mean OPG levels were similar in HD and CAPD patients (p>0.05). Also, there was no significant difference between OPG levels of the renal tx group and the control group (p>0.05). There was significant correlation between OPG levels and calcium (Ca) and alkaline phosphatase levels in all patients. We could not find any correlation between OPG levels and inflammation markers such as C-reactive protein, fibrinogen and cephalosporin levels. There was a negative correlation between OPG levels and age in the renal transplant recipients.

CONCLUSION: Our results suggest that OPG levels might be involved in the pathogenesis of KD. Further studies are needed to confirm our findings.

Abstract# 399
ATTENUATION OF AIRWAY OBLITERATION BY CD28 SUPERAGONIST ANTIBODY IN EXPERIMENTAL POSTTRANSPLANT BRONCHIOLITIS OBLITERANS.
Yongsheng Niu,1 Huimin Fan,2 Zhongmin Liu.1 Department of Cardiovascular and Thoracic Surgery, Shanghai East Hospital Affiliated to Tongji University, Shanghai, China.

PURPOSE: Chronic human lung allograft rejection, represented by bronchiolitis obliterans syndrome, is the single most important factor that limits the long-term survival following lung transplantation. The present study was designed to investigate the effects of superagonistic CD28-specific monoclonal antibody (supCD28 MAb) on preferentially expanded rat naturally occurring CD4+CD25+ Treg (nTreg) cells and its applicability in a model of posttransplant bronchiolitis obliterans.

METHOD: The orthotopic tracheal transplantation model in rats was used. One group received mIgG-treated as control. The experimental group underwent supCD28 Mab (mg/rat) via tail veins 5 Day before grafting. Kinetic changes in the selected cytokines (IL-4, IL-10, IL-8 and IFN- gamma) were measured by ELISA.

RESULTS: The allografts of animals treated with supCD28 MAb showed significantly less airway obliteration and rejection of the respiratory epithelium compared with allografts of untreated animals. Furthermore, supCD28 MAb administration revealed that nTreg cells were preferentially proliferating in vivo and recruited into the grafts. There was early posttransplant elevation in basal serum levels of proinflammatory chemokines IL-8 and IFN- gamma in control group compared to supCD28 MAb treated group. In addition, a threefold decline in IL-10 levels was found during BOS development. The increase of Foxp3 expression in the experimental group correlated with decreased production of IL-8 and IFN- gamma as well as increased production of IL-4 and IL-10.

CONCLUSION: Urinary proteomics identified a new set of urinary proteins and a number of potentially AR specific biomarkers from renal transplant patients. The validation of these potential biomarkers will offer a clinically applicable, non-invasive urinary diagnostic assay for AR.
Abstract # 400
THE ROLE OF PD-L1 SIGNALING IN THE REGULATION OF ALOLOGENIC IMMUNE RESPONSES. Frances R. Malone, 1 Weigang Wang, 1 Katie Carper, 2 Yvette Latchman, 3 James Perkins, 3 Jorge D. Reyes, 3 Wei Li. 2 1 Division of Transplantation, Department of Surgery, Seattle Children’s, Seattle, WA, USA; 2 Division of Transplantation, Department of Surgery, University of Washington, Seattle, WA, USA.

PURPOSE: PD-L1, has been recently identified as a ligand for PD-1, and is expressed on a variety of tissues and cells including T cells (CD4, CD8, natural killer [NK] T cells, B cells, and antigen presenting cells (APCs)). PD-L1 negatively regulates T cell function, inhibits T cell positive selection and development in the thymus, and plays a critical role in the regulation of peripheral tolerance.

METHOD: Heart transplantation was performed from PD-L1+ donors or recipients in MHC fully mismatched mouse combination of B6/PTA-I-/- and C3H strains. The immunologic function of allograft recipients was evaluated ex vivo by ELISPOT, MLR, CTL, and flow cytometry.

RESULTS: PD-L1 deficiency decreased Foxp3+CD4+T regulatory cells (Treg) and increased CD11b+ and CD11c+ cells in the spleens. Both T cell proliferative activity and allostimulatory activity of APCs from PD-L1-/- mice were enhanced. Heart allografts were rejected at an accelerated rate in both PD-L1-/- donors and recipients. This was associated with significantly augmented donor specific T cell proliferation and anti-donor CTL activities, and enhanced Th1 or Th2 type immune responses of heart allograft recipients. Both Th1 (IL-2, p < 0.05 and IFN-g, p < 0.05) and Th2 (IL-4, p < 0.05) cytokine production were increased significantly in the T cells of PD-L1-/- recipients. However, the T cells from the recipients of PD-L1-/- donors revealed a significant increase in only Th1 cytokine IFN-g (p < 0.05).

CONCLUSION: Deficiency in the PD-L1 signal altered the balance of peripheral lymphocytes, augmented the alloimmune responses of effector T cells and allostimulatory activity of APCs, and accelerated heart allograft rejection through the enhancement of anti-donor immune responses.

Abstract # 401
TRENDS IN IMMUNOGLOBULIN DEPLETION IN PEDIATRIC PATIENTS AFTER RITUXIMAB TREATMENT FOR ACUTE RENAL TRANSPLANT REJECTION. Valeriya Zarkhin, 1 Tara Sigdel, 1 Neeraja Kambham, 1 Minnie M. Sarwal. 1 Stanford University, Stanford, CA, USA.

PURPOSE: Sporadic reports of IgM depletion, with normal IgG levels, have been reported after extended Rituximab dosing and in certain rheumatological conditions, with minimal pediatric data.

METHOD: 10 pediatric patients (3-23 yrs; 3 patients <6 yrs) with biopsy proven B-cell positive acute rejection (AR) were treated with steroids and Rituximab (4 x 375 mg/m²/dose/wk) and followed for 12 mo. Serum blood CD19+ cells, serum levels of IgG, IgG subclasses, IgM and donor specific HLA antibodies (DSA) were monitored monthly.

RESULTS: Complete blood CD19 depletion was observed in all patients at 1 mo after Rituximab, with early repopulation (ERP) at 3 mo in 6 patients and late repopulation (LRP) at 6-12 mo in 4 patients. No changes were observed in levels of IgG in patients with ERP (Fig 1A), but a 2-fold decrease (p=0.03) in IgG and IgG1 subclass was noted with LRP, though these titers remained within the normal range. IgM decreased to low normal levels with B-cell depletion in ERP at all times, decreased below normal values (median drop of 53%) at 3 mo in LRP (Fig 1B). Low IgM level at 6 mo correlated with young patient age (age <6 yrs; r=0.8) with no differences in repopulation rates (2 ERP, 1 LRP). IVIG infusions normalized IgM levels. DSA class I levels were significantly decreased at 6 mo (2.7 fold reduction; p=0.02; Fig 2), with no differences for DSA II levels.

CONCLUSION: Rituximab treatment in pediatric patients results in a reduction in serum IgG to low normal levels in LRP, but can significantly decrease IgM levels in young recipients, independent of repopulation rates and is responsive to IVIG. We hypothesize that IgG may be produced by long-lived plasma cells, while IgM may be produced by plasmablasts and short-lived plasma cells, which may be more susceptible to Rituximab in young infants.

Abstract # 402
RECONSTITUTION OF PERIPHERAL BLOOD B-CELLS AFTER RITUXIMAB TREATMENT OF ACUTE RENAL TRANSPLANT REJECTION IN PEDIATRIC PATIENTS. Valeriya Zarkhin, 1 Patty Lovelace, 1 Li Li, 1 David L. Hirschberg, 1 Minnie M. Sarwal. 1 Stanford University, Stanford, CA, USA.

PURPOSE: Transient depletion of circulating and intragraft B-cells after Rituximab treatment has resulted in resolving of acute renal allograft rejection (AR) in pediatric patients. This study was undertaken to delineate the regeneration profile of different B-cell subsets in the peripheral blood after anti-CD20-mediated B-cell deletion given for CD20+ acute kidney rejection in pediatric transplant patients.

METHOD: Peripheral blood was collected from ten pediatric transplant patients (13.9 ± 5.9 yrs) treated with Rituximab (4 x 375 mg/m²/dose/wk) for CD20+ AR, five control pediatric patients (10.5±1.1 yrs) who got standard immunosuppressive treatment (Thymoglobulin and/or pulse steroids) for AR, five pediatric patients (9.4±3.7 yrs.) with stable graft function without history of rejections, and two healthy adult volunteers. B-cells were assessed using multicolor flow cytometry, and their developmental pathway was classified based on the expression of defined surface markers.

RESULTS: Transplanted patients (4.9±2.2 mo post-transplant) without history of rejections have significantly higher levels of CD19+/IgD+/CD27- naïve B-cells (88.175±5.22% from all CD19+ cells, p<0.001) and decreased levels of CD19+/IgD-CD27+ memory B-cells (8.8±3.6%, p=0.03) when compared to healthy adults (51.35±6.8% naïve and 38.7±4.8% memory). In transplanted patients (6.9±2.8 yrs post-transplant) with history of AR treated with standard immunosuppression, the memory B-cell count was significantly increased (p=0.0001) comparing stable patients and naïve/memory B-cell ratio was similar to those in healthy adults (p=0.5). We observed decrease in memory B-cell pool (delta=-27.49%, p<0.0001) along with increase in naïve B-cells (delta=+26.7%, p<0.0001) in patients treated with Rituximab (27.5±11.9 months post-transplant) when compared to patients on standard-of-care immunosuppression for AR.

CONCLUSION: Increase in circulating memory B-cells in pediatric transplanted patients is associated with history of AR. After successful treatment of AR with Rituximab, the majority of repopulated circulating B-cells are naïve.

Abstract # 403
SEQUENTIAL ANALYSIS OF HLA CLASS I AND CLASS II ANTIBODIES POST-TRANSPLANT PREDICTS THE RISK FOR ACUTE REJECTION IN PEDIATRIC RENAL TRANSPLANT RECIPIENTS. Heiko Billig, 1 Caner Suesal, 2 Jörg Ovens, 2 Reinhard Feneberg, 2 Britta Hoecker, 2 Karel Vondrak, 2 Ryszard Granada, 2 S. Hansson, 3 David Milford, 3 M. Lucan, 3 Gerhard Opezl, 3 Burkhard Toenshoff, 1 University Children’s Hospital, Heidelberg, Germany; 2 Department of Transplantation Immunology, University, Heidelberg, Germany; 3 Investigators of the TWIST Study Group.

PURPOSE: Reliable immunological tests that predict the risk of acute rejection after renal transplantation (RTx) are currently not available.

METHOD: 28 patients (age 12.5±3.9 yrs, range, 2.2 - 17.8 yrs) participating in the TWIST study was included in this immunologic substudy. 7 of 28 patients experienced either biopsy-proven borderline changes according to Banff’05 criteria (n=6) or acute T-cell-mediated rejection type IA (n=1); there was no acute or chronic antibody-mediated rejection (C4d negative). HLA class I and II antibodies as well as serum sCD30 content, a marker for the activation state of Th2-type cytokine producing T cells, were measured by solid phase ELISA before RTx and on days 7, 14 and 60 post-transplant.

RESULTS: Median sCD30 concentration fell from pre-transplant values of 222 U/mL (range, 41-405) to 58 U/mL (range, 17-162) on day 7 post-transplant, most likely due to immunosuppressive therapy. After day 14, sCD30 concentration increased modestly in the steroid withdrawal group (P<0.001) but not in the control group; sCD30 was, however, not associated with the risk of acute rejection episodes (ARE). In contrast, anti-HLA class I or II antibodies, either pre-transplant or early post-transplant, were significantly (P<0.001) associated with an ARE in 6 of 7 patients; 3 of 6 patients experiencing an ARE showed an increase in HLA class II antibody reactivity post-transplant. None of these elevated HLA antibodies were donor-specific. Combined analysis of anti-HLA class I and II antibodies increased the diagnostic accuracy (bivariate multiple regression analysis).

CONCLUSION: Sequential measurement of anti-HLA class I and II antibodies can identify patients with a higher immunologic activity post-transplant and may serve as a novel tool for predicting the risk of ARE in the early post-transplant period.

Abstract # 404
AZITHROMYCIN INHIBITS AIRWAY OBLITERATION IN RAT ALLOGENIC TRACHEAL GRAFT. Yongsheng Niu, 1 Huimin Fan, 1 Zhongmin Liu, 1 Hao Cao. 1

PURPOSE: To investigated potential immunomodulatory effects of azithromycin in a model of posttransplant bronchiolitis obliterans.

METHOD: The heterotopic tracheal transplantation model in rats was used. Three groups received azithromycin and underwent different immunosuppressive regimens.
of cyclosporine, A is that, no immunosuppression, insufficient immunosuppression, or low-dose immunosuppression. Three groups underwent the same immunosuppressive regimen but had no azthromycin treatment. Tracheas were harvested after 21 days and examined with respect to histology and expression of selected cytokines (MCP-1, MIP-2, IL-10 and TGF-beta). 

RESULTS: The allografts of animals treated with azthromycin showed less airway obliteration compared with allografts of untreated animals. When combined with low-dose immunosuppression azthromycin showed beneficial effects in preventing airway obliteration and rejection of the respiratory epithelium. Cytokine gene expression of the allografts treated with azthromycin was higher with respect to IL-10 and equal with respect to MCP-1, MIP-2 and TGF-beta compared with controls. When applied in combination with cyclosporine A, azthromycin lowered the expression of TGF-beta , MCP-1, MIP-2 and increased IL-10 expression.

CONCLUSION: Azthromycin attenuates airway rejection after tracheal transplantation. Genetic expression of mediators that are known to play an important role in mediating rejection in this model supports an anti-inflammatory and immunomodulatory role of azthromycin.

Abstract# 405

CELLULAR ALLOREACTIVITY CORRELATE WITH CLINICAL OUTCOMES IN CHRONIC REJECTION. Ines Humar,1 Zvonimir Puretic,1 Jubicija Bubic.1 1University Hospital Zagreb, Zagreb, Croatia.

PURPOSE: We hypothesize that vascularized transplants have the potential to activate naive T cells in the absence of secondary lymphoid organs, when no other activation pathways are present. The priming and effector pathway could be operative for the lifetime of the allograft and thus contribute to the development of chronic graft injury. The difference is: (a) grafts destroyed by the action of antibodies or (b) by direct cellular cytotoxicity, as occurs with cytotoxic T cells (CT).

A cross-sectional analysis of T cell and humoral immunity in human renal allograft recipients with or without deteriorating renal function was performed. The prospective study of possible risk factors for CR is based on 6, 73, 7 years (form 1-19 years).

METHOD: Peripheral blood lymphocytes from 86 renal allograft recipients were studied against splenocytes of original donor. 33 recipients have signs of CR. Limited assay for T helper and cytotoxic T cells were used to assess cellular immunity to donor. MH-reactive alloantibodies were detected by standard microlymphocotoxic assay. For statistical difference Cox regression and logistic regression was used.

RESULTS: Mean frequencies of Tp cells in regression analysis were no statistically different in two groups. CTL frequencies of donor-reactive peripheral blood lymphocytes and the number of T cells who respond to donor antigens per group were statistically higher in CR patients versus non CR control (P<0.0328). In CR group significant difference is present between measurements r=1.163.66; P= 0.05, opposite to non CR recipients. Log rank analysis showed that recipients with posttransplantation anti-HLA antibodies are in 3.9 x high risk for CR with P=0.001.

CONCLUSION: Our results suggest that persistent cell-mediated and humoral alloimmunity contribute to the development of CR and demonstrate that anti-donor immunity in patients with CR is heterogeneous. Immune monitoring to predict long-term outcome should include multiple measures of cellular and humoral immunity. It seems that activation of naive alloreactive T cells outside of secondary lymphoid organs contributes to the alloimmunity under standard conditions.

Abstract# 406

MYCOPHENOLATE MOFETIL-ASSOCIATED COLITIS POST-TRANSPLANTATION IS CAUSED BY APOPTOSIS OF COLON CELLS VIA CASPASE-8 ACTIVATION. Beatrice Golić,1 Melanie K. Greifer,1 Morris Edelman,1 Barbara Sherry,1 Howard Trachtman.1 1Department of Pediatrics, Division of Nephrology, Schneider Children’s Hospital, North Shore-Long Island Jewish Healthcare System, New Hyde Park, NY, USA; 2Department of Pediatrics, Division of Gastroenterology, Schneider Children’s Hospital, North Shore-Long Island Jewish Healthcare System, New Hyde Park, NY, USA; 3Department of Pathology, Long Island Jewish Hospital, New Hyde Park, NY, USA; 4Center for Immunology and Inflammation, The Feinstein Institute for Medical Research, Manhasset, NY, USA.

PURPOSE: Mycophenolate mofetil (MMF) is a widely used immunosuppressive drug, however gastrointestinal complaints are a limiting side effect. We report a 17 year old recipient of a kidney transplant who developed colitis two years post transplantation. Colonoscopy demonstrated friable mucosa and histopathology revealed apoptosis of colon cells. MMF was discontinued. We postulated that apoptosis in mycophenolate mofetil (IHC) studies to determine the mechanism of MMF-induced apoptosis.

METHOD: Sections of colon tissue obtained during colonoscopy were deparaffinized and rehydrated. Epitope retrieval was achieved with heating. Non-specific binding was blocked and slides were then incubated with antibodies directed against activated caspases-8 (extrinsic apoptosis), -9 (intrinsic apoptosis), and -3. Binding was revealed using dianaminobenzidine substrate and counterstaining was done with hematoxylin.

RESULTS: IHC staining detected expression of caspases-8 (extrinsic apoptosis) and -3 (executing, downstream caspase), but no expression of caspase-9 (intrinsic apoptosis).

CONCLUSION: We conclude that 1) MMF can induce a reversible colitis by apoptosis in kidney transplant recipients and 2) apoptosis in MMF-induced colitis is mediated via extrinsic factors activating caspase-8. Immune-mediated colitis associated with apoptosis is mediated by cytokines, which also activate the extrinsic apoptotic pathway. Hence, MMF has been proposed to alleviate colitis symptoms by decreasing cytokine levels. We speculate that apoptosis in MMF toxicity is induced via factors other than pro-inflammatory cytokines.

Concurrent Session V: Miscellaneous 1

Abstract# 407

IMPAIRED MOTOR SKILLS IN CHILDREN WITH TRANSPLANTED LIVER. A CASE-CONTROL STUDY. Marianne C Lonneceken, Unn Jensen, Anne Terese Tvetter, T Sanengen, Inger Holm. Division of Rehabilitation, Rikshospitalet University Hospital, Oslo, Norway; Division of Rehabilitation; Division of Rehabilitation.

PURPOSE: Motor competence beyond the norm will influence the performance of both daily life activities and participation in sports. Clinical observations indicate that many of liver-tx children show motor problems. The purpose of the present study was to examine the prevalence of impaired motor skills in liver-tx children, compared to healthy controls.

METHOD: 21 liver-tx children at the age 4-12 years were included and compared to a reference group of 494 healthy children. The mean age for the liver-tx children was 8.2 years. 12 out of 21 children had their first transplant during their first year of life. The movement-ABC (Assessment Battery for Children) was used to evaluate motor skill performance. The test consists of 8 items measuring manual dexterity, (5 items, 15 points), ball skills (2 items, 10 points) and balance (3 items, 15 points). The total score range from 0-40, with increased impairment associated with higher scores. Total scores between the fifth and 15th percentile suggest a degree of motor difficulty that is borderline, below the fifth percentile indicates definite motor problems.

RESULTS: The two groups were identical regarding age and gender. There was a significant difference in total ABC score, for the transplanted and healthy children, the scores for manual dexterity were 4.7 and 1.4, for ball skills 2.3 and 1.6, for balance 3.0 and 1.6, and for total impairment score 9.3 and 5.3, respectively. The highest discrepancy was found in manual dexterity. The results indicated that liver-tx children have a risk of clumsiness or severe motor problems more than 4.0-8.5 times the healthy children.

CONCLUSION: Children with liver-transplants showed significantly impaired motor skills compared to healthy children. Liver-tx children have a risk of clumsiness or definite motor problems more than 4.0 and 8.5 times that of healthy controls, respectively. It is important to take these findings into consideration when tailoring an optimal habilitation program for the liver transplanted children.

Abstract# 408

INTRACRANIAL PRESSURE MONITORING IN CHILDREN WITH SEVERE COAGULOPATHY DUE TO LIVER FAILURE – OUR EXPERIENCE. Malgorzata Markiewicz-Kijewska,1 Slawomir Barzezcy,2 Piotr Kalicinski,1 Hor Ismael,3 Marek Szymerczak,4 Tomasz Drowniak.1 1Pediatric Surgery and Organ Transplantation, Children’s Memorial Health Institute, Warsaw, Poland; 2Pediatric Neurosurgery, Children’s Memorial Health Institute, Warsaw, Poland.

PURPOSE: Neurological complications of brain edema and increased intracranial pressure in patients with acute liver failure are main causes of mortality and morbidity in these patients. Therefore we include ICP probe insertion and ICP monitoring in our standard of treatment in all patients with acute liver failure or decompenisating developing stage II coma, despite the risk of intracranial bleeding due to severe coagulopathy present in most of these children.

METHOD: Between 1997-2008 we implanted 19 ICP catheters in 18 children with liver failure (in one two catheters were implanted). Patients age was between 1.7-20.5 years (mean 10.43 yrs). Before all procedures of catheter implantation except two, we used recombinant activated factor VII (eFVIIa) to improve coagulation and diminish risk of intracranial bleeding. We administered between 17-100 mcg/kg body mass. One patient was not transplanted due to too long waiting for new liver and multiorgan failure. Patients were in coma 3-11 days (mean 5.8).

RESULTS: Administration of eFVIIa improved INR from 2.8-8.5 (mean 3.43) to 1.1-1.6 (mean 1.3). ICP monitoring was done 2-12 days (mean 4.53 days). Complications related to ICP catheter insertion developed in 2 patients (11%), subdural hematoma and bleeding in to brain cavity), both underwent neurosurgical intervention (one during liver transplantation procedure). Out of 18 children 13 are alive (all after LTx) with follow-up 0.99-8 years (mean 5.33 yrs), 5 died of MOF and brain damage due to brain oedema (4 after LTx) as the course of liver failure. None of survivors (including 2 children with early complications of ICP monitoring), developed any persistent neurological complications related to ICP catheter.

CONCLUSION: With the possibility of immediate and effective correction of coagulopathy before ICP catheter implantation we consider ICP monitoring as safe and very useful in the treatment of children with acute liver failure and coma.
Abstract# 409
BONE STATUS AFTER LIVER TRANSPLANTATION IN CHOLESTATIC CHILDREN – LONGITUDINAL STUDY. Edyta Krysiewicz,1 Elżbieta Karczmarewicz,1 Joanna Pawłowska,2 Paweł Pludowski,1 Ewa Skorupa,1 Halina Matusik,1 Jozef Ryżyko,2 Irena Jankowska,2 Mikolaj Teisseyre,2 Hor Ismail,1 Jacek Lukaszkiewicz,4 Roman Lorenc.1 1Biochemistry and Experimental Medicine, The Children’s Memorial Health Institute, Warsaw, Poland; 2Gastroenterology, Hepatology and Immunology, The Children’s Memorial Health Institute, Warsaw, Poland; 3Pediatric Surgery and Organ Transplantation, The Children’s Memorial Health Institute, Warsaw, Poland; 4Pharmacy Faculty, Medical University, Warsaw, Poland.

METHOD: The aim of the study was to evaluate the effect of successful LT on bone in cholestatic children.

RESULTS: Out of 70 transplant families 43 returned the consent forms and signed up to the service. 24 were contacted in writing and consent to inclusion in the project was obtained from those wishing to participate. 17 children (1.4 ± 0.4 years old) participated in long-term observation (4.4 ± 0.7 years). Bone status was expressed by densitometric parameters (total body BMD – TBBMD, total body BMC – TBBMC) that were determined before and 4.4 ± 0.7 years after LT (long-term observation). Biochemical parameters (serum bone turnover markers: OC, CTx, PINP, serum hormonal parameters: PTH, IGF-1, IGFBP-3, 25(OH)D, 1,25(OH)₂D) were analyzed before and 3-6 months after LT (short-term observation).

RESULTS: The mean values of TBBMC and TBBMD were significantly lower after LT compared with age-matched normal values. The mean TBBMC Z-score was -1.594 ± 1.329 before LT and -1.112 ± 1.235 after LT (p=0.282). The mean Z-score of TBBMD was -3.014 ± 1.386 before LT and -0.998 ± 1.190 after LT (p=0.000). TBBMC Z-scores after LT correlated with OC, CTx and IGF-1 levels. The changes in levels of OC, CTx and IGF-1 were associated with TBBMC Z-scores after LT. TBBMD Z-scores after LT correlated with CTx, PTH and IGF-1 levels 3-6 months after LT. The changes in OC and PINP levels before and after LT correlated with TBBMD Z-scores after LT.

CONCLUSION: Despite successful liver transplantation bone status expressed as TBBMC and TBBMD did not achieve values expected in healthy. Observed relationship between densitometric and early biochemical parameters indicates that PTH and IGF-1 may influence bone metabolism after LT. Changes in hormonal parameters and bone turnover markers after LT may be used as early predictors of fracture risk indirectly assessed by TBBMC and TBBMD.

Abstract# 410
INNOVATIONS IN COMMUNICATION; TEXTING FAMILIES: A NEW SERVICE. Richard Kirk,1 Angela Nicholson,1 Julie G. Flett,1 1Paediatric Cardiorespiratory Transplant Unit, Freeman Hospital, Newcastle Upon Tyne, United Kingdom.

METHOD: To audit a method of improving communication with our transplant families, particularly teenagers who can be particularly difficult to motivate to take on their own care. We believe that the use of technology which most children and young people are familiar with, will improve concordance and independence.

RESULTS: The service tried to provide an easy method of sending individual text messages to multiple family members, allow them to text back and leave a message trail to ensure delivery of texts and documentation. The young people and their families were contacted in writing and consent to inclusion in the project was obtained from those wishing to participate. Out of 70 transplant families 43 returned the consent forms and signed up to the service. After 3 months a service evaluation form was sent out to these families. Of these, 24 were returned but 6 hadn’t used the service and were excluded from analysis. Reasons for non-use of the service were not given in 5 and in one it was due to technical problems.

RESULTS: 94% of respondents found it an easy system to use. 88% found sending the same text to both parents useful. 86% felt they had a timely response to their texts. 76% preferred this to telephone communication. All with teenagers felt the service was good except for one with special needs. Of those who used the service, only 2 had problems and both felt the time to confirmation of text receipt was too long. 94% wished the service to continue (1 person felt they hadn’t had sufficient time with the service to say).

CONCLUSION: Herein we describe our experience with pediatric patients referred for multivisceral or intestinal transplantation and treated with other modalities.

METHOD: From 1999 to 2008 there were 15 pediatric patients referred for transplantation who instead underwent some form of surgical intestinal rehabilitation. Patient diagnoses included gastrochisis, volvulus, Hirschsprung’s disease, NEC, and abdominal tumors. All patients were cared for by a multidisciplinary team that included transplant surgeons, pediatric gastroenterologists, nutritionists, and pharmacists. Rescue modalities included surgical intervention followed by bowel rehabilitation (7 STEP procedures and 5 stoma closures), and resection with auto-transplantation (3 patients).

RESULTS: Overall results were excellent; with all patients demonstrating improvement in their enteral intake and continued weight gain. Seven patients (46%) were able to be weaned TPN altogether. However, there were 2 deaths due to septic complications in patients being rehabilitated with short gut syndrome.

CONCLUSION: In selected cases, multidisciplinary care of complex intestinal patients has resulted in rescue of intestinal function, and the avoidance of morbidities associated with transplantation and life long immunosuppression.

Abstract# 413
FOOD ALLERGY AFTER LIVER TRANSPLANTATION IN CHILDREN: A PROSPECTIVE STUDY. Ozlem Yilmaz Ozbek,1 Figen Ozay,2 Zekai Avci,1 Ferdan Ozbay Hosnüt,1 Hamdi Karakayali,2 Gulnaz Arslan,1 Mehmet Haberal.2 1Pediatrics, Baskent University, Faculty of Medicine, Ankara, Turkey; 2General Surgery, Baskent University, Faculty of Medicine, Ankara, Turkey.

METHOD: Food allergies (FA) have been increasingly reported in children who underwent LT. We aimed to conduct a prospective study to identify potential risk factors and investigate the prevalence of sensitizations and FA in pediatric LT patients.

RESULTS: Twenty-eight children with end-stage liver disease (14 male, mean age 4.96±0.76 years) who had LT between September 2004 and February 2008 included in the study. Total eosinophil count, total IgE, and food specific IgEs were studied before and 3.6, 12 months after LT.
RESULTS: Six patients (21%) developed multiple food allergies. Mean age of 6 patients at LT who developed FA was younger compared to the non-FA group (10.2 months versus 68.9 months, respectively, p<0.05). Food allergy had been developed within 1 year in 5 and 20 months in one patient after LT. All 6 patients had cow’s milk and egg allergy after LT. Five children developed wheat, 1 child developed lentil and another one developed peach allergy in addition to cow’s milk and egg. The allergic symptoms were chronic diarrhea in 3 patients, angioedema in one patient, and both in 2 patients. We performed endoscopic examinations in three of 5 patients who developed diarrhea. Endoscopic examinations were visually normal; however, duodenal and colonic biopsies revealed eosinophilic duodinitis and eosinophilic colitis in all of them. Before LT, total eosinophil counts and total IgE levels were not differed among food allergic and non-food allergic patients (p>0.05). Mean value of total eosinophil counts were significantly higher in food allergic group compared to non-food allergic group at each time point after LT (p<0.05). Though statistically insignificant, mean of total IgE levels were also higher in the food allergic group (p>0.05).

CONCLUSION: Pretransplant investigations (total IgE and eosinophil count) did not predict post LT FA. Young infants were more prone to developing FA. Elevated total eosinophil counts may be an indicator for FA.

Abstract# 414
BRIDGING THE GAP: BACK TO SCHOOL. Kirsten Fowler, Marilyn Moonan, Johanna Black. Children’s Hospital, Boston, USA; Children’s Hospital, Boston, USA; Children’s Hospital, Boston, USA; Children’s Hospital, Boston, USA.

PURPOSE: As part of the Pediatric Transplant Center (PTC), Child Life Specialist (CLS) have created a Back-to-School (BTS) Program in collaboration with nursing and social work, for pediatric transplant patients and families. This poster will describe how the BTS Program helps ease the transition for children re-entering school after prolonged hospitalization and transplantation. It will also illustrate how the program integrates school staff of general medical information and provides developmentally appropriate information through play, promoting a better understanding and open communication.

METHOD: The transplant team supports the patient and family finding ways to integrate them back into school. Following transplant, an individualized school visit is offered to patients and families living within the region. The BTS visit may include a puppet show, powerpoint presentation, medical play, pin the organ on the body, hospital bingo, and proper hand hygiene. In addition, resources and general medical information are shared between the transplant nurse and school teacher and/or nurse.

RESULTS: As a result of positive feedback, the BTS Program expanded from being offered to the renal transplant population, to all transplant recipients. Medical teams, school staff, and parents have reported that after a BTS visit, there is increased school attendance and communication between school and hospital. Patients report they are more comfortable returning to school. Transplant staff report facilitating the BTS visits give them a better understanding of how the program informs school staff of general medical information and provides developmentally appropriate information through play, promoting a better understanding and open communication.

CONCLUSION: The BTS program offered to transplant recipients throughout the PTC helps to ease the transition for children re-entering school after prolonged hospitalization and transplantation. The PTC helps increase the communication and collaboration within the hospital and outside the hospital, bridging the gap between hospital and home.

Abstract# 415
HOSPITALIZATION IN PEDIATRIC RENAL TRANSPLANT RECIPIENTS: COMPARISON WITH CHILDREN UNDERGOING CHRONIC PERITONEAL DIALYSIS. Sema Akman,1 Mustafa Koyun,1 Yunes Emre Baysal,1 Ayfer Gür Güven.1 Pediatric Nephrology, Akdeniz University, Antalya, Turkey.

PURPOSE: Renal transplantation is preferred as a renal replacement modality because of its known comforts. However, major complications including acute rejection, infections, technical problems or drug side effects are risk factors for frequent hospitalization of renal graft recipients. We aimed to compare outpatient visits and hospitalization times of patients that underwent chronic peritoneal dialysis (PD) and renal transplantation in our clinic.

METHOD: We evaluated retrospectively all patients followed-up in the last 5 years. We compared age, gender, number of admissions for outpatient clinics, durations and indications of hospitalizations, complications including infections, hypertension and anemia of transplant and PD patients.

RESULTS: PD patients (n = 17, 6 male, mean age 12.3 years) and transplant patients (n = 44, 22 male, mean age 12.8 years) were presented as follows: Total duration 411 vs 484 months, total outpatient clinic day 444 vs 678 days, outpatient clinic day per patient 26 vs 21, total duration of hospitalization 38 vs 662 days, duration of hospitalization per patient was 2.2 vs 2.9 days, infection rate was 2.7% (patient included catheter related infections) and 1.23% (patient except catheter related infections) vs 0.95% patient, respectively. Hypertension (n = 11, 64.7%) and anemia (n = 12, 70.5%) were more frequent in PD patients than that of transplanted children (29.5%, 34%, respectively). Major reasons of hospitalization in transplant patients were acute rejection and severe infections.

CONCLUSION: It seems that follow-up of renal transplantation is not uneventful as most of the patients and parents presumed.

Abstract# 416
OUTCOMES AFTER ABO-IDENTICAL AND ABO-COMPATIBLE ORGAN MATCHING IN PEDIATRIC INTESTINAL TRANSPLANTATION. Cal S. Matsumoto,1 Stuart S. Kaufman,1 Chirag Desai,1 Raffaele Girlanda,1 Cheryl A. Little,1 Lyn B. Johnson,1 Thomas M. Fishbein,11 Pediatric Liver and Intestinal Transplantation, Georgetown University Hospital, Washington, DC, USA.

PURPOSE: With the scarcity of organ donors, it is imperative that donor organs are not only allocated on an ABO-identical (ABOid) basis, but also on ABO-compatible (ABOc) matching. Little is known regarding the outcome of pediatric intestinal transplantation (ITx) with regards to ABO compatibility. We sought to evaluate our pediatric ITx outcomes based on ABO matching.

METHOD: All pediatric ITx at our institution were evaluated in a retrospective manner. Organs were allocated without regard to ABO compatible/identical serotyping.

RESULTS: 43 pediatric ITx were performed from December 2003 to July 2008. Complete data was available for 40 recipients. 95.89% (24/25) recipients received an ABOc graft. All ABOc donors were ABO O. Recipient serotype was: ABO A (5); ABO B (3); and ABO AB (1). In the ABOc group, there were 6 Liver/Intestine (L/I), 1 Multivisceral (MVTx), and 2 Isolated Ix (Ixts). In the ABOid group, there were 17 I/ Ix, 9 MVTx and 4 Ix. Time to first rejection was in 87.5 ± 103.1 days in the ABOid group and 239 ± 145.6 days in the ABOc group (p=ns). 1 year freedom from rejection was 82.7% in the ABOid group and 64.2% in the ABOc group (p=ns). There was no significant difference in intraoperative or postoperative blood usage or other postoperative parameter.

CONCLUSION: The use of ABO compatible organ matching in pediatric ITx poses no increased immunological risks. Although there is a potential immune-mediated hemolysis risk, we did not see any increased blood transfusion requirement either intraoperatively or in the first postoperative week.

Abstract# 417
CMV VIROLOGICAL MONITORING IN PEDIATRIC INTESTINAL TRANSPLANTATION. Cal S. Matsumoto,1 Stuart S. Kaufman,1 Chirag Desai,1 Raffaele Girlanda,1 Cheryl A. Little,1 Lyn B. Johnson,1 Thomas M. Fishbein,11 Pediatric Liver and Intestinal Transplantation, Georgetown University Hospital, Washington, DC, USA.

PURPOSE: Cytomegalovirus (CMV) disease is the most common opportunistic infection in organ transplantation and a significant source of morbidity. Little is known of the incidence and risk factors in pediatric intestinal transplantation.

METHOD: CMV immunoperoxylsins consisted of blood samples drawn daily for 2 weeks, followed by po valganciclovir 25mg/kg until POD 90; Cytoam 150mg/kg weekly for 1 month, then biweekly until POD 90. Quantitative serum CMV DNA PCR was monitored on a weekly basis until at least 180 days. Immunosuppression consisted of Basiliximab induction, steroids, tacrolimus, and sirolimus. Thymoglobulin induction was utilized on sensitized patients in lieu of Basiliximab. Patients were divided into 4 Donor/Recipient CMV Ig serologic groups: 1) neg/neg 2) neg/pos 3) pos/pos 4) pos/neg.

RESULTS: 43 pediatric intestinal transplants were performed from January 2004 to July 2008. Average recipient age was 3.8 ± 3.97 years, weight 13.63±15.47 kg, and total 208.37±162.24 days. 11.51±37.59 L of OLT, 178.52±142.47 L of ITx, 1022±142.42 L of inf. volumes. 48% of the patients developed CMV viremia in p<0.05 group. Freedom from CMV viremia in the patient group was 76.9% in group 4 (high risk) versus 91.3% in groups 1, 2, 3 combined (p = 0.129). 2 patients developed recurrent episodes with each episode lasting 40.5 ± 26.34 days. Both of these recipients were from group 4. Invasive intestinal graft CMV disease was observed in 2/5 recipients, both occurring in group 4 and both recipients received Thymoglobulin induction.

CONCLUSION: The onset of the development of CMV is not statistically different in high risk CMV recipients. It appears, however, the severity of the viremic episodes is greater with more refractory disease and invasive graft disease not seen in the lower risk groups. In addition, antibody depleting induction may be a risk factor for the development of graft invasive disease in the high risk CMV recipient.
**Abstract# 418**

**TWENTY-FOUR HOUR AMBULATORY BLOOD PRESSURE PROFILES OF PEDIATRIC LIVER TRANSPLANT RECIPIENTS.** Umut Selda Bayrakci,1 Ersa Baskin,2 Figen Ozcyzay,2 Kaan Gulleroglu,2 Ferda Ozbay Hosnut,2 Sinasi Sevmis,3 Hamdi Karakayali,3 Mehmet Haberal.1 1Pediatric Nephrology, Baskent University, Ankara, Turkey; 2Pediatric Gastroenterology, Baskent University, Ankara, Turkey; 3General Surgery, Baskent University, Ankara, Turkey.

**PURPOSE:** Hypertension is a frequent cardiovascular risk factor in liver transplant recipients. ABPM has proven to be more reliable than office blood pressure (BP) measurement in diagnosis of hypertension.

**Aim:** The aim of this study was to assess the 24 h BP profiles of liver transplanted patients and to compare the results with healthy children.

**METHOD:** ABPM was performed to 20 (M/F: 8/12) liver transplanted patients and 27 (M/F: 14/13) age and sex matched healthy children aged 6.5±5.2 and 8.7±2.6 years respectively. Renal functions, the status of donor and immunosuppressive therapy were evaluated. Sixteen patients were receiving tacrolimus, 2 cyclosporin and 2 sirolimus during the study while, all of them had steroids and mycophenolate mofetil as a part of immunosuppressive protocol.

**RESULTS:** The mean duration of post-transplant follow-up was 32±19 months. Eight (40%) patients found to have hypertensive and 65% of patients found to be non-dippers. Night time BP load was found to be elevated in 5 of them while, 3 of them were found to have high day time and night time BP loads. Number of subjects with high night time systolic (14.8±27.1) and diastolic BP load (20.8±35.1) as well as day time diastolic BP load (8.2±14.9) was found to be significantly higher in the study group (p=0.01, 0.03 and 0.03 respectively).

**CONCLUSION:** Alteration of the “normal” circadian rhythm is very frequent in liver transplant recipients. Thus, it is essential to perform ABPM in all transplanted subjects in order not to underdiagnose hypertension.

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**Abstract# 419**

**INFECTIONS IN PEDIATRIC LIVER TRANSPLANT RECIPIENTS.** Marion M. Aw,1 Janelle M. Liwanag,1 Vidyadhari Mali,2 Dale L. Loh,2 K. Prabhakaran,3 Seng Hock Quak.1 1Paediatrics, National University Health System, Singapore, Singapore; 2Paediatric Surgery, National University Health System, Singapore.

**PURPOSE:** To characterize the infections that occur after liver transplantation in children and determine their impact on mortality.

**METHOD:** Retrospective review of children who received liver grafts from August 1991 to August 2008, with particular reference to infectious complications that occurred within the first 6 months post-transplant.

**RESULTS:** Fifty-nine children underwent 64 liver transplants. Thirty-eight (64.4%) were living-related. Median (range) age at transplant was 4.6 (0.92 to 20.4) years. The most common indication was biliary atresia (57.6%). Post-operative antimicrobial prophylaxis was intravenous aminoglycosin. From 1997, intravenous ganciclovir was also given to recipients of cytomegalovirus (CMV) positive grafts. 107 infectious episodes occurred in 45 (76.3%) patients; 80 (74.7%) were bacterial, 15 (14.0%) fungal and 12 (11.2%) viral. The most common sites for positive bacteral cultures were the abdomen (diarrhea, peri-hepatic bile collections) (32.5%), respiratory tract (31.3%), urine (12.5%) and blood (10%). Gram negative rods were the most common pathogen (59.8%). CMV disease occurred in 4.7%, most of which occurred before ganciclovir prophylaxis was used. Three children (2.8%) developed EBV infection and 3 had EBV and CMV co-infection.

Overall mortality was 15.3% (n=9). Of these, 7 occurred within the first post-operative year: primary graft non-function (1), portal vein thrombosis with acute graft failure (1), fungal sepsis (1), E-coli septicemia with acute respiratory distress syndrome (1), EBV-related PTLD (2) and chronic rejection (1). Two late deaths occurred from complications of portal vein thrombosis.

**CONCLUSION:** Infectious complications are common after liver transplantation occurring in 76.3% of children. They are a direct contributor of patient mortality in 6.8%, and account for 57.1% of deaths within the first post-transplant year. An understanding of these infections would enable us to tailor strategies for antimicrobial prophylaxis and management in order to decrease patient morbidity and mortality.

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**Abstract# 420**

**SUCCESSFUL ISOLATED LIVER TRANSPLANTATION IN A CHILD WITH ATYPICAL HAEMOLYTIC URAEMIC SYNDROME DUE TO A MUTATION IN COMPLEMENT FACTOR H.** Wolfram Haller,1 David V. Milford,2 Timothy H. Goodship,3 Khalid Sharif,2 Dariusz Mira,2 Patrick J. McKiernan,2 1Liver Unit, Birmingham Children’s Hospital, Birmingham, United Kingdom; 2Department of Paediatric Nephrology, Birmingham Children’s Hospital, Birmingham, United Kingdom; 3Liver Unit, University Hospital Birmingham, Birmingham, United Kingdom; 4Institute of Human Genetics, University of Newcastle, Newcastle Upon Tyne, United Kingdom.

**PURPOSE:** Mutations in complement factor H (CFH) are an important cause of recurrent atypical haemolytic uraemic syndrome (aHUS) in childhood. It often progresses to endstage renal disease (ESRD) despite regular plasma exchange therapy. Recurrence of disease following renal transplantation is usual. Combined liver- kidney transplantation has been successfully performed in patients with ESRD. We report a child with factor H deficiency who underwent successful isolated liver transplantation prior to the onset of ESRD.

**METHOD:** The necessary data were collected by reviewing the patient’s medical notes.

**RESULTS:** A male child was diagnosed with aHUS due to a heterozygous mutation in CFH (R1215Q) at the age of 30months. He was managed by regular plasma exchange therapy decreasing from 4 times a week to twice weekly. His course was complicated by episodes of relapse triggered by sepsis. Despite impaired renal function he did not require haemodialysis. He underwent cadaveric isolated liver transplantation aged 4 years. The transplantation protocol incorporated a 1.5 volume plasma exchange immediately prior to transplantation and 10ml/kg plasma infusion during the anhepatic phase. Plasma exchange was discontinued immediately post transplant with no episodes of aHUS recurrence. His renal function is similar to pretransplant values after 7 months follow up.

**Summary:** Successful isolated liver transplantation has prevented relapse of aHUS without plasma exchange in the short term. Pretransplant plasma exchange avoided severe complications due to complement activation.

**CONCLUSION:** Isolated liver transplantation should be considered earlier in patients with aHUS due to mutations in CFH who are dependent on plasma exchange or who are at risk of developing ESRD.

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**Abstract# 421**

**LONG-TERM FOLLOW-UP OF PEDIATRIC ALLOGRAFT RECIPIENTS SURVIVING FOR MORE THAN 5 YEARS. A SINGLE CENTER EXPERIENCE.** Aurelio Sonzogni. Pathology, Ospedali Riuniti, Bergamo, Italy.

**PURPOSE:** Pediatric orthotopic liver transplantation has undergone a revolution resulting in a rising new population of long-term survivors with a long life-expectancy. Identification of factors influencing prognosis would bring more knowledge concerning the long term outcome.

**METHOD:** From October 1997 to July 2002, 166 children (83 male ,83 female) received a liver transplant at Ospedali Riuniti-Bergamo. Mean follow-up was 5 years. Mean age at surgery was 3.8 years (range 0.1-17.5 y). Biliary atresia was the most frequent indication (99 patients). Patients received split (118; 71.1%), whole-size (41; 24.7%), and reduced-size livers (7; 4.2%). Retransplantation was indicated in 22 (13.5%). Posttransplant immunosuppression was cyclosporine CsA-based in 50 patients (30%), Tac-based in 116 (69.9%). Long-term follow-up after hospital discharge was scheduled and standardized.

**RESULTS:** Overall patient survival rates at 1, 3, and 5 years were 87%, 84%, and 83%. Re-transplantation rate was 13.3%, graft survival was 82%, 78%, and 77%. Pre-transplantation variables with a significant adverse effect were UNOS status (p = 0.015), CsA (p = 0.001). Graft survival was negatively influenced by fulminant failure as indication for transplantation (p = 0.004), UNOS status (p=0.02), ischemia time (p = 0.016), CsA (p=0.001), episodes of PTLD, vascular complications, functional cholestasis (p < 0.001, p < 0.001, p < 0.001).

**CONCLUSION:** Several donor variables, CMV and EBV infection, auto-antibodies after transplantation, short-term complications, type of immunosuppression were identified as risks factors for long-term complications.

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**Abstract# 422**

**LIVER TRANSPLANT FOR CHILDHOOD HEPATIC TUMOR.** Gokhan Moray,1 Sinasi Sevmis,2 Figen Ozcyzay,2 Meyhtem Haberal,1 1 General Surgery, Baskent University, Faculty of Medicine, Ankara, Turkey; 2Pediatrics, Baskent University, Faculty of Medicine, Ankara, Turkey.

**PURPOSE:** Liver transplantation is the only treatment for untreaterable liver tumors. We present our experiences with using liver transplant to treat 14 children with untreaterable liver tumors.

**METHOD:** Between September 2001 and July 2008, we did 111 liver transplants in 108 children at our center. Fourteen of these 108 children (12.8%; mean age, 8.2±6.2 years; age range, 6 months to 16 years; male-to-female ratio, 8:6) had a preoperatively diagnosed or incidental hepatic tumor that we subsequently analyzed retrospectively. All grafts were obtained from living-related donors.

**RESULTS:** Ten children had hepatocellular carcinoma, 3 had a hepatoblastoma, and 1 had a neuroblastoma causing consumption coagulopathy. The liver tumors were diagnosed before the transplant in 11 children; in 3 children, we identified an incidental tumor. Two children received a right lobe graft, 7 received a left lateral segment graft, and the remaining 5 received a left lobe graft. The pathology findings demonstrated a mean tumor size of 3.3±2.5 cm. The number of tumors was less than 5 in 9 children, and more than 10 in the remaining 5 children. The largest tumor size was 11 cm. Four children had microvascular invasion. One child who had a hepatoblastoma causing consumption coagulopathy received systemic chemotherapy after the liver transplant. There have been only 2 tumor recurrences after a liver transplant. One child with a hepatoblastoma experienced lymphoproliferative disease 22 months after his liver transplant. During
a mean follow-up 29.7±15.5 months), 2 children died. At the time of this writing, the remaining 12 children are alive with good graft functioning.

CONCLUSION: Liver transplant is a good option for pediatric patients with unresectable hepatic tumors and provides long patient and disease-free survival.

Abstract# 423
THE EFFECT OF HORMONAL RESUSCITATION (HR) ON ORGAN UTILIZATION IN PEDIATRIC DONORS. Wida Cherikh,1 Stuart Sweet,2 UNOS, Richmond, VA, USA; 2St. Louis Children’s Hosp, St Louis, MO, USA.

PURPOSE: The benefit of hormonal resuscitation (HR) using a combination of corticosteroids, vasopressin, and T3/T4 in increasing the no. of organs transplanted (txd) from brain-dead deceased donors has been shown using the OPTN database. However, the benefit of HR in increasing organ utilization has not been studied separately in pediatric (ped) donors. The current study examines the effect of a 3-drug combination HR (3-HR), any 2 drug (2-HR), and any 1 drug combination (1-HR) utilization on likelihood of ped donor hearts (HRT), livers (LI), at least one of the kidneys (KI), and at least one of the lungs (LU) being txed compared to none of the drugs (0-HR).

METHOD: We included ped (<18 years) non-DCD donors reported to the OPTN database between 1/1/00 and 6/30/06 with 3-HR, 2-HR, 1-HR or 0-HR (N=5,957).

Multivariable logistic regression models were used to assess the effect of 3-HR, 2-HR and 1-HR on likelihood of donors having their HRTs, LIs, at least one of the LUs, and at least one the KIs txd compared to 0-HR. Results of the logistic analysis are presented as odds ratio (OR) and p-value. An OR=1 indicates an increased likelihood of the organ being txd.

RESULTS: Table below shows % of donors with organ txd and the adjusted OR of the donor organ txd (in parentheses) by organ and HR types. Asterisk next to OR indicates statistical significance (p<0.05).

<table>
<thead>
<tr>
<th>HR Type</th>
<th>KI</th>
<th>LI</th>
<th>HRT</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-HR</td>
<td>71% (1.00)</td>
<td>76% (1.00)</td>
<td>52% (1.00)</td>
</tr>
<tr>
<td>1-HR</td>
<td>82% (1.20)</td>
<td>84% (1.42)*</td>
<td>50% (0.93)</td>
</tr>
<tr>
<td>2-HR</td>
<td>90% (1.07)</td>
<td>80% (1.88)*</td>
<td>54% (1.07)</td>
</tr>
<tr>
<td>3-HR</td>
<td>93% (2.35)</td>
<td>91% (1.97t)</td>
<td>48% (0.84)</td>
</tr>
</tbody>
</table>

CONCLUSION: Compared with 0-HR, the use of 3-HR, 2-HR and 1-HR was associated with significantly increased odds of ped donors having their LIs and at least one of their LUs txd. The use of 3-HR, and 2-HR was associated with significantly increased odds of ped donors having at least one of their KIs txd compared to 0-HR. However, the use of HR was not associated with an increased likelihood of ped donor HRTs being txd.

Abstract# 424
DECEASED DONATION ACTIVITIES IN GAZI UNIVERSITY TRANSPLANTATION CENTER, ANKARA. Hakan Sozen,1 Emine Singin,2 Dilek Ezer,1 Demet Coskun,4 Ahmet Malihi,1 Aydin Dalgic,1 1General Surgery, Gazi University, Ankara, Turkey; 2Transplantation Center, Gazi University, Ankara, Turkey; 3Cardio Vascular Surgery, Gazi University, Ankara, Turkey; 4Anesthesiology, Gazi University, Ankara, Turkey.

PURPOSE: Cadaveric organ transplantation is one of the preferred ways of treating patients with end-stage organ failure.

METHOD: Gazi University, Medical faculty, Transplantation Center, Ankara was established on 1996. Since 1996, total number of brain death patients were 22. After January 2006 transplantation division was re-established. Between 1996 to January 2006 there were 6 brain-death patients and 3 family consents. After January 2006 the number of brain-dead patient was increased to 36 and the number of family consent was 16. For all brain-death cases, the rate of consent for donation was 45%. Totally 61 total solid organs (hearts, livers and kidneys) collected in this study period, 80% were transplanted at this center and 20% were offered to the National Coordinating System.

RESULTS: Newly developed Gazi University Transplantation division has implemented continuous in-service training programs to improve all health services provided. Also, continuing medical education programs are being instituted in organ procurement and transplantation centers. These training programs enhance staff members understanding of and participation in procedures related to transplantation and improves the total quality of the transplantation process. Thus, brain death patients and family consents increased 300% in only one year. In conclusion, the transplantation process in Turkey is still severely handicapped by organ shortage. The gap between the number of organs available and the number of patients waiting for transplantation continues to expand at an alarming rate.

CONCLUSION: The goal for the future is to create more effective protocols that will increase the consent rate and therefore allow better donor maintenance and higher rates of tissue/organ procurement and use with regard to the transplant coordination activities. Our newly enhanced transplantation activities will hopefully lead to a larger organ pool and shorter waiting lists.

Abstract# 425
DIAGNOSIS AND TREATMENT OF ACUTE REJECTION CAUSED BY DONOR SPECIFIC ANTI-MICA ANTIBODY IN A HIGHLY SENSITIZED, PEDIATRIC RENAL TRANSPLANT RECIPIENT (MAJOR-HISTOCOMPATIBILITY-COMPLEX (MHC) CLASS-I RELATED CHAIN A ANTIGEN). Shoba Narayan,1 Eileen Tsai,1 Jennifer Zhang,2 Elaine Reed,3 Robert Ettenger.1 1Dept of Pediatrics, Division of Nephrology, David Geffen School of Medicine at UCLA, Los Angeles, CA, USA; 2Dept of Pathology, Immunogenetics Center, David Geffen School of Medicine at UCLA, Los Angeles, CA, USA.

PURPOSE: Recent studies have shown that MICA (Major-histocompatibility-complex class-I related chain A) antigens are associated with renal allograft rejection (rjx) & failure. Current cross-match measures, using donor lymphocytes, fail to detect MICA antibodies (ABs). MICA ABs are not routinely tested prior to transplantation (Tx). This case report emphasizes the clinical significance of donor specific (DS) MICA AB mediated rejection.

METHOD: A 14 year old highly sensitized female with a panel reactive AB of 96% underwent desensitization with IVIG & rituximab. She received a HLA cross-match negative, deceased donor re-Tx. She had good allograft function (fx) until post-operative day ten when she presented with acute renal failure. Biopsy (Bx) revealed acute cellular rejection (ACR) type 2 & C4d+ antibody mediated rejection (AMR). She remained negative for DS HLA AB but had DS *012 MICA AB. Serial MICA AB titers were measured using Luminex technology.

RESULTS: DS *012 MICA AB was present in both pre & post-tx serum. Decline in MICA titers after plasmapheresis (plpx) & IVIG correlated well with normalization of renal fx. Subsequently, the patient developed a persistent but stable elevation of MICA AB despite n renal fx. Additionally, de-novo DS anti-HLA AB B55 appeared. Repeat Bx at 3 months revealed resolution of AMR but persistence of ACR.

CONCLUSION: Our case emphasizes the importance of screening for DS MICA AB in sensitized re-Tx recipients. Pre-formed DS MICA AB can cause ACR II & C4d+ positive AMR. Desensitization with IVIG & rituximab may not effectively decrease MICA AB. Plpx & IVIG may be an effective treatment. The persistence of MICA AB remains unclear, but may indicate accommodation given the normal renal fx & resolution of AMR. Further large prospective studies need to be formed in a larger cohort of patients.

Abstract# 426
SWITCH TO SIROLIMUS IN PEDIATRIC KIDNEY TRANSPLANTATION: ONE CENTER EXPERIENCE. Andrea L. Vogel,1 Felipe C. Cavagnaro,1 Marlene E. Aglony,1 Maria S. Peredo.1 1Pediatrics, Pontificia Universidad Catolica, Santiago, Chile.

PURPOSE: The main cause of kidney loss after transplantation is chronic allograft nephropathy (CAN). In adults, sirolimus has shown to prevent CAN due to antiproliferative properties and avoidance of nephrotoxic effects. The aim of this study is to determine the evolution of renal function in pediatric kidney recipients after changing the immunosuppressive therapy to sirolimus.

METHOD: Retrospective analysis of 10 children with kidney allograft switched to sirolimus because of anticalcineurinic toxicity, 4 had CAN, 1 hirsutism, 1 nephropathy1; cystinosis1; FSGS 1. Mean age at transplantation was 8 years. All patients had induction therapy; maintenance treatment was prednisone, ciclosporin and microfenolate in 9 and prednisone, tacrolimus and microfenolate in 1. 4 patients were switched to sirolimus because of anticalcineurinic toxicity, 4 had CAN, 1 hirsutism, 1 nephropathy1; cystinosis1; FSGS 1. Mean age at transplantation was 8 years. All patients had induction therapy; maintenance treatment was prednisone, ciclosporin and microfenolate in 9 and prednisone, tacrolimus and microfenolate in 1.
and 1 PTLD. The switch was made in average 2 years 11 months after transplantation (range 3 months-9 years, 10 months). 6 patients were switched in the first year of transplantation. Plasma trough levels of sirolimus were managed between 4.6 and 11.8 ng/ml. The average time of follow up is 2 years 6 months (range 2 months- 5 years 6 months). No acute rejection episodes have been documented. After the switch all patients showed an improvement of kidney function; in average, the CCI rose from 64.8 to 83 ml/min/1.73 m². Patients switched before one year of transplantation had better initial kidney function and showed greater improvement after the switch (average creatinine clearance (CrCl) rose from 80.8 to 107.5 ml/min/1.73m2). Patients switched after the first year had a smaller improvement (average CCI from 40.0 to 46.3 ml/min/1.73m2). No significant variations in leucocyte count, hemoglobin or cholesterol levels were seen.

**RESULTS:**

Height was calculated as height SDS.

**METHOD:**

KINDL(4-7, 8-12, 13-18 yrs and parents)QOL questionnaires were given without induction therapy.

**PURPOSE:**

To compare to the health related quality of life(QOL)scores of Turkish children who were dialysis patients(DP), renal transplant recipients(TR) and healthy children.

**METHOD:**

Questionnaires were responded by the patients, their parents and age-matched healthy school children as control group.

**RESULTS:**

143 TR and 70 DP aged between 4-18 yrs from 11 centers, the parents of these patients and 140 healthy peers participated the study. TR had lower scores in selfesteem, relationship with family and peers and school success than controls. It was found that only the physical healthiness scores were higher in TR group than those in DP group. 15-18 age group in DP had higher scores in relationship with family members and peers than those in younger patients besides 13-18 age group in TR had higher scores in physical, psychophysical components, relationship with family and peers than those in younger groups. Although the majority of the patients are in school age, 52.3% of the DP and 38.3% of the TR quitted school.

**CONCLUSION:**

TR and DP had lower QOL scores than healthy peers but surprisingly the overall subjective health perception of TR was not better than DP. Psychosocial and teaching support, encouraging school-going play an important role in well-being in patients with chronic kidney disease especially after transplantation.

**Abstract# 428**

**GROWTH AND FINAL HEIGHT AFTER PEDIATRIC RENAL TRANSPLANTATION.** Ulla B. Berg,1 1Division of Pediatrics, Department of Clinical Science, Intervention and Technology, Stockholm, Sweden.

**PURPOSE:** The growth of 187 children transplanted at the age of 0-4.19 (median 8.8) years was followed. 105 children reached final height. 72% of the patients had congenital disorders. 77% received their grafts from living donors (LD). Triple immunosuppression was given without induction therapy.

**METHOD:** Height was calculated as height SDS.

**RESULTS:** 135 patients with congenital disorders were shorter at the time of tx than those 52 patients with acquired disorders (median height SDS -1.89 vs. -0.97, p<0.0006). The height SDS did not differ between male and female recipients at time of tx. (median -1.83 vs. -1.53, p=0.13). One and two years after tx the height SDS was significantly lower in boys than in girls but thereafter no difference was seen. The most severely growth retarded patients at tx showed the best catch-up growth but were the most growth retarded when reaching adulthood. In fact, there was a direct correlation between height SDS at tx and final height SDS (r=0.63, p=0.0001). Median final height of male recipients was 171 cm and that of female recipients 161 cm but the median final height SDS was significantly better in females (-0.68 SDS) than in males (-1.25 SDS, p=0.007).

**CONCLUSION:**

Several children were growth retarded at time of tx but a catch-up growth was seen during the first years in most children whereasafter growth was declining. Final height of our patients was, however, better than in most reported studies. The most growth retarded patients showed the best catch-up growth but were the most growth retarded when reaching adulthood.

**Abstract# 429**

**TREATMENT OF POSTTRANSPLANT FSGS RECURRENCE WITH RITUXIMAB.** Viviane de Barros Bittencourt,1 Clotilde Druck Garcia,1,2 Valter Duro Garcia,1 1Pediatric Nephrology, Hospital da Criança Santo Antônio - Complexo Hospitalar Santa Casa, Porto Alegre, RS, Brazil; 2Escola de Ciências da Saúde, Porto Alegre, RS, Brazil.

**PURPOSE:** Posttransplant recurrence of FSGS was observed in approximately 55% of the patients (transplanted patients with or without HLA mismatches) in the Paedropheresis (PT) has been employed as the treatment of choice, with good results, but it is an invasive and expensive treatment. Rituximab has been used to treat several glomerular diseases and some posttransplant FSGS recurrences. Our purpose was to analyze our results with the use of rituximab in the treatment of FSGS recurrence.

**METHOD:** We used rituximab to treat 5 patients (ages 7, 9, 10, 16 and 21 years) with FSGS recurrence after renal transplantation. One donor was deceased, the other 4 were living donors. Immunosuppressive treatment consisted of tacrolimus, mycophenolate sodium and steroids. Two patients received daclizumab and one rituximab as induction. All patients developed proteinuria in the first posttransplant week. Rituximab 175mg/m² was given, concomitant with methylprednisolone pulses. Three patients received a single dosis and 2 received 2 infusions.

**RESULTS:** Proteinuria decreased and disappeared within the first 5 days after rituximab in 3 patients. Two patients received a second dosis one week after the first. Biopsy proven acute rejection (Banff IIA and IIIB) was observed concomitant with the recurrence in 2 patients, one was treated with thymoglobulin and the other only with rituximab and methylprednisolone. One patient, who failed to receive premedication with hydrocortisone, developed bronchospasm, which reverted with the use of steroids. No other adverse events were noticed. One child recurred after the sixth month. The treatment for recurrence was delayed for almost 1 month, because of distance of the transplant center, and a second course of rituximab was not effective. After a mean follow-up of 10 months (range 3-15 months), 4 patients are still in remission. All patients have normal renal function with a mean creatinine of 0.8±0.2mg/dl.

**CONCLUSION:** Treatment with rituximab appears to be a safe and less expensive option to PP for recurrent FSGS after renal transplantation.

**Abstract# 430**

**COMPARATIVE STUDY BETWEEN LIVING-DONOR ABO INCOMPATIBLE AND COMPATIBLE PEDIATRIC KIDNEY TRANSPLANTATION.** Yujiro Aoki,1 Takeshi Kawamura,2 Jiro Takasu,3 Manabu Saneshige,1 Taketo Yanagisawa,1 Osamu Motoyama,2 Ken Sakai,1 Akira Hasegawa,1 Sonoo Mizuiri,1 Atsushi Aikawa,1 1Nephrology, Toho University, School of Medicine, Tokyo, Japan; 2Pediatrics, Toho University, School of Medicine, Tokyo, Japan.

**PURPOSE:** The purpose of this study is to compare the outcomes between living-donor ABO incompatible (ABOINC) and compatible(ABOC) pediatric kidney transplantation.

**METHOD:** Nine and 29 children less than 15 years old, had living-donor ABOINC and ABOC kidney transplantation from 1995 to 2005. Immunosuppression consisted of cyclosporine or tacrolimus, mizoribine or mycophenolate mofetil, and methylprednisolone with or without thymoglobulin in both groups. Splenectomy under 14 was ABOINC kidney transplantation recipients. The incidence of acute rejection within 3 months post-transplantation, GFR, and patient and graft survival rates were investigated.

**RESULTS:** There was no significant difference in original disease, donor’s age and sex, HLA mismatch, the relation of donor to recipient, and except recipient’s age10.3±3.1 years old (ABOINC) vs. 8.3±2.4 years old (ABOC); p<0.05) and follow-up period79/29 vs. 105/41 months; p<0.05). Incidence of biopsy proven acute rejection in ABOINC was not significantly different between ABOINC and ABOC (4/9(44.4%) vs. 11/29(37.9%); NS). GFR post-transplantation was not significantly different between ABOINC and ABOC (119±30 vs. 104±27ml/min at 3 years; NS, 93.7±30 vs. 91.7±18ml/min at 6 years; NS). All children and their grafts in both groups have been so far survived (100%).

**CONCLUSION:** Outcomes of ABOINC was equivalent to those of ABOC pediatric kidney transplantation including renal allograft function.

**Abstract# 431**

**MCP-1 (MONOCYTE CHEMOTACTRACTIVE PEPTIDE-1) GENE POLYMORPHISM IN CHRONIC ALLOGRAFT NEPHROPATHY.** Sevgi Mir,1 Ebru Yilmaz,1 Afg Berdeli.1 1Pediatric Nephrology, Ege University Medical Faculty, Izmir, Bornova, Turkey.

**PURPOSE:** Chronic allograft nephropathy (CAN) is the histological description of the fibrosis,vascular and glomerular damage occurring in renal allograft. NonHLA-
mediated factors both humoral and cellular immunity levels have an important role on its development. CAN typically presents as progressive deterioration of graft function, evidenced by slowly rising plasma creatinine, proteinuria, and worsening of hypertension. In this study role of MCP-1 of adaptive immunity was investigated in CAN in children.

**METHOD:** Forty-seven renal transplantation patients (21 male 26 female; age range 9-29 years) were included in this study. Renal allograft biopsy for histologic confirmation of CAN according to Banff classification was performed in patients with a gradual increase in serum creatinine levels more than 2 mg/dL or a 50% increase from the baseline levels for at least 6 months. Fourteen of 47 patients were found to have CAN. MCP-1 polymorphism was investigated by the PCR-RFLP and AS-PCR method.

**RESULTS:** The 20 of the grafts came from living-related donors and 27 were from the cadaver. In patients developed CAN three of the grafts came from the living-related donors. There were two most common etiologies of chronic renal failure: reflux nephropathy and chronic glomerulonephritis (41.28%). 16 patients (34%) had received peritoneal dialysis while 31 had received hemodialysis (66%). Donor age was 34 years. Comparison of MCP-1 genotype distribution of allelic frequencies in transplantation patients and the healthy control group did not reveal any statistically significant difference. In patients with CAN, proteinuria and hypertension were detected in 3.3(21%) of the patients respectively.

**CONCLUSION:** MCP-1 polymorphism had no effect on the incidence of proteinuria and hypertension in patients with CAN. Recipient MCP-1 gene polymorphism of adaptive immunity did not alter the risk of chronic allograft failure. They did not statistically influence proteinuria and hypertension as a result the long-term renal allograft outcome in patients with CAN in this study.

**Abstract# 432**

**IMPACT OF DECLINE IN IDEAL KIDNEY DONORS ON PEDIATRIC AND ADULT WAIT TIMES IN UNOS REGION 1, Paul E. Morrisey, 1 William Harmon. 2 Division of Organ Transplantation, Brown Medical School, Providence, RI, USA; 3 Pediatric Nephrology, Children’s Hospital Boston, Boston, MA, USA.

**PURPOSE:** In 2005, the Organ Procurement and Transplantation Network (OPTN) adopted a policy to enhance the allocation priority for pediatric recipients by preferentially directing standard criteria donors (SCD) under the age of 35 years to pediatric recipients. Our organ procurement organization (OPO) experienced a simultaneous decrease in standard donors, limiting the number of suitable organs for pediatric recipients. We hypothesized that in the absence of the 2005 OPTN policy, pediatric recipients would have been disadvantaged by the current donor pool.

**METHOD:** Data as to donor demographics, kidney allocation, wait time, and transplantation were collected from the OPTN and our local OPO (New England Organ Bank). Statistical trends between time periods were analyzed by chi-square analysis.

**RESULTS:** The number of deceased kidney donors under 35 was stable over time (see Table); however, due to combined organ transplants (SPK, liver- kidney- heart) and exports (0-MM and paybacks) the number of kidneys from donors < 35 without CDC risk factors (lower risk) fell significantly. Opportunities for pediatric transplantation improved without a significant effect on adult wait time.

**CONCLUSION:** The 2005 OPTN policy change was instrumental in preserving the opportunity for high quality kidney allocation to pediatric recipients in our UNOS Region.

**Abstract# 433**

**THE IMPACT OF HAND ASSISTED LAPAROSCOPIC LIVE DONOR NEPHRECTOMY ON ALLOGRAFT FUNCTION.** Angel Alonso, 1 Araceli Garcia, 1 Carmen Garcia, 2 Marta Melgosa, 1 Laura Espinosa, 1 Enrique Jaureguizar, 1 M. Ceceds Navarro. 1 Pediatric Nephrology, Hospital La Paz, Madrid, Spain.

**PURPOSE:** Hand-assisted laparoscopic nephrectomy improves donor recovery and shortens hospitalization period; however minimal but necessary hot ischemia has been associated with functional alterations of the graft.

**METHOD:** Graft survival and glomerular filtration rate (GFR) obtained by both creatinine and cystatin C procedures were compared in two groups of patients for two years. In group 1 were included sixteen children (9.3 ± 5 years old, 56% males), who received individual kidney grafts from their parents (40.8 ± 7 years old; 25% males) obtained by hand-assisted laparoscopic nephrectomy. In group 2 were included 47 recipients (11.5 ± 5 years old; 57% males), who received individual kidney grafts from their parents (41.61 ± 7 years old; 34% males) obtained by open nephrectomy.

**RESULTS:** Neither open nor laparoscopic nephrectomy donors had relevant complications. Cold ischemia was similar in both groups: 1.9±0.3 hours. We did not find any significant differences between two groups of recipients in patient (100% vs. 98%) or graft (93.75% vs. 93.21%) survival at 48 months of transplant evolution; furthermore, Cox analysis showed that kind of nephrectomy was not decisive in graft survival. Time to reach the initial best GFR was significant higher in laparoscopic nephrectomy recipients (9.56 ± 2.3 vs. 4.72 ± 0.57 days) but paradoxically GFR was higher at six (122 ± 24 vs. 87 ± 17 ml/min/1.73m2), twelve (129 ± 45 vs. 88 ± 27 ml/min/1.73m2) and twenty four months (110 ± 64 vs 82 ± 30 ml/min/1.73m2) in this group of recipients.

**CONCLUSION:** Hand-assisted laparoscopic nephrectomy in living donors is a safe procedure and an effective alternative to open nephrectomy. In our recipients, we observed that this procedure delays functional recovery without affecting graft survival or GFR at 6, 12 and 24 months.

Concurrent Session VI: Bone Marrow/Stem Cell

**Abstract# 434**

**ALLOGENIC STEM CELL TRANSPLANTATION SIGNIFICANTLY IMPROVED LONG-TERM OUTCOME OF RELAPSED CHILDHOOD ACUTE LYMPHOBLASTIC LEUKAEMIA.** Andishe Atrabaschi, 1 Bettina Reismueller, 1 Christina Peters, 1 Ulrike Pöttschger, 1 Helmut Gadner, 1 Georg Mann. 1 Pediatric Hematology and Oncology, St. Anna Children’s Hospital, Vienna, Austria; 1 Children’s Cancer Research Institute, St. Anna Children’s Hospital, Vienna, Austria.

**PURPOSE:** The prognosis of relapsed acute lymphoblastic leukemia (ALL) is dismal with event-free-survival (EFS) rates about 35%. A central question is whether outcome could be improved by allogeneic stem cell transplantation (SCT).

**METHOD:** We examined the outcome of a population-based cohort of children suffering from relapsed ALL in Austria between 1998 and 1999. In particular, we compared survival rates of children after chemotherapy only and after allogeneic SCT. We included allogeneic SCT in a Cox regression analysis as a time-dependent covariate to regulate biases for waiting time to transplant and significant prognostic factors.

**RESULTS:** Two-hundred-and-three of 936 (23%) patients diagnosed with initial ALL suffered from recurrent disease. The probability of 10-year EFS for the total group was 34%. Clinical prognostic markers that independently influenced survival were time to and site of relapse and the immunophenotype. We demonstrated that allogeneic SCT after first relapse was associated with a superior EFS as compared to chemotherapy only (hazard ratio=0.254; p<0.001). Ten-year EFS for patients who received SCT in second CR was 55% compared to 35% for patients who received chemotherapy only (p=0.005). If only patients with an isolated bone marrow (BM) relapse were analyzed, 10-year EFS after SCT in second CR was 55% compared to 22% after chemotherapy only (p<0.001). For patients with a combined BM, 10-year EFS was not significantly different with 39% after SCT in second CR and 31% after chemotherapy only. When outcome of patients who received SCT in an earlier era (before 1995) was compared to SCT in a more recent period (1995 until 2005), also no significant differences were found (56% vs. 53%). Additionally, no patient who underwent SCT survived further BM relapse.

**CONCLUSION:** In conclusion, we have shown that children with relapsed ALL, especially those with isolated BM relapse, profit from allogeneic SCT in second remission.

**Abstract# 435**

**CLINICAL OUTCOMES OF ADOLESCENT PATIENTS UNDERGOING HEMATOPOIETIC STEM CELL TRANSPLANTATION.** Christine N. Duncan, 1 Leslie E. Lehmann. 1 Pediatric Oncology, Dana-Farber Cancer Institute, Boston, MA, USA.

**PURPOSE:** There is concern that the outcome for adolescent oncology patients is worse than that of younger patients with the same disease. The purpose of this study was to examine the effect of patient age on outcome following pediatric allogeneic hematopoietic stem cell transplantation (HSCT).

**METHOD:** We retrospectively reviewed the medical records of all pediatric allogeneic HSCT patients at our institution between January 1, 2001 and December 31, 2006. We investigated survival, cause of death, and occurrence of graft-versus-host disease (GVHD) in patients 15-21 years old at time of HSCT compared with patients 10-14.9 years old at transplant.

**RESULTS:** 127 patients greater than 10 years old (10-14.9 years= 73 patients; greater than 15 years = 54 patients) were transplanted during the study period. Indications for HSCT were similar in both groups (see table). 53.4% of patients in the younger group received matched unrelated donor (MUD) transplants compared with 48.1% in the older group. A greater percentage of patients in the younger group received cells from a donor matched at less than 6 HLA loci (20.5% versus 9.3%). There was no statistically significant difference in the incidence of chronic GVHD (younger 42.5%, older 46.2%). Patients greater than 15 years old had a higher risk of mortality compared to younger patients (odds ratio=1.85). Relapse was the cause of death (CD) in 13.7% of patients in the younger group and 16.7% of patients in the older group. Transplant related mortality (TRM) was greater in the older group (younger 16.4%, older 27.8%).
**CONCLUSION:** Older adolescents had increased toxicity resulting in increased mortality following HSCT compared to younger adolescents with similar underlying disease and transplant characteristics. Multicenter study is needed to better understand these findings and their potential impact on the care of adolescent stem cell transplant patients.

**Abstract #436**

**OPPORTUNISTIC VIRAL INFECTIONS AFTER PEDIATRIC HEMATOPOIETIC STEM CELL TRANSPLANTATION.** Carola Kullberg-Lindh,1,2 Karin Mellgren,1 Vanna Friman,3 Magnus Lindh,3 1Department of Pediatrics, Queen Silvia Children’s Hospital, Sahlgrenska Academy, Gothenburg University, Göteborg, Sweden; 2Department of Infection, Section for Infectious Diseases, Sahlgrenska Academy; 3Department of Infection, Göthenburg University, Göteborg, Sweden.

**PURPOSE:** Opportunistic infections after a hematopoietic stem cell transplantation (HSCT) contribute substantially to morbidity and mortality. To describe the incidence and presentation of viral infections after pediatric HSCT in Gothenburg 2001-2005, we investigated viral infections by real-time PCR for CMV, EBV, adenovirus (AdV), HHV6 and BK virus (BKV) DNA.

**METHOD:** We retrospectively studied 47 consecutive children (mean age 8.2, range 1-18 yrs, m/f ratio 26/21), followed after HSCT performed Jan 2001- Dec 2005. Thirty-four children had leukaemia, 6 immune deficiencies, 3 anaemia, 3 lymphoma and 1 osteopetrosis. Testing by real-time PCR targeting CMV DNA was performed on samples from the first 12 months (mean 20/patient), and EBV, AdV, HHV6 and BKV DNA (mean 6.5/patient) in samples from the first 4 months post HSCT.

**RESULTS:** Fourteen children died, 7 due to relapse of disease and 5 of infections, including 1 CMV pneumonitis, 1 adenovirus infection and 1 EBV-associated lymphoma. Medium or high levels (above 1,000 or 10,000 copies/ml) were seen in 13 patients. Ten patients had CMV DNA levels below 1000 copies/ml, while 24 were CMV DNA negative in all samples. Two patients had high EBV DNA levels: 2.1 million and 93,000 copies/ml. CMV DNA was negative in all samples. Two patients had high EBV DNA levels: 2.1 million and 93,000 copies/ml. EBV DNA was detected: 24, EBV DNA below 1000 copies/ml were found in 20 patients. One patient, who died of an AdV infection had AdV DNA above 10 million copies/ml.

**CONCLUSION:** Viral infections (CMV pneumonitis, AdV-infection and EBV-associated lymphoma, respectively) caused 21% (3/14) of all deaths. In spite of surveillance, frequent antiviral treatment and preemptive measures, viral complications remain a problem after HSCT. Improved diagnostics and monitoring protocols are needed, as well as better antiviral drugs for CMV and AdV and more efficient strategies for identifying and preventing EBV-induced PTLD.

**Abstract #437**

**OUTCOME OF SECOND MYELOABLATIVE HEMATOPOIETIC STEM CELL TRANSPLANT IN PEDIATRIC PATIENTS WITH RECURRENT HEMATOLOGIC MALIGNANCY.** Leslie E. Lehmann,1,2 Christine Duncan,1,2 1Pediatric Stem Cell Transplant, Dana Farber Cancer Institute/Children’s Hospital Boston, Boston, MA, USA.

**PURPOSE:** Children (pts) with hematologic malignancies who relapse following hematopoietic stem cell transplantation (HSCT) contribute substantially to morbidity and mortality. To describe the incidence and presentation of viral infections after pediatric HSCT in Gothenburg 2001-2005, we investigated viral infections by real-time PCR for CMV, EBV, adenovirus (AdV), HHV6 and BK virus (BKV) DNA.

**METHOD:** We retrospectively studied 47 consecutive children (mean age 8.2, range 1-18 yrs, m/f ratio 26/21), followed after HSCT performed Jan 2001- Dec 2005. Thirty-four children had leukaemia, 6 immune deficiencies, 3 anaemia, 3 lymphoma and 1 osteopetrosis. Testing by real-time PCR targeting CMV DNA was performed on samples from the first 12 months (mean 20/patient), and EBV, AdV, HHV6 and BKV DNA (mean 6.5/patient) in samples from the first 4 months post HSCT.

**RESULTS:** Fourteen children died, 7 due to relapse of disease and 5 of infections, including 1 CMV pneumonitis, 1 adenovirus infection and 1 EBV-associated lymphoma. Medium or high levels (above 1,000 or 10,000 copies/ml) were seen in 13 patients. Ten patients had CMV DNA levels below 1000 copies/ml, while 24 were CMV DNA negative in all samples. Two patients had high EBV DNA levels: 2.1 million and 93,000 copies/ml. CMV DNA was negative in all samples. Two patients had high EBV DNA levels: 2.1 million and 93,000 copies/ml. EBV DNA was detected: 24, EBV DNA below 1000 copies/ml were found in 20 patients. One patient, who died of an AdV infection had AdV DNA above 10 million copies/ml.

**CONCLUSION:** Viral infections (CMV pneumonitis, AdV-infection and EBV-associated lymphoma, respectively) caused 21% (3/14) of all deaths. In spite of surveillance, frequent antiviral treatment and preemptive measures, viral complications remain a problem after HSCT. Improved diagnostics and monitoring protocols are needed, as well as better antiviral drugs for CMV and AdV and more efficient strategies for identifying and preventing EBV-induced PTLD.
Abstract® 441
FIRST CASE REPORT OF A CHILD BORN VIA IN-VITRO FERTILIZATION WITH THERAPEUTIC INTENT (IVFTI) FOR THE TREATMENT OF SICKLE CELL DISEASE (SCD),
Liang Shen,1 Gina Jae,1 Adam Lewkowitz,2 Jessica Riester,2 Christine Acinapura,3 Gustavo Del Toro,1 Anne Hurlet,1 Tanmoy Mukherjee,1 1Mount Sinai School of Medicine, New York, NY, USA; 2Reproductive Medicine Associates of New York, New York, NY, USA.
PURPOSE: SCD is a relatively common inherited illness in the African-American and Hispanic populations of the USA, that can only be cured with allogeneic hematopoietic cell transplantation (HCT) from a HLA-matched, unaffected sibling. However, few pediatric SCD patients have siblings eligible to be potential donors. In-vitro fertilization (IVF) with preimplantation genetic diagnosis (PGD), or IVFTI, allows for the conception of an unaffected, HLA-matched sibling whose umbilical cord blood may be harvested for transplant. Despite the promise of these procedures, IVFTI for SCD has not been validated in the peer-reviewed medical literature. Our goal was to perform IVFTI for purposes of HLA-matching and SCD screening.
METHOD: A couple, both carriers of the SS mutation in the hemoglobin gene, with a 6-year-old son affected with SCD, underwent IVFTI. Three of the embryos produced did not bear the SS mutation. Of these, two were HLA-matches to the affected son. All three embryos were implanted, and one embryo survived to term. Upon the child’s birth, the placental umbilical cord blood was harvested and shipped for testing and storage under the Sibling Connection Program run by ViaCord and Children’s Hospital of Oakland Research Institute.
RESULTS: A family of the harvested cord blood confirmed HLA compatibility with the affected child. Newborn screening results confirmed the donor sibling is not affected with SCD. A HCT using the cord blood has been scheduled for six months from the time of birth.
CONCLUSION: We have demonstrated the feasibility of pre-selecting unaffected, HLA-matched embryos as sources of hematopoietic cells for a sibling with SCD. This event adds urgency to the need for better understanding of the complex social, ethical, and financial concerns IVFTI may engender in the SCD population, and to the need for subsequent development of adequate policies regarding its use.

Abstract® 442
GLOMERULAR AND TUBULAR RENAL FUNCTIONS IN CHILDREN HAVING STEM CELL TRANSPLANTATION, V.
Hazar,1 O. Gungor,2 A. Gur Guven,1 F. Gungor,3 H. Akbas,1 G. Karasu,1 A. Yesilipek,1 1Pediatric Hematology & Oncology, Akdeniz University School of Medicine, Antalya, Turkey; 2Pediatric, Akdeniz University School of Medicine, Antalya, Turkey; 3Pediatric Nephrology, Akdeniz University School of Medicine, Antalya, Turkey.
PURPOSE: The impact of these results was significant because in our area organ are allocated on the basis of a negative CDC cross match due to interference by prior Rituximab administration. V. Phan,1 M.J. Clermont,1 1Renal Transplantation, CHU Ste-Justine, Montreal, Canada.
PURPOSE: As an anti CD 20 agent, Rituximab is being used more often in the last few years mostly for treatment of autoimmune diseases. Some clinical side effects have been observed and with its increased utilisation, other unforeseen complications will probably be reported. Herein we described unexpected consequence of Rituximab administration on false positive CDC cross match due to interference by prior Rituximab administration.
METHOD: The patient is a 16 y.o boy with systemic erythematous lupus undergoing chronic dialysis. He was treated with 4 doses of Rituximab (375 mg/m² dose) for persistent lupus anticoagulant despite good immunologic control. Prior CDC and flow cross matches were negative with 0% PRA. As per our standard immunologic surveillance protocol, a CDC and flow cytometry cross match (FCXM) were repeated 1 month after the completion of Rituximab.
RESULTS: The repeat CDC cross match was highly positive for B and T cells in the order of 60 to 70% despite serum pretreatment with DTT. Interestingly, the FCXM was negative both for B and T cell. The CDC cross match was repeated 1 month later and the discordance between the two techniques match was observed again. The impact of these results was significant because in our area organ are allocated on the basis of a negative CDC cross match. Therefore some organ were not allocated to this patient because of positive CDC cross matches. Most probably the cross matches would have been negative by low flow cytometry. Exogenous humanized and chimeric antilymphocyte antibodies like Rituximab may interfere with antibody detection methods such as complement-dependent cytotoxicity.
These agents are recognized as anti-human antibodies or fix complement and are not differentiated from significant anti-allo-antibodies.

CONCLUSION: Rituximab may interfere with CDC cross matching techniques. Thus in cases where PRA by CDC techniques become positive after Rituximab treatment, organ allocation should be made based preferably on the result of flow cross match until the effect of Rituximab has disappeared.

**Abstract# 445**

HEALING ENERGY: NON-PHARMACOLOGICAL APPROACHES FOR HOSPITALIZED PEDIATRIC TRANSPLANT PATIENTS. Marilyn Monan,1 Camilla Cook,1 Kirsten Fowler,1 Lorraine Bossi,1 Joanne O’Sullivan-Oliveira,1 ‘Children’s Hospital, Boston, USA; 1Children’s Hospital, Boston, USA; 2Children’s Hospital, Boston, USA.

**PURPOSE:** The scope of nursing practice includes many complementary interventions to increase comfort, relieve pain, promote relaxation, improve coping mechanisms, reduce stress and increase a sense of well-being. This poster will introduce the use of integrative therapies that have become standard comfort measures used with hospitalized pediatric transplant.

**METHOD:** The multidisciplinary transplant team of nurses and child life specialists have participated in educational forums addressing four evidence-based complementary interventions: Therapeutic Touch, Guided Imagery, Reiki and Relaxation Massage. The practitioners bring back to their patients, fellow staff and units practice-based evidence skills that contribute and complement comfort care measures. In conjunction with pharmaceutical interventions, complementary care adds another dimension of comfort to patients and families.

**RESULTS:** As the number of multidisciplinary practitioners offering complementary interventions increase, so do the requests for these therapies from patients and family members. It has been reported that these intentional interventions cause a calming effect on the total patient unit’s atmosphere. This continuing education empowers the multidisciplinary staff by widening their scope of practice. In addition to the integrative therapies offered by nurses, child life specialist and clinical staff, there has been an expansion of complementary therapies that include acupuncture, therapeutic massage, pet therapy, play, music therapy, and art therapy.

**CONCLUSION:** The transplant multidisciplinary team supports the continuation and growth of the use of complementary interventions with the pediatric transplant population. Next steps are planned research projects that will measure the satisfaction of multidisciplinary team members who practice complementary care and the effects on patient care.

**Abstract# 446**

SCLEROSING CHOLANGITIS IN CHILDREN – A SINGLE CENTER REVIEW. Tamir Miloh,1 Ronen Arnon,1 Benjamin Shneider,2 Frederick Suchy,3 Nanda Kerkar,1 ‘Pediatrics, Mount Sinai Medical Center, New York, NY, USA; 1Department of Pediatric Gastroenterology, Children’s Hospital of Pittsburgh, Pittsburgh, PA, USA.

**PURPOSE:** There is limited data on pediatric Primary sclerosing cholangitis (PSC).

**METHOD:** Retrospective chart review of 47 children with PSC was performed.

**RESULTS:** Mean age at diagnosis was 11±4.9 years. Symptoms occurred prior to presentation in 81%. Inflammatory bowel disease was found in 59% and autoimmune hepatitis (overlap syndrome) in 25%. Magnetic resonance cholangiography revealed both extra and intra-hepatic, isolated intrahepatic, isolated extrahepatic and no biliary involvement (small duct PSC) in 40%, 14%, 10% and 36%, respectively. At presentation, mean ALT/GGT were 421/810, 214/320 and 233/553 U/L, in patients with overlap syndrome, small duct PSC and the entire group, respectively. Advanced fibrosis (stage >II) was present in 65%. Colonoscopy revealed panniculosis, rectal sparing and normal findings in 24%, 24% and 18%, respectively. Average follow-up was 6.6 years (range 2-20 years). All patients were treated with ursodeoxycholic acid (UDCA), 9 with overlap also received immunosuppressants. Fifteen patients without overlap had positive autoimmune markers and responded to UDCA monotherapy. Median ALT/GGT one year interval were <50U/L. Liver transplantation was performed in 9 patients (3 with overlap and 2 with small duct PSC) at a median of 7 years after diagnosis. Ten year post transplant survival rate was 89%. One patient had PSC recurrence.

**CONCLUSION:** Most children with PSC had IBD or autoimmune overlap and advanced fibrosis at diagnosis. ALT and GGT were highest in overlap and lowest in small duct PSC patients. Serum liver enzymes improved dramatically with UDCA including patients with positive autoimmune markers without histologic features of autoimmune hepatitis.

**Abstract# 447**

PLASMA TOTAL HOMOCYSTEINE, PLASMA FOLATE, RED BLOOD CELL FOLATE AND PLASMA VITAMIN B12 LEVELS IN CHRONIC RENAL FAILURE PATIENTS AND RENAL TRANSPLANT RECIPIENTS. Mahmud O. Abuauba,1 Ryszard Grenda,2 Mieczyslaw Litwin,3 Maria Roszkowska-Blaim,2 Zbigniew Wawer,1 Ewa Pietraszek,1 Ewa Malunowicz,1 Urszula Brylska,1 1Department of Pediatrics, Zawia Teaching Hospital, Zawia, Libya; 2Department of Pediatric Nephrology, Medical Academy, Warsaw, Poland; 3Department of Clinical Biochemistry, Children’s Memorial Health Institute, Warsaw, Poland.

**PURPOSE:** The purpose of the study was to determine the prevalence of hyperhomocysteinemia in children with chronic renal failure and after renal transplantation and to determine the correlation between plasma total homocysteine and plasma folate, red blood cell folate and plasma vitamin B12 in children with chronic renal failure and after renal transplantation.

**METHOD:** In 30 patients with various degrees of chronic renal failure, remaining on medical conservative treatment (16 males and 14 females), with a mean age of 13.3 ± 4.2 years and in 18 stable renal transplant recipients with different degrees of renal graft function (10 males and 8 females), with a mean age of 13.4 ± 4.4 years, fasting plasma total homocysteine, renal function, plasma folate, red blood cell folate, plasma vitamin B12, and other parameters were measured.

**RESULTS:** Age-dependent hyperhomocysteinemia was observed in 73.3% of chronic renal failure patients and 72.2% of renal transplant recipients. A positive correlation was found between plasma total homocysteine and increasing age and serum creatinine, but a negative correlation was found between plasma homocysteine and glomerular filtration rate, plasma folate and plasma vitamin B12, but no correlation was found with red blood cell folate.

**CONCLUSION:** mild to moderate hyperhomocysteinemia is observed in 73.3% of chronic renal failure patients and in 72.2% of renal transplant recipients. Plasma total homocysteine levels in chronic renal failure and renal transplant recipients correlate negatively with plasma folate and plasma vitamin B12 but not with red blood cell folate.

**Abstract# 448**

SIMULTANEOUS LIVING RELATED COMBINED LIVER-KIDNEY TRANSPLANTATION FOR PRIMARY HYPEROXALURIA TYPE –I IN CHILDREN – FIRST IN SOUTH ASIA. Neelam Mohan,1 Dinesh Khullar,1 Rahul Kakodkar,2 Vinay Kummaran,3 Arvinder Soin.1 1Pediatric Gastroenterology & Hepatology, Sir Ganga Ram Hospital, Rajinder Nagar, Delhi, India; 2Department of Nephrology, Sir Ganga Ram Hospital, Rajinder Nagar, Delhi, India; 3Gyan Burman Surgery Unit, Sir Ganga Ram Hospital, Rajinder Nagar, Delhi, India.

**PURPOSE:** Primary hyperoxaluria type –I (PH1) is a rare inherited, autosomal recessive, metabolic disorder in which deficiency of liver enzyme alanine glyoxylate amino transferase (AGT) leads to renal failure and systemic oxalosis. Combined liver kidney transplant (CLKT) is the definite treatment of end stage renal disease (ESRD) caused by PH 1. We present our experience of 2 children who underwent simultaneous CLKT for PH 1 from 2 different related donors.

**METHOD:** Two children aged 16yrs and 15 years underwent CLKT for PH1 at our centre in April 2007 and March 2008. The diagnosis was suggested by kidney biopsy and confirmed by AGT estimation on liver biopsy. Age at renal failure was 14.5 and 14 years. On presentation their serum creatinine was 12.7 and 12.5 mg/dl and plasma oxalate was 127 and 103 mmol/L (normal <1.8 mmol/L) respectively. Both the patients were on dialysis (16 months and 9 months) which was intensified pre transplant to daily medical conservative treatment (16 males and 14 females), with a mean age of 13.3 years.

**RESULTS:** Pre transplant evaluation showed that oxalate load. Urinary oxalate levels continue to be high for more than a year post liver transplantation and to determine the correlation between plasma total homocysteine and plasma folate, red blood cell folate and plasma vitamin B12 in children with chronic renal failure and after renal transplantation.

**RESULTS:** As the number of multidisciplinary practitioners offering complementary interventions increase, so do the requests for these therapies from patients and family members. It has been reported that these intentional interventions cause a calming effect on the total patient unit’s atmosphere. This continuing education empowers the multidisciplinary staff by widening their scope of practice. In addition to the integrative therapies offered by nurses, child life specialist and clinical staff, there has been an expansion of complementary therapies that include acupuncture, therapeutic massage, pet therapy, play, music therapy, and art therapy.

**CONCLUSION:** The transplant multidisciplinary team supports the continuation and growth of the use of complementary interventions with the pediatric transplant population. Next steps are planned research projects that will measure the satisfaction of multidisciplinary team members who practice complementary care and the effects on patient care.
Abstract# 449  
**PEDIATRIC LIVER AND KIDNEY TRANSPLANTS: EXPERIENCES AT ONE CENTER.** Mehmet Haberal, 1  
1General Surgery, Baskent University, Faculty of Medicine, Ankara, Turkey.  
**PURPOSE:** Various immunologic, metabolic, and technical factors render pediatric recipients with end-stage renal or liver diseases unique from their adult counterparts. In addition, the potential for complications after renal or liver transplants are far greater in children than it is in adults. In this study, we retrospectively analyzed the clinical features of our pediatric recipients who had undergone a kidney or a liver transplant at our institution since 1985.  
**METHOD:** Since that time, 1385 renal transplants were done at our institution. Of these, 124 procedures were performed in 122 pediatric recipients (67 male and 57 female patients; mean age, 14.9 ± 2.2 years; age range, 4-17 years). Grafts had been obtained from a deceased donor in 31 cases. Since September 2001, of the 239 liver transplants, 7 deceased donor and 97 living donor liver transplants had been performed on 101 children (mean age, 6.7 ± 5.5 years; range 2 months to 17 years).  
**RESULTS:** For renal transplant; two patients (1.6%) underwent a retransplant at 4 and 2 years after the initial operation. Eight grafts failed, and 7 recipients died with a functioning graft during the follow-up. The 1-3-, 5-year patient and graft survival rates were 98%, 93%, and 92%, and 91%, 78%, and 67%, for living-related transplants compared with 98%, 91%, and 90%, and 92%, 76%, and 65% for deceased donor transplants, respectively.  
For liver transplant; the median pediatric end-stage liver disease score was 23.1 ± 11.1 (range, -8 to 48). The median follow-up was 24.2 ± 19.4 months (range, 1-77 months).  
Three children underwent retransplant. The main complications were infections (31.3%) and surgical complications (39.5%) (including biliary complications and vascular problems). Sixteen children died during follow-up, and, at the time of this writing, the remaining 85 children (85%) were alive with good graft functioning, showing patient survival rates of 90%, 85%, and 83% at 6, 12, and 36 months, respectively.  
**CONCLUSION:** Better outcomes for renal and liver transplants in children may be obtained by strict adherence to precise surgical techniques, better immunosuppressive management, and early diagnosis and effective treatment of complications.

Abstract# 450  
**POST-TRANSPLANT READMISSIONS IN A PEDIATRIC SOLID ORGAN TRANSPLANT UNIT.** Theresa H. Pak,1 Marilyn Moonan,2 Camilla M. Cook,1 Michael J.G. Somers,1 Division of Nephrology, Children’s Hospital Boston, Boston, MA, USA; 2Pediatric Transplant Center, Children’s Hospital Boston, Boston, MA, USA.  
**PURPOSE:** The clinical course in the first year post-transplant (tx) significantly influences graft survival. Several factors contribute to post-tx complications requiring readmission including allograft type, age at tx, psychosocial support and confounding pre-existing medical/surgical conditions.  
**METHOD:** We reviewed retrospectively consecutive readmissions to a pediatric solid organ tx unit occurring in the first yr post-tx from 2002-2007. All patients (pts) post-tx regardless of allograft type received structured pre-discharge education from specialized pediatric tx unit staff.  
**RESULTS:** Of 150 total txs, 94 were kidney (48% boys, 50% living donor, median age 15 yrs, 56% traditional household, median post-tx length of stay (LOS) 12 days), 31 liver (55% boys, median age 1.5 yrs, 78% traditional household, median post-tx LOS 14 days), 19 lung (27% boys, median age 18 yrs, 64% traditional household, median post-tx LOS 18 days) and 6 multivisceral (80% boys, median age 0.7 yrs, 100% traditional household, median post-tx LOS 51 days). There were 250 separate readmissions (49% in kidney tx pts, 24% liver, 23% lung, 4% multivisceral) in the first yr post-tx in 103 post-tx pts (53 kidney, 24 liver, 12 lung, 5 multivisceral). Multivisceral pts had longer median readmission LOS (9 days vs 5 days lung; 4 days liver; 4 days kidney). There was no difference in readmission rates between boys and girls (70 vs 69%). Kidney txs were less likely to be readmitted than non-renal txs (63 vs 78%, p=0.05). Children from traditional households were less likely to be readmitted (66 vs 78%, p=0.05).  
**CONCLUSION:** We conclude that readmission in the first yr post-tx is common in solid organ grafts though less likely with kidneys. Readmission reasons were similar across organs, with notable specific differences in LOS and impact of psychosocial support.

Abstract# 451  
**THE PREVALENCE OF H. PYLORI INFECTION IN PEDIATRIC CANDIDATE OF RENAL TRANSPLANTATION.** Nakysa Hooman,1 Mitra Mehrzam,* Elham Talachian,1 Shahrbanoo Nakhaiha,2 Hasan Otokeh,1 1Pediatric Nephrology, Ali-Asghar Children Hospital, Tehran, Islamic Republic of Iran; 2Pathology, Ali-Asghar Children Hospital, Tehran, Islamic Republic of Iran.  
**PURPOSE:** This study was designed to ascertain the prevalence of H.Pylori infection, histopathology and endoscopic finding among children with chronic renal failure.  
**METHOD:** This was a retrospective descriptive/analytic cross – sectional study conducted from 1997 to 2005 in Ali asghar children hospital.32 children (14M,18F) aged 1-16 years with chronic renal failure(GFR< 70 ml/min),being candidate for renal transplantation, were underwent routine upper endoscopy.107 children (54M,53F)with normal renal function(GFR> 90 ml/min) in whom endoscopy were done for abdominal pain, FTT,G1 bleeding,malabsorption,nausea and vomiting were assigned as control.  
Sample selection was convenient for cases and simple random from file numbers for control group.Two specimens of biopsy were taken from stomach and duodenum, H pylori was detected on histopathology by Gimmsa staining.The outcome was H. pylori positive,gastritis in pathology and erythema, erosion or ulcer on endoscopy. Chi square and Table 2x2 was used to estimate prevalence Odd ratio. P <0.05 was considered significant  
**RESULTS:** Control group was twice more symptom than case group;however,this difference was not significant.Nausea and vomiting in controls were 4.7%,in cases was 13.8%, in which abdominal pain in controls were 31.8 %,in cases were 6.3%(p= 0.003); gastrointestinal bleeding in controls were 8.2% and in cases were 6.3%.The prevalence of H pylori was lower in patients with CRF.Children with CRF were five times as likely to develop duodenitis diagnosed by pathology compare to control group.(P= 0.002)19 out of 32 children with CRF were 4 years< 1+ 1 in hemodialysis the prevalence of H pylori, endoscopic and pathologic findings were similar in those on dialysis and CRF children.  
**CONCLUSION:** Although the prevalence of H pylori in children with CRF was lower;the rate of duodenitis accompanied with gastritis was significantly higher in this group.

Young Investigator Award Abstracts

Abstract# 452  
**FOLLOW-UP OF CYTOMEGALO- AND ADENOVIRUS-SPECIFIC T CELLS DURING THE FIRST YEAR AFTER PEDIATRIC KIDNEY TRANSPLANTATION.** Therid Ahlenstiel,1 Urban Sester,2 Jochen H.H. Ehrich,1 Albert Heim,1 Lars Pape.1 Pediatric Nephrology, Medical School of Hannover, Hannover, Germany; 2Virology, Medical School of Hannover, Hannover, Germany.  
**PURPOSE:** After transplantation (Tx) immunosuppression leads to impaired cellular immune defense resulting in increased risk of viral complications, e.g. by cytomegalovirus (CMV) and adenovirus (ADV). Post-Tx follow-up of virus-specific T cells (ST cells) might serve as predictive marker to estimate the individual risk of viral diseases.  
**METHOD:** Within a prospective longitudinal study we monitored CMV- and ADV-ST cells in 20 children during the first year after kidney Tx. No antiviral prophylaxis was performed. T cells were stimulated with CMV- or ADV-antigen. Based on specific cellular activation and induction of intracellular cytokines (IFNγ, TNFα), virus-specific CD4+ T cells were determined by flow cytometry. Viral load was quantified by PCR.  
**RESULTS:** Prevalence of CMV-ST cells (20%) correlated with CMV-seropositivity. In case of primary CMV-infection (n=2), levels of CMV-ST cells increased simultaneously with decrease of CMV-DNA after start of antiviral therapy. There was one asymptomatic CMV-seroconversion with rapid increase of CMV-ST cells without detectable DNA. One child with symptomatic CMV-reactivation showed transient disappearance of CMV-ST cells combined with increase of CMV-DNA, whereas in case of asymptomatic reactivation, CMV-DNA vanished in association with continuously detectable CMV-ST cells. Before Tx ADV-ST cells were detected in 75%. Three asymptomatic primary ADV-infections were characterized by boost of ADV-ST cells without increase of ADV-DNA. In the presence of sufficient levels of CMV- or ADV-ST cells we did not detect any significant virus-load.  
**CONCLUSION:** After Tx, a stable level of virus- ST cells represents a sufficient virus-specific immune defense, whereas the absence of virus-ST cells is associated with increased risk of viral complications. Serving as prognostic marker for viral diseases, virus- ST cells might improve post-Tx management and optimize individual timing of antiviral therapy and dosing of immunosuppression.
Abstract# 454  LONGTERM RESULTS AFTER INDUCTION THERAPY WITH BASILIXIMAB IN PEDIATRIC RENAL TRANSPLANTATION.  T.C. Jungraithmayr, A. Grossmann, P. Cochat, J. Doetsch, H. Gschaidmair, B. Hoecker, B. Hoppe, M. Konrad, J. Misselwitz, C. Montoya, D.E. Mueller-Wiefel, T. Neuhaus, L. Pape, M. Pohl, U. Querfeld, B. Toenshoff, S. Wygoda, L.B. Zimmerhackl.  Basiliximab Study Group, Medical University, Innsbruck, Austria.  PURPOSE: Improvement of longterm outcome for pediatric transplantation is important since children may need more than one graft during their lifetime. Basiliximab has been shown to reduce acute rejection episodes in adults. In children only few data are available.  METHOD: A randomized, placebo controlled, prospective trial was performed in Germany, Switzerland and France. 202 pediatric patients were enrolled. Immunosuppression consisted of MMF, Cyclosporin A, Prednisone. The Basiliximab group (BAS) received 10mg/kg SC or 20mg over 35 kg on day 0 and 4, the control group placebo (PLA). Primary endpoint was superiority regarding time to first biopsy proven acute rejection episode.  RESULTS: Two years post transplant 180 patients were evaluated, 110[male], 70[female], 79 BAS, 65 PLA. Mean age was similar (BAS 13.0 +/-4.3years, PLA 13.1 +/-4.9). After two years cumulative rejection rate was not different with 33% BAS and 35% PLA, neither after 5 years with 41% and 48%, respectively.

Abstract# 455  POST-TRANSPLANT LYMPHOPROLIFERATIVE DISORDER (PTLD) IS NOT A RISK FACTOR FOR BRONCHIOLITIS OBLITERANS (BO).  Christopher Towe,1 J. Mao,2 S. Sweet,1 A. Elizur,2 C. Huddleston,3 S. Gandhi,3 A. Faro. 1Pediatrics, Washington University, St. Louis, MO, USA; 2Pediatrics, Asaf Harofeh Hospital, Zerifin, Israel; 3Cardiothoracic Surgery, Washington University, St. Louis, MO, USA.  PURPOSE: BO is the leading cause of late morbidity and mortality post lung transplant (LTX). PTLD is a fairly heterogeneous condition manifesting as uncontrolled B cell proliferation commonly induced by Epstein-Barr virus. Treatment for PTLD has generally entailed reduction in immunosuppression. We postulated that PTLD and its treatment would be a risk factor for the development of BO.  METHOD: We performed a chart review of all 253 patients aged 1 month to 18 years who underwent primary LTX at our center from 1990 through 2004. 30 patients had PTLD prior to BO. Data collected included date of LTx, age at LTx, gender, race, episodes of acute rejection (AR), times to BO, PTLD, treatment used for PTLD, and induction therapy. A logistic model examined the effects of age at LTx, presence of AR and PTLD as independent risk factors for BO. Secondly, a Cox regression model was used to estimate which factors affect time to onset of BO.  RESULTS: In the logistic model a significant protective factor against BO was being an infant (p = 0.004, OR = 0.20), while having any episode of acute rejection was a significant risk factor (p < 0.0001, OR = 6.3) for BO. PTLD was not associated with BO (p = 0.37). In the Cox model, the only significant (p < 0.05) factor that increased the time to BO was being an infant (HR = 0.36), while having any episode of acute rejection was a significant risk factor (HR = 2.8) for decreasing time to BO. PTLD in the model trended towards being protective of BO (HR = 0.60 and p=0.09).  CONCLUSION: We found that infants are at a lower risk for developing BO, while patients with AR had an increased risk for developing BO. Surprisingly, the development of PTLD and the accompanying reduction in immunosuppression trended toward lengthening the time to BO. Further exploration with larger patient numbers is warranted to determine how PTLD and associated therapies might create an immunologic environment that impacts the development of BO.

Abstract# 456  OUTCOME OF PEDIATRIC INTESTINAL TRANSPLANTATION UTILIZING DONORS ≤ 10kg.  Raffaiele Girlanda,1 Cal S. Matsumoto,1 Stuart S. Kaufman,1 Chirag Desai,1 Cheryl A. Little,1 Lynnt B. Johnson,1 Thomas M. Fishbein. 1Pediatric Liver and Intestinal Transplantation, Georgetown University Hospital, Washington, DC, USA.  PURPOSE: Intestinal transplantation (ITx) in smaller infants has been associated with an increase in morbidity and mortality. We sought to evaluate the outcome of our pediatric ITx recipients who utilized graft donor size ≤10 kg.  METHOD: All pediatric (≤18yrs) ITx recipients performed were evaluated with respect to donor size. Outcome parameters were graft function, complications, patient and graft survival.  RESULTS: 43 pediatric ITx were performed. 28 (65%) recipients have received a donor graft from a donor weighing ≤ 10kg. Of donors ≤10kg, 1 was isolated Itx (ITx), 23 combined liver and intestine (L/I), and 4 multivisceral (MVTx). Donors >10kg received 7 ITx, 2 L/I, and 6 MVTx. Outcome parameters are listed in Table 2.  CONCLUSION: Donors ≤10 kg is feasible and results in good patient and graft survival. Graft complications such as perforations may be more frequent with donors ≤10 kg. Further exploration with larger patient numbers is warranted to determine how donor size affects patient and graft survival.
Abstract# 457
AN INVESTIGATION OF DISEASE MANAGEMENT SKILLS IN ADOLESCENT LIVER TRANSPLANT RECIPIENTS. Christina A. Dugan,1 Sanobar Parkar,1 Sivahn Barsade,2 Nanda Kerkar,1 Eyal Shemesh,1 Kishore Iyer,1 Rachel A. Annunziato.2 1Recanati/Miller Transplantation Institute, Mount Sinai Medical Center, New York, NY, USA; 2Psychiatry, Mount Sinai School of Medicine, New York, NY, USA; 3Behavioral Health Integrated Program, The Children’s Hospital of Philadelphia, Philadelphia, PA, USA.

PURPOSE: Successful transition to the adult health care system may be contingent upon mastering illness management while patients are still treated in pediatric settings. The purpose of the present study was to measure mastery of disease management skills in adolescent liver transplant recipients.

METHOD: Fifty-two transplant recipients, age 14 or above, completed the Developmentally Based Skills Checklist, which asks patients how often they independently engage in 27 specific disease management skills. We examined total score as well as “Percent Mastery”, defined as the number of behaviors participants reported that they “Always” perform by themselves. Self-management was examined in adolescents (age 14-17) and young adults (age 18 or above).

RESULTS: Disease management (total score) significantly improved with age, \( r = .57, p = .00 \). With the exception of behaviors related to medication management and overall healthy lifestyle engagement, less than half of all patients surveyed reported engaging in the listed behaviors on a regular basis. Mean total score (out of 66.00) for young adult patients (53.58 ±5.87) was significantly higher than adolescent patients (43.42 ±8.02), \( t = -5.21, p = .00 \). Percent mastery significantly increased from 38% for adolescents to 59% for young adult patients, \( t = -4.89, p = .00 \). However, less than half of the young adults surveyed reported consistently managing their liver disease independently, making their own appointments, and understanding insurance issues.

CONCLUSION: Young adult liver transplant recipients have acquired greater mastery of their illness management than their adolescent peers. However, all patients exhibit critical deficiencies in their self-management. Psychosocial interventions should address these areas in order to prevent adverse outcomes that can be associated with transition from pediatric settings.