

## Nephrology Abstracts

### Oral Presentation

#### Power Doppler sonographic evaluation of acute childhood pyelonephritis

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**Objective:** Urinary tract infection is common in children. The available gold standard Methods for diagnosis, Tc-99m dimercaptosuccinic acid (DMSA) scan and computed tomography (CT) are invasive and expensive. This study was performed to assess the role of power Doppler ultrasound (PDU) for diagnosis of acute pyelonephritis (APN) compared with Tc-99m DMSA scan.

**Methods and Subjects:** A prospective study was conducted in 34 children with the mean age of  $2.8 \pm 2.7$  years who were hospitalized with the first episode of febrile urinary tract infection. All children were examined in the first 3 days of admission by PDU and Tc-99m DMSA scan. Patients with congenital structural anomaly were excluded. Each kidney was divided into three zones. The comparison between PDU and DMSA scan was performed on the basis of patients and renal units.

**Findings:** According to the patient's number, sensitivity, specificity, positive and negative predictive values, and accuracy of PDU were 89%, 53%, 70%, 80%, and 74%, respectively, but based on the renal units, changed to 66%, 81%, 46%, 91%, and 79%, respectively.

**Conclusion:** Although PDU has the potential for identifying APN in children, it is still soon to replace DMSA scan.

**Key Words:** Power Doppler ultrasonography; Tc-99m DMSA renal scintigraphy; Acute pyelonephritis;

### Oral Presentation

#### Clinical Outcome and Follow up Prenatal Hydronephrosis

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**Objective:** Hydronephrosis is the most common congenital condition that is detected by prenatal

ultrasonography. Prenatal hydronephrosis is diagnosed at an incidence of 1:100 to 1:500 by ultrasonographic studies. To determine clinical characteristics and postnatal outcome of fetal hydronephrosis, we performed a retrospective study in 45 infant diagnosed as having fetal hydronephrosis between april 2005 to june 2009.

**Methods and Subjects:** From April 2005 to June 2009, We retrospectively analyzed the medical records of 45 infants (29male, 16 female) with 57 prenatal diagnosed hydronephrotic renal units that referred to nephrology clinic and special office. For the purpose of this study the degree of hydronephrosis was defined as mild, moderate or severe, according to anteroposterior renal pelvic diameter measurement. In infants with history prenatal hydronephrosis antibiotic prophylaxis started if a voiding cystourethrogram is requested.(moderate and severe cases) and VCUg was performed 6-8 week in unilateral hydronephrosis and as soon as in bilateral hydronephrosis for rule out posterior urethral valve.In patients with mild unilateral hydronephrosis VCUg were performed if hydronephrosis was with ureter dilation,variable hydronephrosis, caliectasis or caliectasis.In absence of vesicoureteral reflux, DTPA scan or intravenous pyelography (IVP) was performed to exclude the possibility of the presence of obstruction.

**Findings:** Of 45 infants (29 males and 16 females) with 57 dilated kidneys were included in this study (male:female ratio was 1.8:1) mild hydronephrosis was present in 13 (23%), and moderate hydronephrosis in 28 (49%) and severe hydronephrosis in 16 (28%) of dilated kidney units. Unilateral and bilateral hydronephrosis were seen in 33(73%) and 12(27%) of cases, respectively. Dilatation of the renal pelvis in bilateral hydronephrotic kidney units was caused by primary bilateral ureteropelvic junction obstruction in 3 (25%), vesicoureteral reflux in 3(25%), posterior urethral valves in 4 (33%) and ureteropelvic junction obstruction with contralateral vesicoureteral reflux renal units in 2(17%). Dilatation of the renal pelvis in 33 unilateral hydronephrotic kidney units was caused by ureteropelvic junction obstruction in 17 (51.5%), vesicoureteral reflux in 7(21.2%),ureterovesical junction obstruction in 4(12.2%) and non refluxing non obstructive hydronephrosis in one case. overall in 7(54%) renal units from 13 renal units with mild hydro-nephrosis, improved spontaneously. In follow up to June 2009, sixteen patients (35.5%) required operative intervention. The remaining of patients remained stable on follow-up(48.8%) by serial sonography and differential function test. The operative intervention consisted of for correction of ureteropelvic junction obstruction in 7 (43.8%),

ureterovesical obstruction (UVJ) in 2 (12.5%), vesicoureteral reflux in 3 (18.8%) and posterior urethral valve in four patients (25%). Overall in this study Dilatation of the renal pelvis was caused by ureteropelvic junction obstruction in 20 (44.5%), vesicoureteral reflux in 10 (22.2%) ureterovesical junction obstruction in 4 (8.9%), posterior urethral valves in 4 (8.9%) ureteropelvic obstruction with vesicoureteral reflux in 2(4.4%) and non VUR non obstructive in 1(2.2%).

**Conclusion:** When a fetus is identified with prenatal hydronephrosis, the goals of management should include determining the differential diagnosis, assessment of associated anomalies, and determining the fetal and postnatal follow up. Prenatal consultation with a pediatric nephrologist and urologist is useful in decreasing parental anxiety and facilitating postnatal management. Fetal hydronephrosis needs closer follow-up both antenatally and postnatally, and surgery should be performed if renal compromise occurs.

**Key Words:** prenatal hydronephrosis, sonography, diagnosis, outcome

#### Oral Presentation

### Renal Parenchymal Changes in Children with Acute Pyelonephritis Using DMSA Scan and Relationship with Certain Biologic Factors

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**Objective:** Early diagnosis of renal parenchymal involvement in children with acute pyelonephritis (APN) using isotope scan and early treatment may decrease or prevent development of renal parenchymal lesions. We designed this study to assess the diagnostic value of certain biologic parameters in children with first-episode of acute pyelonephritis (APN) documented by 99m Tc-dimercaptosuccinic acid (DMSA) scintigraphy.

**Methods and Subjects:** We compared the laboratory findings of leukocyte count, erythrocyte sedimentation rate (ESR) and serum C-reactive protein (CRP) levels with the Results of the DMSA scans obtained within three days of admission. One hundred-two children (93 girls and 9 boys aged 1 month–12 years (mean 2.85±2.92 years) were enrolled in the study. Of these patients, 203 renal units were investigated using scintigraphy. Voiding cystourethrography (VCUG) was performed in 98

children (195 renal unit) when urine culture became negative.

**Findings:** In all children one or both of kidneys had parenchymal involvement on scintigraphy. Changes on the DMSA scan were found in 178(88%) renal units during the acute phase. The extent of changes in DMSA scan were mild in 113/178(55.7%) renal units, moderate in 40/178(19.7%) and severe in 25/178(12.3%). When inflammatory markers were correlated with the development of the severe renal lesions, as assessed with DMSA scan, a highly significant correlation with both ESR (P=0.007) and leukocyte counts (P=0.02) were found.

**Conclusions:** We conclude that the incidence of renal parenchymal involvement in Iranian children with APN is very high. Although increased ESR and leucocytosis may be valuable markers for determination of severe renal parenchymal involvement, but these parameters and also CRP, were inadequate in distinguishing mild to moderate renal parenchymal involvement.

**Key Words:** Acute pyelonephritis; Children; Renal scan; Dimercaptosuccinic acid; leucocytosis; erythrocyte sedimentation rate; C- reactive protein

#### Oral Presentation

### measurement of plasma creatinine in newborns with hyperbilirubinemia (Oral)

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We measure plasma Cr in 17 newborn term infants (9male, 8 female) with moderate hyperbilirubinemia (bil: 17-20 mg/dl) who were admitted for phototherapy. These infants were average 4.5 days old (3-6 days old) and all of these infants were uncomplicated, with average weight of 3700 gr (3200 - 4100 gr). all of them were hydrated with normal urine volume and they never received any drugs. We measure plasma Cr by 3 Methods. first we measure it by Jaffe reaction. in this way average plasma Cr was 0.7 mg/dl (0.6- 0.9 mg/dl). Then we measure the same sample by high performance liquid chromatography and in this way average plasma Cr was 0.6mg/dl (0.4- 0.9 mg/dl). The last Method was pre treating samples with peroxidase and then determining Cr by Jaffe reaction. we knew that in Jaffe reaction Cr reacts with alkaline picrate and it was not very specific and negative interference by bilirubin made it questionable in jaundice. Also we knew that HPLC is standard and specific Method for estimating Cr in these situations but it isn't available in every hospitals and it is expensive. So we tried to improve our results by another Method. We pre treated samples with

H2O2 for preventing bilirubin interference by dissociating it from albumin and its subsequent oxidation. Our Results in this modified Method was similar to HPLC Results with average plasma Cr 0.6 mg/dl and with  $P < 0.01$  and also rate of hyperbilirubinemia wasn't important in this way. We suggest this simple modified Method for plasma Cr evaluation in neonates prone to ARF such as asphyxia or jaundice or septicemia, because it is reliable and also available in every hospital.

**Key Words:** Creatinine; Hyperbilirubinemia; Jaffe reaction

#### Poster Presentation

### Resistance of Uropathogenic Bacteria in Children on Peritoneal Dialysis in Labbafinejad and Mofid Children Hospitals

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**Objective:** Growing antibiotic resistance demands the constant reassessment of antimicrobial efficacy, particularly in countries with wide antibiotic abuse, where higher resistance prevalence is often found. Knowledge of resistance trends is particularly important when prescribing antibiotics empirically, as is usually the case for urinary tract infections (UTIs) especially in children on dialysis treatment. Currently, in IRAN, amoxicillin, cotrimoxazole (trimethoprim/sulfamethoxazole) and third-generation cephalosporins are used as "first-line" antibiotic treatment for UTI. Appropriate management strategies designed for specific groups of patients with UTI can maximize therapeutic benefit while reducing cost and incidence of adverse reactions. **Objective:** The aim of this study was to assess the kinds of isolated bacterial strains and their drug resistancy to commonly used antimicrobials in children with terminal renal failure on peritoneal dialysis (PD) treatment who suffer from UTI. **Methods and Subjects:** In this study, bacterial isolates from urine samples collected from pediatric patients (6 months -17 years) on PD with acute UTIs in Tehran from March to September 2006. Samples were tested for susceptibility to 13 antibiotics by the disk-diffusion method.

**Findings:** 36 bacterial isolates were derived from 34 culture positive UTI episodes (27 *Escherichia coli*). We found a high prevalence of resistance towards the

drugs used as "first-line" when treating UTIs: amoxicillin and cotrimoxazole, (71.4%, 51.7%, resistance, respectively). The results showed that 70.4% of *E. coli* isolates were resistant to amoxicillin, whereas 55.6% of them were resistant to cotrimoxazole. Resistance towards third-generation cephalosporins was also high (44.5% and 37% of *E. coli* to Cefixim and Ceftriaxone, respectively). **Conclusion:** We concluded that resistance of *E. coli* isolates to first-line treatment (amoxicillin, cotrimoxazole) of UTI was high, whereas most *E. coli* isolates were susceptible to Amikacin and nitrofurantoin.

**Key Words:** Peritoneal dialysis-UTI-Antibiogram-Children

#### Poster Presentation

### Dialysate as Food

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**Objective:** Protein-energy malnutrition is common in patients with chronic renal failure who are on dialysis. A low dietary intake of protein maybe compensated for by including aminoacids in the dialysate, but the benefits have so far not been convincing. Simultaneous ingestion of calories is essential for an optimal anabolic effect, but the benefit have so far not been convincing. Simultaneous ingestion of calories is essential for an optimal anabolic effect, but this is often impeded by anorexia. This study investigated the effect on protein metabolism of using a dialysis solution containing aminoacids and glucose.

**Methods and Subjects:** The study included 10 patients with chronic renal failure who were receiving nightly automated peritoneal dialysis. Using a random-order cross over design, patients received 7 days of dialysis using a dialysate containing only glucose. On day 3, whole-body protein turnover was assessed using a primed continuous infusion of leucine. On days 5 to 7, the nitrogen balance was calculated.

**Findings:** The rates of protein synthesis and protein breakdown were similar with aminoacids plus glucose and glucose dialysate only, respectively. However, net protein balance was higher when the dialysate contained aminoacids plus glucose rather than glucose only. The 24-hour nitrogen balance was also higher with aminoacids plus glucose than with glucose only.

**Conclusions:** Automated peritoneal dialysis with a dialysate containing aminoacids and glucose improves protein kinetics, and may improve the nutritional status of malnourished dialysis patients.

**Key Words:** Aminoacids; Dialysate; Malnourished