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ESRD and Dialysis Abstracts

Outcome of peritoneal dialysis in children with renal failure

Ahmad Ali Nikibakhsh[1], Hashem Mahmoodzadeh[2], Mohamad Vali[2], Sasan Hejazy[2], Mehran Noroozy[2], Ahad Ghazavi[2], Ezatollah Abasi[2], Abdolreza Asem[2]
1 Nephrology-Urology and Transplantation Reserch Center, Urmia University of Medical sciences, Iran
2 Urmia University of Medical sciences, Iran

Fifty six patients were studied including 30 males and 26 females within the age range of 1 month to 14 years with mean age of 6.5 years. Swan neck coil 2 cuff pediatric catheter was selected. A 10 mm incision was made left side 2 cm inferior to umbilicus, loop of the catheter was placed in the pelvic. PD started immediately after finishing the operation. Outcomes were analyzed in terms of peritonitis, ESI, tunnel infection (TI), pericatheter leakage and mechanical dysfunction. No operative morbidity was seen. During a total of 499.5 continuous ambulatory PD (CAPD) months, 16 patients had 28 episodes of peritonitis; which means one episode per 17.8 months. There were 3 (5.35%) cases of catheter site leakage, 12 (21.4%) catheter obstructions (which led to omentectomy),and 4 (7.2%) ESI (2 in the early postoperative period and 2 during follow up). The rate of ESI and pericatheter leakage was relatively low. Leakage stopped in all of patients with decreasing the number and volume of dialysis fluid. The rate of early onset obstruction in patients without omentectomy at the time of insertion of catheter was high. None of the patients with omentectomy had at the time of insertion of catheter obstruction. The death due to catheter related complications were 1 per 56 patients and death due to non-catheter related causes was 10 per 56 patients. Four deaths occurred among 21 children with acute renal failure and 7 among 35 children with chronic renal failure. Present study indicated that catheter- related complications were not high when PD initiated immediately after catheter implantation. In addition, it could be a safe bridge between end-stage renal failure and transplantation.

Results and complications of children with ESRD undergoing peritoneal dialysis catheter placement 1997-2013 in Aliasghar Pediatric Hospital

Jahangiri F , Hooman N
Pediatric Surgery Department, Aliasghar Pediatric Hospital, Iran University of Medical Sciences

Introduction: Peritoneal dialysis (PD) is the preferred long-term dialysis modality in the pediatric population. The aim of this study was to analyze results of (PD) catheter placement in our center.
Methods: Between "1997-2013" the record files of all patients with ESRD undergoing (PD) catheter placement were evaluated. The demographic data, surgical complications, underlying disease, frequency of catheter change, out flow failure & survival were evaluated.
Results: 48 patients with a mean age of 44months (min 9 days; max 16 years) underwent PD insertion. 28(59%) patients were male and 20(41%) were female. The most common

underlying diseases were reflux nephropathy and cystic Kidney disease (23). 61 catheter inserted surgically in 48 patients. PD catheter inserted laparoscopically in 5 cases. Reoperation for malfunction or infection was required in 44% of patients with a median PD catheter survival of 12.4 month. Reoperation for hernias (inguinal, umbilical, incisional) occurred in 15(43%) patients. From 48 patients 19 cases were under CAPD, 8 patients had kidney transplantation, and 8 died. Lost to follow up was in 13 patients.
Conclusion: In this study catheter removal rate was relatively high due to peritonitis and malfunction and many patients need another operation for hernia repair. It seems laparoscopic insertion of PD catheter allows accurate placement of the catheter under direct vision and during this procedure we can also evaluate the patent processus vaginalis and umbilical defect so we can prevent from further hernia repair. Further clinical trial studies for confirmation are recommended.

Evaluation of Tei index in children with Renal Failure referred to aliebnabitaleb hospital of zahedan at year 1392

Sima Savadkoohi, Simin Sadeghi Bojd, Ali Pourmand
Department of pediatric, Zahedan University of Medical Sciences

Introduction: Cardiovascular disease is a common complication of chronic kidney disease especially those who are suffering ESRD. In this study, the Tei index was compared between controls and patients with chronic kidney disease.
Methods: This case-control study in 1392 at the Hospital of Ali Ibn Abi Talib (AS) was performed in Zahedan. Sequential sampling method on 25 healthy children and 25 children with chronic kidney diseases was performed. All subjects were measured Tei index by echocardiography. Other data were obtained from patient records. For data analysis, independent T-test and Pearson correlation coefficient was used.
Results: Among patients with chronic kidney disease Tei index was 0.473 ± 0.048 and in the control group was 0.423 ± 0.027 that this difference was statistically significant. The correlation between the index of the QT interval, PTH and GFR was measured that the direct correlation between PTH levels and indirect relationship with the amount of GFR was seen ($P < 0.05$).
Conclusion: Tei index is accurate and efficient measure to assess myocardial function in children with chronic kidney disease.

Three useful suggestions for pediatric Acute Peritoneal Dialysis

Ehsan Valavi, Parisa Amuri
Department of Pediatric Nephrology, Abuzar Children's Hospital, Jundishapour University of Medical Sciences, Ahvaz, Iran

Introduction: Acute peritoneal Dialysis (PD) is always administered for patients requiring rapid correction of metabolic abnormalities that are not amenable to medical management. Nevertheless there are a lot of troubles when we do the routine and approved program in pediatric patients including; 1) Cutting of a part of the tip of catheter in very young children, that makes it non-sharp enough for insertion. 2) Slowing the flow of dialysis fluid duo to infiltration of omentum to the proximal part of the catheter and the need to change it. 3) Several mistakes of medical staffs in every hour inserting and removing dialysis fluid for about 72h.

Our new suggestions:
1-For don't change of sharpness of the catheter, we don't cut the tip of catheter in our very young children, in return, we use the flexible catheters and when the tip reached to left lower quadrant we curve it gently by pushing it to the midline.
2- Because the omentum is planned to fix the abdominal wall injuries, we insert more of the catheter to the peritoneal cavity until there will be about 5 cm between the inner part of abdominal wall and the first punctuated part of the catheter.
3- We teach the parents to insert and remove the dialysate fluid. First the parents learn to remove the fluid until there is a little dropping, then they have to insert the determined amount of fluid by use of scale carefully and ultimately they remove the fluid after 45 min resting. All of other controls are performing with the medical staffs.
Conclusion: We have done the changes in these resent five years and we found that these technical changes have improved our results and decreased the complications.

Acute pancreatitis in a patient on CAPD

Parisa Amuri, Ehsan Valavi
Department of Pediatric Nephrology, Abuzar Children's Hospital, Jundishapour University of Medical Sciences, Ahvaz, Iran

Introduction: Here we want to report a case of acute pancreatitis that is a very rare complication in patients on CAPD.
Case report: The patient was an 11 years old boy who was on CAPD since 2.5 years ago. He had a history of eating refusal because of an emotional stress for 2 days and then he became ill and anuric. Peritoneal dialysate fluid analysis had 10 WBC (lymphocyte) and negative culture. After 2 days, his abdominal pain was started and postprandial vomiting recurred. Intravenous pantoprazole was started for the patient but because of the no response, GI endoscopy was done and esophagitis and gastritis were reported. As his abdominal pain and vomiting continued in the spite of PIPP treatment, serum amylase and lipase were checked which were high; amylase=779 u/L (normal<100 u/L) and lipase=367 Iu/L (normal<60 u/L). After two days, the abdominal pain subsided gradually and he began to eat. After 5 days, serum amylase and lipase declined to 278 u/L and 87 Iu/L. Three weeks later he returned to the hospital because of the recurrence of abdominal pain and vomiting. His serum amylase and lipase were 6 18 u/L and 80 Iu/L respectively. The abdominal ultrasonography revealed a complex heterogeneous mass in the head of pancreas with diameter of 43 ×55 mm which was confirmed by abdominal CT scan as pancreatic pseudocyst. Peritoneal dialysate fluid analysis was as follow; WBC=125/ml with 100% lymphocyte and negative culture. Peritoneal dialysate fluid amylase and lipase were 208 u/L and 23.3 Iu/L respectively. The patient was transferred to surgery ward where conservative treatment was continued for 4 weeks and finally pseudocyst drainage under the guide of CT scan was performed.
Conclusion: Although acute pancreatitis and its complication, pseudocyst, is rare in CAPD patients but it should be considered in everyone with the history of refractory abdominal pain and vomiting.

Gastrointestinal obstruction due to catheter of CAPD

Ehsan Valavi, Parisa Amuri
Department of Pediatric Nephrology, Abuzar Children's Hospital, Jundishapour University of Medical Sciences, Ahvaz, Iran

Introduction: Peritonitis is one of the major complications of CAPD. Complications other than peritonitis are also being increasingly reported such as hernias and intestinal perforation as well as adhesions and sclerosing peritonitis.
Case: A 1 mo old boy was admitted in July 2011 to our unit with advanced degree of renal failure secondary to obstructive uropathy due to posterior urethral valve. He was put on conservative therapy till he reached ESRD and was started on CAPD in Sept 2011.Curley Tenckhoff peritoneal dialysis (PD) catheter was surgically implanted in Sept 2011.After the necessary training, he was discharged from the hospital. Three months later, the patient was admitted with irritability, vomiting and constipation of five days duration. On physical examination, he looked dehydrated and his blood pressure was 80/50 mm Hg. Abdominal examination showed tenderness in the upper abdomen, bowel sounds were heard and rectal examination showed empty rectum. Peritoneal dialysis fluid examination did not show any evidence of peritonitis and the mild leukocytosis was seen. In plain x-ray, distension of loops of small intestine was noted and intestinal obstruction was thought to be present. Abdominal x-ray in erect postures, showed enormous fluid levels. The PD catheter was noted to have migrated to the left upper quadrant. Despite this migration, there was no problem with the inflow and outflow of the PD fluid. Surgical consultation confirmed the possibility of upper intestinal obstruction and he was put on nasogastric aspiration and intravenous fluid replacement. During surgery, it was found that the catheter wrapped around a large part of the jejunum and ileum causing mechanical obstruction. The adhesions around the cuff were released and the catheter was pulled out easily. This kink catheter was easily removed and catheter was not removed.
Conclusion: Considering the potential complications of CAPD like GI obstruction can be effective to appropriate diagnosis and treatment.

Antioxidant vitamins status in patients undergoing dialysis: a single center study

Mitra Naseri, Hasan Mottaghi Moghadam Shahri, Mohsen Horri , Zahra Rasoli, Farzaneh Salemian, Shohre Jahanshahi, Giti Moeenolroayaa, Maryam Pourhasan
Mashhad University of Medical sciences, Mashhad, Iran

Introduction: Vitamin E and C are two well known antioxidant vitamins. Oxidative stress is common in chronic kidney diseases. Deficiencies of water soluble vitamins are common in dialysis patients.
Methods: 43 dialysis subjects were evaluated in a cross-sectional survey. Plasma samples were collected for vitamin E in all and vitamin C in 37 cases included 12(27.9%) peritoneal dialysis(PD) , 25 (58.1%) hemodialysis(HD) and 6(13.9%) patients who were placed on HD and PD modalities separately in different times. Clinical records were reviewed for age, gender, modality and duration of dialysis and characteristics of dialysis sessions, mean serum BUN and albumin levels.
Results: Serum concentration of vitamin E was normal, low and high in 9(20.9%), 31(72%) and 3 (7.1%) patients respectively. Comparing different independent variables in vitamin E deficient with those who had normal serum vitamin E levels didn't show any significant statistical differences(P>0.05 for all). The serum levels were low in 5(13.5%) and normal in 32(86.5%) patients. All cases with vitamin C deficiency were HD patients. Vitamin C deficiency was more prevalent in HD versus CAPD patients (P=0.128). Mean serum vitamin C concentration was significantly higher in patients were supplemented by vitamin C compared with those who didn't receive the vitamin supplement (P=0.043).
Conclusion: Vitamin E deficiency was a prevalent finding in our series. Supplementary vitamin C 30-60 mg/day is sufficient to prevent deficiency. Regular assessments of serum vitamin E level may be needed in dialysis centers.

Effects of Combination of High Dose Oral Folate And Vitamin B12 In Lowering The Plasma Levels Of Hemocysteine In Dialysis Patients

Mitra Naseri, Gholam Reza Sarvari, Mohammad Esmaeeli, Anosh Azarfar
Mashhad university of Medical Sciences

Introduction: Hyperhomocysteinemia is common in dialysis subjects. This study was conducted to evaluate response to high dose oral folate and sublingual high dose vitamin B12 in dialysis cases with hyperhomocysteinemia.
Methods: 32 dialysis cases aged 10-324) months including 11 CAPD (31.4%) and 21 hemodialysis (66%) subjects and one patient (3%) who was on both modalities at the same time were enrolled. They included 15 girls (46.9%) and 17 boys (53.1%). The study was conducted as a comparative study with before and after design. First all cases were screened for hyperhomocysteinemia and serum folate and vitamin B12 levels were measured. Then those with hyperhomocysteinemia received oral folate 10 mg and sublingual vitamin B12, 1 mg /daily for 12 weeks. In the end of treatment serum folate and vitamin B12 concentration and plasma levels of homocysteine were measured again. Chi square and T tests were used for data analysis. Mean plasma homocysteine levels before and after intervention compared by paired sample test and P value< 0.05 considered as a significant difference.
Results: Of 32 cases, 18 subjects (56.2%) had hyperhomocysteinemia. Serum folate and vitamin B12 levels were normal or high in all case. Plasma homocysteine levels dropped after intervention in all cases except one (6.25%) subject, but just in half of patients it reached normal range. Plasma homocysteine concentrations before intervention were 15-30(21±4) µmol/L, which decreased to 7-23(14±4) µmol/L after intervention. Plasma homocysteine concentrations changed significantly after intervention [1.7-13.5(7±3.5) µmol/L] (P= 0.0001).
Conclusion: combination therapy of oral folate 10 mg/ daily with sublingual vitamin B12, 1 mg/day for 12 weeks is an effective treatment for reducing the plasma homocysteine levels.

Serum Folate and Vitamin B12 Levels in Hemodialysis Patients: Is There any Correlation with Plasma

Mitra Naseri, Gholamreza Sarvari, Mohammad Esmaeeli, Anoush Azarfar
Mashhad University of Medical Sciences

Introduction: Deficiencies of water soluble vitamins such as folate and vitamin B12 has been reported as etiologic factors of hyperhomocysteinemia. This study was conducted to find whether there is a correlation between serum levels of these vitamins and plasma total homocysteine (tHcy) levels.
Methods: 19 hemodialysis subjects were enrolled. The study group comprised 52.6% girls and 47.4% boys aged 80-324 (204.7±78.4) months who were on dialysis from 1.5-153 (42.1±43.3) months ago. All patients were supplemented by folate and 15 cases were received oral vitamin B12. Folate serum levels <1.5 ng/ml were defined as low (deficiency). As for vitamin B12, levels < 120 pg/ml, 120-160 pg/ml were defined as deficient and borderline, respectively. Plasma Hcy levels of 5-15 µmol/L and > 15 µmol/L were defined as normal and hyperhomocysteinemia, respectively. The correlation between the serum levels of vita mins and plasma Hcy levels was checked by the Pearson correlation test and P-values <0.05 and r>0.7 indicated a good (significant) correlation.
Results: 13 patients (68.4%) had hyperhomocysteinemia whereas plasma tHcy levels were normal in 6 (31.6%). No patient had folate or vitamin B12 deficiency. There was no correlation between tHcy levels and serum vitamin B12 (P=0.621, r=1) and serum folate levels (P=0.571, r=1).
Conclusions: Normal and even high serum levels of folate and vitamin B12 cannot prevent the occurrence of hyperhomocysteinemia in hemodialysis patients.

Association between neutrophil geletinase-associated lipocalin and iron deficiency anemia in children on chronic dialysis

Mohammad Yazdani, Alireza Merrikhi, Zahra Naderi Beni, Azar Baradaran,
Neda Soleimani, Hamided Musazade
Department of Urology, Isfahan University of Medical Sciences, Isfahan, Iran
Department of Pediatrics Nephrology, Isfahan University of Medical Sciences, Isfahan, Iran
Department of Pathology, Isfahan University of Medical Sciences, Isfahan, Iran

Introduction: Iron deficiency anemia (IDA) in children with chronic kidney disease (CKD) is common and associated with higher risk of death. Neutrophil geletinase-associated lipocalin (NGAL) is a small 25 kDa glycoprotein, a member of lipocalin superfamily that released at the response of cellular stress from different cells. In addition, NGAL was studied as an iron regulatory glycoprotein and regulator of iron related gene. The aim of the current study was to determine any association between serum NGAL and body iron status markers in children on chronic dialysis.
Methods: This correlation study was carried out between May 2012 and May 2013 and evaluated all dialysis patients less than 19 years in pediatric dialysis centers in Isfahan that didn't have exclusion criteria. They were 40 children, including 23 persons on hemodialysis (HD) and 17 persons dialyzed by peritoneal dialysis (PD). Furthermore, we selected 40 children as healthy controls. We examined the relationship between plasma NGAL levels and indices of anemia such as ferritin, transferrin saturation (TSAT) and serum iron (SI) in dialysis children.
Results: Serum NGAL level in children on chronic dialysis (group including both PD and HD patients) was significantly higher than healthy controls (P = 0.008). Furthermore, in this group Serum NGAL level had inverse correlation with TSAT (P = 0.04, r = −0.22), SI (P = 0.04, r = −0.2), white blood cells (P = 0.045, r = −0.26) and serum ferritin (P = 0.006, r = −0.3). In addition, HD patients had higher serum NGAL level than PD patients (P = 0.048).
Conclusion: High serum NGAL level in low TSAT group demonstrated that NGAL probably has an important role in IDA in children on chronic dialysis; therefore, it can be a new marker for diagnosis of IDA in CKD.

Comparison of percutaneous versus open surgical techniques for placement of peritoneal dialysis catheter in children: A randomized clinical trial

Alireza Merrikhi[1], Hojatollah Raji Asadabadi[2], Ali Akbar Beigi[3], Sayed Mahdi Marashi[4], Hafez Ghaheri[5], Zohre Nasiri Zarch[6]
1 Assistant Professor of Pediatric Nephrology, Isfahan University of Medical Sciences, Isfahan, Iran
2 Resident of Pediatric Surgery, Tehran University of Medical Sciences, Tehran, Iran
3 Associate Professor of Vascular Surgery, Isfahan University of Medical Sciences, Isfahan, Iran
4 Legal Medicine Research Center, Legal Medicine Organization,Tehran, Iran
5 Assistant Professor of Vascular Surgery, Isfahan University of Medical Sciences, Isfahan, Iran.
6. PhD Student in Educational Psychology, Faculty of Psychology, Shahid Beheshti University, Tehran, Iran.

Introduction: This research compares the outcomes of percutaneous technique and open surgical peritoneal dialysis catheter placement in children.
Methods: In this randomized controlled trial, between 2010 and 2011. A total of 35 pediatric uremic patients were enrolled and randomized into two study groups. Follow up data included duration of operation (minute), duration of hospitalization (days) and onset time of peritoneal dialysis. Complications were considered as mechanical and infectious.
Results: The percutaneous procedure was significantly faster than the open surgical technique (9.5 ± 1.81 versus 27.00 ± 2.61 minutes, p= 0.0001). The onset of dialysis was earlier in percutaneous insertion. There were no cases of hollow viscous perforation, early peritonitis and exit site infection at the 3rd, 7th, and 14th day in both groups. Complications in open surgical group were include wrapped omentum in 4 (23.5%), catheter malposition in 3 (17.6%),delayed exit site infection in 2 (11.7%), Incisional hernia in 1 (5.8%)and hemoperitoneum in 2 (11.7%)cases. Complications in percutaneous insertion group were include catheter malposition and wrapped omentum each in one case.
Conclusion: Percutaneous method with secure insertion of the catheter reduced the rate of some complications. Although they were not statistically significant, this technique reduces the time of hospitalization and operation without need to general anesthesia. The onset of dialysis was earlier significantly.

Design and Construct an Optical Device to Determine Relative Blood Volume in Patients Undergoing Hemodialysis

Banafshe Dormanesh[1], Shahnaz Tofangchiha[2], Vahid Abouei[3], Hani Sharifian[3]
1 Department of pediatric nephrology, AJA university of medical sciences, Tehran, Iran
2 Department of Internal medicine, AJA university of medical sciences, Tehran, Iran
3 AJA University of medical sciences, Tehran, Iran

Introduction: Occurrence of hypotension during hemodialysis in nearly 20-30% of patients, shows is the necessity of continuous monitoring the patients' blood pressure during hemodialysis. Related blood volume (RBV) is one of the parameters, related to blood pressure and have a good potential to reflect the patient's hemodynamic condition.
Methods: After initial studies in order to select a proper sensor, using the ORCAD software, an analog circuit was designed. The implementation and modification of the circuit was done by the clinical tests, using expired blood. Afterwards, for calculation the RBV, controlling the display, data storage and sending it to the computer, an ATmega16 microcontroller was used. For programing the microcontroller, CodeVision software and then Altium Designer software were used for the circuit compression, in order to design the printed circuit board. Finally, all parts of the analog and digital circuit, AC to DC converter and the LCD were embedded in a box.
Results: After finalization of the device and before testing it in a real situation, expired blood was used for final evaluation. The evaluation was done by changing the blood concentration, at the start point by adding water to it. In fact, the device can track the changes in blood concentration and display the RBV. After this evaluation, the device was tested in a clinical situation.
Conclusions: Considering the hypotension and its consequences in a patient on hemodialysis, solving this problem seems necessary. One method for preventing this, is to use the blood pressure related parameters and one of these

parameters is the RBV. In this study, in order to measure the RBV, a device was designed and evaluated by expired blood and also tested in a clinical situation. Results showed that the device could work properly in order to measure the RBV.

A study to evaluate the efficacy of RBV device in hemodialysis patients

Banafshe Dormanesh[1]; Ali Mohammadshahi[2]; Vahid Abouei[3]; Hani Sharifian[3]
1 Department of Pediatric Nephrology, AJA University of Medical Sciences, Tehran, IR Iran
2 Department of Emergency Medicine, AJA University of Medical Sciences, Tehran, IR Iran
3 AJA University of Medical Sciences, Tehran, IR Iran

During dialysis process, excess water in the dialysis patient's body shifts firstly from intracellular to extracellular, and then passes into blood stream. Finally, it is removed from the body by dialysis. Due to the hypotension occurred during dialysis, the BP of dialysis patients should be monitored continuously during the dialysis process, in order to achieve this goal, the parameters associated with the BP such as RBV should be used. So a device provided during are search project in the AJA Medical University was applied and based on the RBV definition, the changes in this factor and the blood pressure of hemodialysis patients during the hemodialysis process are inversely to each other. The results obtained using the device were pursuant to the definition with an acceptable accuracy more than80%. According to the accuracy of data obtained from the device, it can be concluded that this device can be used as a non invasive method with a good accuracy to detect the hypotension in this group of patients in order to prevent the occurrence of subsequent complications. However, firstly the accuracy, and secondly the manner of correlation between these two parameters differs depending on the selected model of the correlation between RBV and hypotension.

Percutaneous endoscopic gastrostomy insertion can helps nutritional status in children with chronic renal failure and CAPD

Mahnaz Sadeghian
Pediatric Gastroenterologist, Iran university of medical sciences, Tehran, Iran

Children with chronic renal failure who should received CAPD often suffer from protein and nutritional depletion and malnutrition can compromised final outcome in these patient. We started to insert percutaneous endoscopic gastrostomy (PEG) tube feeding in 6 patients with chronic renal failure. The cause of renal failure had congenital nephrotic syndrome in 2 patients, 2 dysplastic kidney, 2reflux nephropathy. Patients ranged in age from 6 months to 3 years. After procedure 5 patients received antibiotics for 3 days. None of them had any complication. One patient discharged 1 day after peg insertion and admitted to hospital due to peritonitis. In all patients z- score for weight and height before and after peg insertion compared. Five of 6 patients (83.3) had improved nutritional status of PEG, and in 1 patient follow up is not complete till now. Major complications were not noted in 5patients (83.3) and one patient developed peritonitis. Our data indicate that PEG is a safe and effective modality for nutritional support in children with chronic renal failure with CAPD.

Evaluation of pediatrics peritoneal dialysis in Dr Sheikh hospital- Mashhad

Mashhad University of Medical Sciences, Mashhad, Iran

Farzaneh Salemian

Introduction: Peritoneal dialysis is a modality in treatment of CKD and in neonates and infants is the first choice because of low age and weight and hemodynamic instability. Solutions and excess fluids are excreted by diffusion and osmosis using physiologic nature of peritoneum.
Aims: The aim of this study is evaluating peritoneal dialysis efficiency in children, surgical complications, causes of exit patients from this treatment, survival rate, and efficiency of repeated education in life quality improvement.
Methods: 71 patients who are catheterized in Dr Sheikh hospital were studied. Data is collected of patient files and peritoneal dialysis ward written

reports. Absolute and relative frequency, mean and standard deviation are used to data descriptions.

Results: Reflux nephropathy is the most common cause of renal failure (33.58%). Bleeding, catheter dysfunction, anterior cuff exit are the most common of 41 cases of surgical complications. Peritonitis rate is depends to age, low weight, malnutrition, socioeconomic factors and under lying disease. The most common cause of peritonitis are gram-negative infections. Analysis of peritoneal fluid culture is: gram-positive microorganisms (5.97%), gram-negative infections (4.47%), negative culture (50%), and fungal agents (5.2%). Over one year survey of peritoneal dialysis catheter in this center is 55.3%.The most common causes of catheter exchange are surgery method and time of dialysis starting. Comparing with hemodialysis patients, azotemia, and hyperphosphatemia and acidosis modification are significant. Survival of patients is 60%and in 45%of cases peritoneal dialysis is continued 53.7% of patients are transplanted and 7.46% are shifted to hemodialysis. Improvement of kidney function are seen in 7.46% of cases and 41.4% are died.

Conclusion: Catheterization should be done more correctly with surgeons. Repeated educations are of good prognostic value in complications control. Cooperation of physician, surgeon and peritoneal dialysis nurse are very important.

Vitamin D Deficiency in children on CAPD

Nazanin Zafaranloo. Karbasi Z, Nakysa Hooman
Ali-asghar Children Hospital, Iran University of Medical sciences

In chronic kidney disease when the GFR declines to approximately 50% of normal, leads to a decline in renal 1α-hydroxylase activity and decreased activated vitamin D (1,25-dihydroxycholecalcif- erol). This deficiency, decreased intestinal calcium absorption, hypocalcemia, and increased para- thyroid gland activity. Excessive parathyroid hormone (PTH) secretion attempts to correct the hypocalcemia by affecting an increase in bone resorption. Later, when the GFR declines to 20-25% of normal, compensatory mechanism to enhance phosphate excretion become inadequate, resulting in hyperphosphatemia, which further promotes hypocalcemia and increased PTH secretion. Peritoneal dialysis (PD) patients have a high risk of developing vitamin D deficiency as 25(OH) vitamin D, the precursor of active vitamin D, is lost during dialysis. This retrospective study was conducted to show the prevalence of vitamin D deficiency among Pediatric who were on peritoneal Dialysis and admitted to Ali Ashghar Hospital between 1380-1393.The data was collected in the autumn of 1393. We recorded the demographic and clinical parameters for all patients. We have reviewed serum vitamin D level (25 OH), serum parathyroid hormone (PTH) levels and other necessary biochemical parameters. There were 132 patients (87 boys and 45 girls). All patients were on continuous ambulatory PD. The mean serum vitamin D 25 (OH) level was 213.64 ng/ml. 24%of the patients had levels below35 ng/ml, while 63% had vitamin D levels above than100 ng/ml, indicating a marked toxicity after treatment. The mean serum calcium was 8.7 mg/dl and the mean serum phosphorous was 6.27 mg/dl. 71% had significant hyperparathyroidism (serum PTH levels above 50 pg/L).the mean serum level of Cr was 5.2 mg/dl, and the mean level of BUN level 62.34 mg/ dl. Majority of the PD patients in our center had vitamin D deficiency. The possible reasons include chronic renal failure, dietary restrictions, loss of vitamin D and peritoneal dialysis.

Pulmonary function test in end stage renal disease

Nasrin Hoseiny Nejad. Aliasghar Children Hospital. IUMS

Introduction: In previous studies the effect of renal failure on pulmonary function of adult patients has been shown. We are going to evaluate this effect in pediatric population with ESRD.

Methods: We did spirometry in 19 patients who were candidate for kidney transplantation. They suffered of end stage renal disease. This study was done to reveal pulmonary function in these patients. We measured FVC (forced vital capacity), FEV1 (forced expiratory volume in one second), FEV1/FVC , FEF25%-75% (forced expiratory flow

between 25% and 75% of FVC), PEF (peak expiratory flow) and BMI Z score.

Results: The participants were 14 boys (73%) and 5 girls (27%). Their mean age was 12 years (between 5 and 17 years). The mean of BMI was 16.36 (between 13.8 and 21.7). The mean of FVC was 81% of predicted (between 35 and 216 %).11 patients (57%) had FVC less than 80% predicted (restriction). The mean of FEV1 was 86% (between 50 and 164% predicted).1 patient had FEV1/FVC ratio less than 0.80. (medium air way obstruction). Their mean FEV1/FVC was 0.91 (between 0.68 and 0.99). The mean of FEF25%-75% was 85% predicted and 5 patients had FEF 25%-75% less than 60% (small airway obstruction). With Pearson correlation study the patients ages and their BMI Z scores had negative correlation and also between age and PEF there was a negative correlation ($p<0.05$).

Conclusion: The results show that a big percentage of patients had restriction Also there was negative correlation between BMI Z SCORE and PEF with age. These negative correlations can be due to duration of illness. This needs more details about the kind of kidney disease, the distance between spirometry and last hemodialysis session.

Importance of bone mineral density assessment in children on long term hemodialysis

Mastaneh Moghtaderi, Nematalla Ataei, Faeze Javadi Larigani Tehran University of Medical Sciences

Disorders of bone and mineral metabolism affect almost all patients with advanced chronic kidney disease (CKD). Decreased bone mineral density has been reported in this population with high prevalence, but the role and diagnostic utility of bone density measurements are not well established. Bone mineral density (BMD) measured by dual-energy X-ray absorptiometry (DXA) relates to fracture risk in subjects with normal renal function, in patients with CKD and patients on hemodialysis, although not evident from all studies or in all patient populations. Previous studies have reported decreased BMD in patients on dialysis. The incidence of bone fractures is high in patients with ESRD, but the association between fractures and bone density is not obvious. A recent meta-analysis suggested that decreased density at the radius might be associated with higher overall fracture risk. Changes in bone mineral density can reflect several underlying pathological processes, such as vitamin D deficiency, estrogen deficiency and changes in bone turnover. The response of bone to these factors and processes is not uniform: it can vary in different compartments of the same bone or in different bones of the skeleton. Therefore, it is important to differentiate between these responses in various types of bone. This may be possible by proper selection of the measurement site or using methods such as quantitative bone computed tomography. Previous studies used different methods and measured bone mineral density at diverse sites of the skeleton, which makes the comparison of their results very difficult. The association between changes in bone mineral metabolism and cardiovascular mortality is well known in ESRD patients. Studies also suggest that low bone density itself might be an indicator for high risk of cardiovascular events and poor overall outcome in this population. Some of the risk factors of low bone mineral density, such as vitamin D or estrogen deficiency, are potentially modifiable. Further studies are needed to elucidate if interventions modifying these risk factors will have an impact on clinical outcomes.

Role of Gastrostomy in weight gaining pediatrics treating with peritoneal dialysis Case report:

Farzaneh Salmian, Mashhad University of Medical Sciences

Introduction: Growth impairment is a major complication of children with chronic kidney disease (CKD). Poor growth is a marker of disease severity and is associated with significant morbidity and mortality. In children with CKD,

inadequate nutritional intake due to anorexia and vomiting is one of the most frequent and important factors contributing to growth failure. Patients with CKD usually require progressive restriction of various dietary components as their renal function declines.

Case report: In this case report a patient (one year old age female patient) with CKD (due to PCKD) undertreating PD which poor weight gain is resolved with gastrostomy was introduced.

In the early stages of dialysis her body weight was 6500 gr and during the 8month dialysis only 500gr weight gained.

Because of malnutrition and poor weight gain a gastrostomy catheter was inserted for patient.

After insertion of gastrostomy catheter, he have 4000gr weight gain during 4months.Gastrostomy is a preferred method for dissolving malnutrition and poor weight gain.

This method of treatment is suggested for patients under treatment with PD to reach ideal body weight suitable for kidney transplant.

Conclusion: If oral caloric intake remains inadequate and/or weight gain and growth velocity are suboptimal, enteral tube feeding should be considered. Supplemental feedings may be provided via a nasogastric, gastrostomy, or gastrojejunal tube.

Icodextrin is safe in Children

Nakysa Hooman, Leila Ghafari

Ali-asghar children hospital, Iran University of Medical Sciences

Introduction: Icodextrin is a new carbohydrate dialysis fluid that has high osmolarilty without increase in glucose level. It is good for increase ultrafiltration and suggested for treatment of fluid overload.

Methods: Between 2013 and 2015, icodextrin was prescribed to eleven patients with the dosage of 600/m2 for 12 hours of dwell time.

Results: The underlying diseases of ESRD were: Cystinosis, FSGS, CNS, Osteopetrosis with AKI, Cloborenal syndrome, PCKD, Dysplastic kidney disease. The age range was 4 month to 12 years. Anuria and fluid overload, ultrafiltration failure, resistant hypertension or hyponatemia were the main reason of prescribing icodextrin. In three others, it was prescribed because of recent episodes of EPS in cohort children on long –term glucose containing CAPD in our department. From those who were anuric, one patient stopped because of severe heart failure after one month of utilization that was related to ingestion of foods containing high sodium. The range of ultrafiltration rate was between 600 to 1000 ml per exchange. The blood pressure decreased 5-15 mmHg and no episodes of hypernatremia were seen. The patients could have more liberate fluid.

Conclusion: Icodextrin is a safe dialysis fluid for children and infants

Unexpected Encapsulated Peritoneal Sclerosis in a child on CAPD

Kamran Sabziyan, Nakysa Hooman, Fariba Jahangiry, Maryam Zarehie, Mitra Mehrazma, Mahtab Rahbar

Iran University of Medical Sciences

Encapsulated Peritoneal sclerosis is a devastating complication of long term CAPD with high glucose containing solution. The earliest sign might be ultafiltration failure. Hereby we presented a 6 .5 years boy who presented with outflow failure. The reason of ESRD was single kidney and he went under CAPD with 600/m2 three times per day of dextrose 1.45% fluid since two years ago. The peritoneal clearance and PET were done every three months in this patient. His first presentation was two months earlier with two episodes of abdominal pain and culture negative peritonitis with WBC 160/hpf (PMN= 45%) The last one was treated with cefazolin IP and the WBC of effluent decreased to 50 and he discharged. Then he came back with outflow failure. The Plain abdominal x-ray revealed translocation of catheter to the upward but did not relocate by intensive laxative. Then, the surgery was done and it revealed that all serous on gastrointestine was covered by a myofibrosis layer. Abdominal sonography showed the thickness of peritoneum about 4 cm and the oral contrast CT scan revealed, focal thickening of peritoneum. The pathology was in favor of EPS. Methylprednisolon and mycophenolate were started.

Conclusion: The EPS is not far in children on CAPD. High suspicious might help to recognize in the earliest stage to save peritoneum and life.

EXTRANEAL (Icodextrin) Peritoneal Dialysis Solution

Fatemeh Ghane Sharbaf
Department of Pediatric Nephrology, Dr. Sheikh Hospital, Mashhad University of Medical Sciences, Mashhad, Iran

The use of EXTRANEAL[icodextrin (ico)] has been characterized as one of the major achievements in peritoneal dialysis (PD). Icodextrin is a clear, colorless peritoneal dialysis solution containing icodextrin as the primaryosmotic ingredient at a concentration of 7.5% (7.5 grams icodextrin per 100 milliliters) in an electrolyte solution with 40 mEq/L lactate. Icodextrinis an iso-osmolar dialysis solution that consists of a mixture of high molecular weight water-soluble polymers of glucose, isolated by the fractionation of hydrolyzed cornstarch. sosmotic 7.5% icodextrin solution induces transcapillary ultrafiltration (UF) by a mechanism resembling 'colloid' osmosis. In addition, absorption of icodextrin from the peritoneal cavity is relatively slow compared with that of dextrose. Icodextrin is indicated for a single daily exchange for the long (8- to 16- hour) dwell during continuous ambulatory peritoneal dialysis (CAPD) or automated peritoneal dialysis (APD) , and is also indicated to improve ultrafiltration and clearance of creatinine and urea nitrogen in patients with high average or greater transport characteristics. Many clinical benefits of ico have been described, such as a reduction in total glucose load, equivalent or higher UF than that provided by hypertonic glucose solution, and better control of fluid balance. EXTRANEAL is contraindicated in patients with a known allergy to cornstarch or icodextr, maltose or isomaltose intolerance, in patients with glycogen storage disease, in patients with pre-existing severe lactic acidosis.

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Renal Transplantation Abstracts

Renal allograft nephrectomy: comparison between clinical and pathological diagnosis

Hamidreza Sadeghiyan, Student of medicine, Member of Medical Research Center, School of Medicine, Esfahan University of Medical Sciences. Esfahan, Iran

Introduction: The most common complication of renal transplantation is allograft dysfunction, which in some cases leads to graft loss. The role of graft nephrectomy in the management of transplant failure is controversial. The procedure remains associated with a significant morbidity and also mortality. Our main purpose was the comparison between clinical and pathological diagnosis of graft nephrectomy. **Methods:** The documents of 88 patients who admitted for graft nephrectomy in Shariaty hospital for the last 25 years were reviewed. Slides of graft pathology were revised by an individual nephropathologist. Data was analyzed by SPSS 18 using ANOVA and Chi-square tests. **Results:** The percentages of clinical diagnoses for the graft nephrectomy are: chronic rejection (38%), graft infection (26%), gross hematuria (10%), acute rejection (10%), accelerated rejection (8%), hyper-acute rejection (4%) and thrombosis of the renal artery (4). On the other hand, the pathological diagnoses are: necrosis concomitant with thrombosis (35%), only necrosis (26%) and 5 (3) concomitant with 4 (3) in 16% of cases that means severe interstitial atrophy and fibrosis adjacent with acute cellular rejection and intramural vasculitis. **Conclusions:** Pathology included necrosis in about half of the graft nephrectomized patients. If the panel reactivity test is negative preoperatively, and there is no absolute indication for the operation, one may abstain from graft nephrectomy to save the patient, the morbidity and even the mortality of the procedure. On the other hand, the advantages of leaving the graft in situ are erythropoietin production, hydroxylation of calcidiol and maintenance of some residual dieresis.

Etiology of End Stage Renal Failure in 403 transplanted children at a single center

Mostafa Sharifian, Banafsheh Arad, Nasrin Esfandiar, Naser Simfroosh, Abbas Basiri
Pediatric Nephrology Research Center (PNRC) and Pediatric Infections Research Center (PIRC), Faculty of medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Introduction: The etiology of renal failure is important for children who are to be transplanted. It differs widely based on age, sex and region in the world. In children under 5 years congenital anomalies predominates; however children more than 5 years mostly suffer from Glomerular diseases. Renal transplantation is therapy of choice for children with End Stage Renal Failure (ESRF). There are many situations that primary renal disease affect patient and graft outcome; For example if the transplanted patient with Focal Segmental Glomerular Sclerosis (FSGS) develops proteinuria and rising Creatinine (Cr); recurrence of FSGS is first in differential diagnosis list but if this occurs in a transplanted child with Alport`s syndrome the first diagnosis will be development of anti Glomerular Basement Membrane (GBM) antibody in transplanted kidney.
Objectives: The aim of this study was to examine the etiology of ESRF in our pediatric patients. **Methods:** Four hundred and three children aged less than 15 years received renal transplantation in Labbafinejhad university hospital between 1985- 2012 from them in178 patients etiology of renal failure were addressed. Herein we present this data.

Results: From 403 renal transplanted children, in 225 (56%) patients primary renal disease were not known. The mean age of patients was 11.1±2 years and 58% were males. Causes of ESRF are shown in table 1. Other 20 diseases in table included; Familial nephritis, Alport`s syndrome, RPGN and HUS; 3 patients each and one case of SLE, RTA, Obstructive uropathy, Hypertension, Congenital nephrotic and Bartter`s syndrome. **Conclusion:** Primary renal disease in our patients was not known in 56% and Reflux nephropathy was the second most common; this indicated that we need more effort to educate our community and health workers for early referral of suspected nephrologic patients to pediatric nephrologists.

Most appropriate method in diagnosis of cytomegalovirus, real-time PCR or pp65 antigenemia

Soudabeh Hosseeini[1,3], Akbar Dorgalaleh[2], Ebrahim Kalantar[3]
1 Aliasghar Hospital, Hematology laboratory, Tehran University of medical science, Tehran, Iran
2 Hematology Department, Allied Medical School, Tehran University of Medical Sciences, Tehran, Iran
3 Gholhak Clinical Laboratory, Shariati St, Tehran, Iran

Introduction: Cytomegalovirus (CMV) infection is the most common viral infection in solid organ transplantations and also can be observed as a blood born diseases. Traditionally, diagnosis of disease was made by antigenemia assay. Most common antigen is pp65 antigen that can be detected in plasma or peripheral blood leukocytes. This assay, however, is not objective enough and several studies have demonstrated that polymerase chain reaction (PCR)-based qualitative detection of CMV DNA shows a low level of specificity and predictive value for diagnosis of CMV disease, 3 the quantification of CMV-DNA by means of real time PCR seems to be accurate, rapid, and highly sensitive and specific. Quantification of CMV DNA by PCR (Light Cycler, LC-PCR) is an appropriate method for early detection of CMV. In this study, we assessed the sensitivity of three common methods including PCR, Real Time -PCR and antigenemia assay in early detection of CMV infection.
Methods: During the time of study a total of 950 individuals were assessed for CMV infection by three methods of PCR, Real Time –PCR and antigenemia assay. We assessed our patients for CMV infection simultaneously by PCR and PP65 antigenemia assay or Real Time –PCR and PP65 antigenemia assay. Finally obtained data was analyzed by SPSS software.
Results: Out of 805 individuals, 72 infections were detected by PP65 antigenemia assay methods, while 194 infected cases were detected by conventional PCR that was a statistically significant difference ($p<0.001$). Out of 145 individuals that were assessed simultaneously by Real Time –PCR and PP65 antigenemia assay, 36 and 72 CMV infection were detected simultaneously ($p<0.001$).
Conclusion: In conclusion, we believe that the quantification of CMV DNA by PCR or Real Time –PCR are superior assays to pp65 antigenemia test regarding the early diagnosis of CMV disease in solid organ transplant recipients.

Organ Transplantation and Islamic Punishment Law

Azadeh Memarian
Department of Forensic Medicine, Assistant Professor, Iran University of Medical Sciences

There are some items regarding organ transplantation have been mentioned in Islamic punishment law enacted in 2013. These relevant legal items that can be mentioned include: Article 158, Section G about satisfaction; Article 372 of the patients in the case of death; Article 495 and 497 about innocence, and Article 724 the mutilation of the deceased 'organs. In accordance with section C of Article 158 of the Penal Code, if a person donate his/her organ to save the life of another human being and give permission to physician that his/her organ to be harvested, and the physician do it according scientific, technical and professional principles, there is no criminal liability for harvesting the organ. Hereby, satisfaction means the permission that patient gives to the doctor before treatment. Satisfaction to the person who issued the permission is valid and informed him that the doctor is necessary for the treatment and its consequences to be informed to the patient. Article 372 of the Penal Code states that if a person hurt deadly somebody and then assistance help to terminate his/her life; the first one will be sentenced to dead, and the other punished as what done on the dead body.

There is the substance of the current sentence for unintentional crimes. The question is whether we can consider a patient with brain death as a deceased? It seems that according to the definition of brain death those experts consider it irreversible brain death as an example of the dead. Therefore, in accordance with Article 372 Islamic punishment laws the permission to termination of the life of a brain is not consider murder but it would be crime against cadaver. However, according to Clause 3 of the single article organ donation from deceased; doctors, members of the transplant team sentences are excluded. If the injuries are so severe to a brain death patient by organ transplantation teams and doctors, they are exempt from the payment of blood money. Article 495 of Islamic punishment law stated that if a physician treatment led to harm, injury or death of patient, he /she have to pay atonement unless the performance to be according technical, scientific and medical laws, acquittance has been get before performance, and no condemnation has occur during procedure. Acquittance means that the patient gives not only permission for surgery and medical treatment but also announce awareness and acceptance of the probable side effects of treatment or surgery and disculpate the physician from any side effects that might happen. Article 497 of the Islamic Penal Code of acquittance states: "In cases that it would not possible to get acquittence while the physician treat according medical principles to save the life of patient, no one guarantee the loss or damage that might occur.» I other word it is not necessary to obtain acquittance in urgent situations and the doctor is innocent and law will be exempt from any responsibility. It must be mention that the negligence and incautiousness are not included. And the physician must treat according medical technical principles, nevertheless in the case of fault the physician is responsible for compensation. Article 724 of the Islamic Penal Law States: "The amputation of the organ of a cadaver and donate to the other live person on circumstances that occur according the will of the dead person is permitted and do not cover atonement. In contrast, if the organ of a dead body is separated without his / her permission or will, the Islamic punishment laws of Articles 722 and 727 are included. According to Article 722, of one tenth of a full atonement of a live person would be calculated. There would be no doubt that injury to head, face and other organs of a cadaver the same calculation would be considered.

Common Drug Interactions in Renal transplantation

Mohammad Sayyah, Professor of Pharmacology,
Pasteur Institute of Iran

Transplant patients often are burdened by the number of medications including immunosuppressants, anti-infection drugs, and other maintenance medications. The necessity for polypharmacy increases the potential for serious drug interactions. Drug interactions are classified as *pharmacokinetic* or *pharmacodynamic* in nature. With the increasing number of new agents on the market, it can be challenging for physicians to recognize potential drug interactions. Typical transplant regimens include a calcineurin inhibitor (cyclosporine, tacrolimus); an anti-metabolite (azathioprine, mycophenolate mofetil) and sometimes a corticosteroid (prednisone).
Fungal infections are estimated to occur in 5% of kidney transplant recipients. The azole antifungals inhibit the clearance of the CNIs, often producing toxic drug levels. Bacterial infections are among the leading complications occurring post-transplant. Macrolide antibiotics and the new ketolide (telithromycin) are strong CYP3A4 inhibitors, reducing the clearance of immunosuppressants. Rifampin, often used for resistant staphylococcal infections, is a strong inducer that may result in sub-therapeutic drug levels. Aminoglycosides and streptogramin derivatives should be used with caution secondary to additive nephrotoxic effects. Hypertension is a common comorbidity affecting a large proportion of transplant patients. Among antihypertensives, only calcium channel blockers complicate immunosuppressive management. Verapamil, nifedipine, nicardipine and diltiazem are inhibitors of immunosuppressant metabolism resulting in immunosuppressant toxicity. Some of the more problematic interactions occur with anti-seizure or antiretroviral medications. Phenytoin, carbamazepine, and phenobarbital are strong inducers of the CYP450 system. Coadministration of these agents with CNIs result in reduced immunosuppression. The use of HIV protease inhibitors in combination with CNIs warrants immunosuppressant dose reduction and careful monitoring of serum levels. There are a

few ways to reduce risk for potential drug interactions. Patients should keep accurate records of all prescription medications, inform physician of current prescription, OTC, supplement, or herbal usage; and take an active part in learning about the warnings for the medications they consume. To ensure patient safety, when drug interactions with transplant medications cannot be avoided, dose adjustments and careful monitoring should be employed.

قانون مجازات اسلامی وپیوند اعضاء

دکتر آزاده معماریان- استادیار – متخصص پزشکی قانونی دانشگاه علوم پزشکی ایران

در قانون مجازات اسلامی مصوب ۱۳۹۲، مشاهده میشود چندین ماده در بحث پیوند اعضا قابل بررسی هستند .از جمله مواد قانونی مرتبط که میتوان به آنها اشاره کرد: بندج ماده ی ۱۵۸ در باب رضایت، ماده ی ۳۷۲ در باب بیمار درحکم میت، ماده ی ۴۹۵ و۴۹۷ در باب برائت و ماده ی ۷۲۴ درباب قطع اعضای میت هستند.

مطابق بند ج مادهی ۱۵۸ قانون مجازات اسلامی، درصورتی که فرد برای نجات جان یک انسان عضوش را اهداکند و به برداشت عضو خویش توسط پزشک رضایت دهد،پزشک نیز در برداشت عضو موازین فنی، علمی و نظامات حرفه ای را رعایت کند؛ مسؤولیت کیفری برای جراحت وارده جهت برداشت عضوندارد. در اینجا رضایت به معنی اذن است که بیمار قبل ازدرمان به پزشک میدهد. رضایت باید از شخصی که اذن اومعتبر است صادر شده باشد و نیز آگاهانه باشد یعنی پزشک آگاهیهای لازم در مورد نوع درمان و عواقب آن را به بیمارگوشزد کند . ماده ی ۳۷۲ قانون مجازات اسلامی بیان میدارد هرگاه کسی آسیبی به شخصی وارد کند به گونه ای که وی رادر حکم مرده قرار دهد و تنها آخرین رمق حیات در او باقی بماند و در این حال دیگری با انجام رفتاری به حیات غیرمستقر او پایان دهد نفر اول قصاص میشود و نفر دوم به مجازات جنایت بر میت محکوم میگردد. حکم این ماده قانون در مورد جنایات غیر عمدی نیزجاری است.

حال این سؤال مطرح میشود که آیا میتوان فردمرگ مغزی را در حکم مرده دانست؟ به نظر میرسد با توجه به تعریف متخصصان از مرگ مغزی که آن را غیر قابل برگشت میدانند مرگ مغزی مصداقی از مفهوم در حکم مرده است. لذا طبق ماده ی۳۷۲قانون مجازات اسلامی میتوان گفت خاتمه دادن به حیات فرد دچار مرگ مغزی قتل محسوب نمیشود بلکه جنایت علیه مرده به شمار میرود.البته با توجه به تبصره ی ۳ ماده واحده ی قانون پیوند اعضاءبیماران فوت شده، پزشکان عضو تیم پیوند اعضا از این حکم مستثنی هستند؛ بدین ترتیب در صورتی که جراحاتی بر فرد دچار مرگ مغزی، توسط پزشکان عضو تیم پیوند اعضا واردشود، پزشکان از پرداخت دیه معاف هستند. مطابق ماده ی ۴۹۵ قانون مجازات اسلامی«هرگاه پزشک در معالجاتی که انجام میدهد موجب تلف یا صدمه ی بدنی شود، ضامن دیه است مگر آنکه عمل او مطابق مقررات پزشکی و موازین فنی باشد یا اینکه قبل از معالجه برائت گرفته باشد و مرتکب تقصیری هم نشود ... » برائت بدین معناست که بیمار علاوه بر اینکه رضایت به عمل جراحی و درمان میدهد، به عوارض احتمالی ناشی ازآن هم رضایت میدهد و پزشک را از مسؤولیت مبرا میکند. ماده ی ۴۹۷ قانون مجازات اسلامی در باب برائت بیان میدارد: «در موارد ضروری که تحصیل برائت ممکن نباشد وپزشک برای نجات مریض، طبق مقررات اقدام به معالجه کند،کسی ضامن تلف یا صدمات وارده نیست.» باید گفت درموارد اضطراری نیازی به اخذ برائت نیست و پزشک طبق قانون از هرگونه مسؤولیتی معاف خواهد بود. این ماده با توجه به قاعده ی لزوم حفظ نفس قابل توجیه است. البته باید توجه داشت این اضطرار، مجوز بی احتیاطی و بیمبالاتی پزشک نیست و پزشک مکلف به رعایت موازین فنی پزشکی است و در صورت ارتکاب تقصیر، پزشک طبق قانون مکلف به جبران خسارت وارده است. ماده ی ۷۲۴ قانون مجازات اسلامی بیان میدارد: « قطع اعضا میت برای پیوند به دیگری درصورتی که با وصیت او باشد، دیه ندارد «.از مفهوم مخالف این ماده چنین برداشت میشود، درصورتی که جدا کردن عضو بدن میت بدون اذن و وصیت وی باشد مشمول مواد ۷۲۲ و ۷۲۷ قانون مجازات اسلامی میشود؛ یعنی طبق مادهی ۷۲۲، دیه ی جنایت بر میت، یکدهم دیه ی کامل انسان زنده است .... دیهی جراحات وارده به سر و صورت و سایر اعضا و جوارح میت به همین نسبت محاسبه میشود.

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Urology Abstracts

Glomerular filtration rate and urine osmolality in unilateral ureteropelvic junction obstruction

Alaleh Gheissari, Isfahan university of medical sciences

Introduction: Renal maldevelopment, interstitial fibrosis, ischemic atrophy, decreased glomerular filtration rate (GFR), and renal blood flow (RBF) are inevitable consequences of chronic kidney obstruction that only partially improve after early intervention. There are only few studies that evaluated urine osmolality in affected kidney and its correlation with short-term outcome.
Methods: Thirty patients (age<1 year) with unilateral ureteropelvic junction obstruction (UUPJO) were enrolled in this study. UUPJO was confirmed using Technetium 99 isotope scans and the patients were indicated to be operated afterward. Urine and blood samples were obtained before, 24, 48, and 72 h after the surgery. The serum level of blood urea nitrogen, creatinine, and glucose were measured. GFR, urine osmolality (measured and calculated), and urine specific gravity were determined too.
Results: Cortical thickness of hydronephrotic kidney was significantly increased 6 months after the surgery. GFR was significantly increased 72-h postsurgery compared to before operation. Neither means of calculated nor of measured urine osmolalities were significantly different in various stages. The last calculated urine osmolality (72 h) had significant correlation with the last measured osmolality (72 h); r=0.962, P=0.0001. The last GFR (72 h) had positive significant correlation with GFR before the surgery and GFRs at 24 and 48 h postsurgery.
Conclusion: Using regression tests, only the before surgery GFR was the predictor of the last GFR(72 h).

Cut off point of renal pelvis diameter in prenatal hydronephrosis and surgical outcome

Simin Sadeghi Bojd, Research Center for Children and Adolescents, Zahedan University of Medical Sciences, Pediatric Assistant of Zahedan University of Medical Sciences, Ali-Ebne Abitaleb Hospital, Zahedan, Iran

Introduction: Prenatal hydronephrosis (PNH) is dilation in urinary collecting system and is the most frequent neonatal urinary tract abnormalities with the incidence of 1% to 5% of pregnancies. PNH is defined as anteroposterior diameter (APD) of renal pelvis ≥4 mm at gestational age (GA) < 33 weeks and APD≥7 mm at GA≥33 weeks and after birth to 2 months old. All patients need to be evaluated after birth by at least one postnatal renal ultrasonography (US).
Methods: In this retrospective cohort study we followed 202 patients 1 to 60 days old with diagnosis of PNH based on before or after birth ultrasonography. These patients were referred to the nephrology clinic in Zahedan IRAN, since 2011 to 2013. The 1st step of investigation was to perform postnatal renal US, by the same expert radiologist and classify the patients into 3 groups; mild moderate and severe. The 2nd step was to perform voiding cystourethrogram (VCUG) for moderate to severe cases at 4-6 weeks of life. Tc-diethylene triamine-pentaacetic acid (DTPA) was the last step and for those with normal VCUG to evaluate obstruction and renal function.
Results: Out of 202 screened PNH patients with male to female ratio 3.5:1, about 93% had still hydronephrosis in the 1st postnatal control US. Based on which 53% had mild, 36% moderate and 23% sever hydronephrosis. 168 patients had done

VCUG of which 14.9% was with VUR. 112 patients performed DTPA with following results: 53.57% obstructive and 46.43% non-obstructive. Finally 54.2% of 202 patients recovered by conservative therapy, 12.4% by surgery and the remain got improved without any interference and follow up after the 2nd US at 4 weeks old was normal.
Conclusion: The best cutoff point of anteroposterior renal pelvis diameter leading to surgery was 10mm,

Studying the effects of combined treatment of desmopressin and oxybutynin with desmopressin and tolterodine, in the treatment of children with primary nocturnal enuresis

Anoush Azarfar, Yalda Ravanshad, Fatemeh Ghane, Jalil Moshari, Mahmoud Maleknejad
Mashhad University of Medical Sciences

Introduction: Nocturnal enuresis (enuresis) is one of the most common developmental problems of childhood that often has familial basis and causes mental and psychological damage to the child and disrupts the solace of family. In this study, we have attempted to compare therapeutic effects of desmopressin and oxybutynin with desmopressin and tolterodine, in the treatment of children with primary nocturnal enuresis.
Methods: The present study is a type of clinical trial study, that 59 patients with primary nocturnal enuresis in age range of 5 to 14 years were selected from the visitors of nephrology clinic of Dr. Sheikh Pediatrics Hospital. Patients were divided into two treatment groups (The first group received combined therapy with desmopressin and oxybutynin and the second group received combined therapy with desmopressin and tolterodine). Data were analyzed by using SPSS16 software and descriptive and analytical statistics (chi-square).
Results: The mean of age of patients in total was 2/55 ± 7/90. In the treatment groups with desmopressin and oxybutynin, in three-month study evaluation, 26 of 30 patients (86/7%) achieved a complete remission and 4 patients (13.3%) still suffered from enuresis. The comparison of two groups, in terms of the outcome of the three-month of treatment, showed significant differences between remission and recovery of two groups, meaning that the recovery in the group with desmopressin + tolterodine was higher than the group with desmopressin + oxybutynin (p=0/001).
Conclusion: The results showed that combined treatment is better than monotherapy and combined treatment with desmopressin + tolterodine operates better desmopressin+ oxybutynin in complete recovery of patient.

Vaginal Foreign Body in a 7 month old infant

Anoush Azarfar, Jalil Moshari, Mohamad Esmaeili, Mitra Naseri, Fatemeh Ghane
Department of pediatrics, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

Young children are curious about their bodies, and they like to explore. Symptoms secondary to a vaginal foreign body are responsible for approximately 3- 4% of pediatric gynecologic outpatient visits. It is common for young girls to insert crayons, beads, coins, batteries, twigs, and other small objects into their vagina. It is also common for toilet tissue to ball up and enter the vagina. These objects often remain in the body and cause an inflammation. This may take days, months, or even years to develop, depending on the object.
A 7-month-old girl who lived with her parents presented with recurrent foul-smelling, blood-stained vaginal discharge and redness or inflammation of the vaginal skin area for 2 month. There was no history of urinary tract infection abdominal discomfort or preceding sexual abuse. Her mother had taken her to some private clinics where several antibiotics and vaginal creams were administered with no improvement. There was a harmonious parental relationship and no family discord.
After a period of unsuccessful medical treatment, the vaginal discharge continued. Initial examination by a pediatrician revealed an apprehensive child with slight abdominal discomfort. The baby was gently examined and a vaginal foreign body was found and removed by a forceps from the edematous vaginal tissues (wild barley or grass dart) after that the mother noted that two months ago the infant's diaper changed on the outside of the house in a meadow. After 2 weeks fallow Lesions in our patient showed a marked improvement. We recommend that patients be adequately examined and to be more careful examination of small things.

Association of urinary transforming growth factor-β1 with the ureteropelvic junction obstruction

Alireza Merrikhi, Emad Bahraminia
Department of Pediatrics, Faculty of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran

Introduction: We aimed to compare the level of urinary transforming growth factor-beta 1 (TGF-β1) in children with ureteropelvic junction obstruction (UPJO) with the normal peers.
Methods: In this case-control study, we enrolled children with UPJO and matched normal peers. Sterile urine was collected from the subjects and urinary TGF-β1 was measured by ELISA method. Also, degree of the UPJO and the magnitude of the renal injury were assessed by ultrasonography and measuring glomerular filtration rate (GFR), respectively. Study variables were then compared between the study groups regarding the level of urinary TGF-β1.
Results: A total of 25 children with UPJO (age = 7.4 ± 4.5 years; male = 16) were compared with 25 healthy peers (age = 6.8 ± 5.6 years; male = 16). Mean GFR in the UPJO and the control group were 112.4 ± 10.1 and 123.29 ± 4.4, respectively. Mean urinary TGF-β1 in the UPJO group was 87.1 ± 12.6 pg/ml vs 30.5 ± 14.5 pg/ml in the control group. The level of urinary TGF-β1 was significantly associated with the degree of TGF-β1 and patients with grade IV hydronephrosis had the highest level of urinary TGF-β (P = 0.0001).
Conclusion: Based on our findings, biomarkers such as TGF-β1 can successfully be used for confirming UPJO. However, further studies are needed to determine the proper cut point for diagnosis confirmation.

The cause and outcome of fetal hydronephrosis

Behnaz Falakolaflaki, Pediatric Nephrologist, Department of Pediatrics, Mousavi Hospital, Zanjan University of Medical Sciences

Introduction: Hydronephrosis is probably the most prevalent congenital abnormality detected prenatally by ultrasonography (1-5% of all pregnancies). The aim of this study was to determine the cause & postnatal outcome of fetal hydronephrosis.
Methods: In this retrospective cohort study, 250 term infants with prenatally diagnosed hydronephrosis and the diagnosis were confirmed postnatally, were enrolled. The degree of hydronephrosis was defined as mild (6 to <10 mm), moderate (10 to <15 mm) or severe (≥15) using anterior-posterior diameter of the renal pelvis in the third trimester. Postnatal sonography was performed 3-7 days after birth. Voiding cystourethrogram was performed in 6-8 weeks time. In the absence of vesicoureteral reflux (VUR), DTPA scan was performed to exclude obstruction. Follow-up period was 48 months. The events of interest were course (resolution, surgical intervention, and no change), urinary tract infection (UTI), hypertension, chronic kidney disease (CKD), and death.
Results: Of 250 cases with hydronephrosis, 135(54%) were mild, 84(33.6%) were moderate, and 31(12.4%) were severe. Hydronephrosis was caused by VUR in104(41.6%), ureteropelvic junction obstruction (UPJO) in 59(23.6%), ureterovesical junction obstruction in 27(10.8%), cystic diseases in 19(7.6%), posterior urethral valves in 2(0.8%), prune-belly syndrome in 1 (o.4%), and idiopathic in 38 (15.2%).During follow-up19 patients (7.6%) required surgical intervention while 177(70.8%) improved and 54 (21.6%)were with no change. UTI occurred in 93(37.2%) and 11(4.4%) patients developed CKD. The risk of CKD, UTI and surgery were greater in patients with sever hydronephrosis (P< o.o5).
Conclusion: In this study VUR and UPJO were the most common cause of hydronephrosis. There was a meaningful relationship between the degree of hydronephrosis and postnatal problems (UTI, CKD & surgical intervention). But any degree of fetal hydronephrosis is at risk of postnatal pathology.

Comparison between Diuretic Urography (IVP) and Diuretic Renography for Diagnosis of Ureteropelvic Junction Obstruction (UPJO) in Children

Mohammad Esmaeili[1], Marjan Esmaeili[2], Fateme Ghane Sharbaf[3]
1 Associate Prof. of Pediatric Nephrology, Mashhad University of Medical Sciences, Department of Pediatric Nephrology, Ghaem Medical Center

2 Resident of Pediatric, Iran University of Medical Sciences, Department of Pediatric
3 Assistant Prof. of Pediatric Nephrology, Mashhad University of Medical Sciences, Department of Pediatric Nephrology, Dr. Sheikh Hospital.

Introduction: Ureteropelvic Junction obstruction (UPJO) is one of the most common causes of urinary tract obstruction in children. Several methods are used to diagnose upper urinary tract obstruction, including renal ultrasonography (US) intravenous pyelogram (IVP), diuretic renography (DR) and antegrade or retrograde pyelography. Whereas nowadays it is suggested to use diuretic renography as the best method for diagnosing of UPJO, there is no comparative study between IVP and DR scan in children.
Objectives: The aim of the present study is comparison of IVP mixed with furosemide and diuretic renography in diagnosis of clinically significant UPJO.
Methods: This study is a Cross sectional investigation that was performed in 153 children (121 boys, 32 girls) suspected to UPJO based on US findings who had been presented with urinary tract infection (UTI), prenatal hydronephrosis, abdominal / flank pain, abdominal mass and hematuria. Renal ultrasound was used as an initial screening tool for detection of urinary tract abnormality. Vesicoureteral reflux (VUR) was ruled out by voiding cystourethrography (VCUG). Serum creatinine, blood urea nitrogen, urinalysis and urine culture was screened for all cases. IVP with furosemide and DR were performed as soon as possible.
Results: During a Five years period, 46 out of 153 patients were diagnosed as UPJO based on DR: their ages ranged from 4 months to 13 years (Mean: 3.1±0.78 years). The sensitivity of DR in diagnosis of UPJO was 100% and for IVP was 91.3% respectively. Based on Mc-nemar's test, there was significant difference between two procedures for diagnosis of UPJO ($P<0.001$).
Conclusion: There was significant difference between two procedures (IVP & DR scan) for diagnosis of UPJO in kidneys with normal or near normal function; therefore DR was the best method for diagnosis of UPJO.

The value of direct radionuclide cystography in the detection of vesicoureteral reflux in children with normal voiding cystourethrography

Reza Dalirani, Abolfazl Mahyar, Mostafa Sharifian, Masoumeh Mohkam, Nasrin Esfandiar, Azam Ghehsareh Ardestani

Shahid Beheshti University of Medical Sciences, Tehran, Iran

Introduction: Vesicoureteral reflux (VUR) is one of the most important risk factors for urinary tract infection (UTI). Diagnosis and treatment of VUR is important to prevent irreversible complications, such as renal scarring and chronic renal failure. This study was conducted to assess the value of direct radionuclide cystography (DRNC) in the detection of VUR in children with UTI and a normal voiding cystourethrography (VCUG).
Methods: DRNC was performed in 35 children with a normal VCUG after an episode of febrile UTI who had hydronephrosis or hydroureter, abnormal acute dimercaptosuccinic acid (DMSA) scan results and/or febrile UTI recurrence. This study was conducted in the nephrology department of Mofid Children's Hospital, Tehran (Iran).
Results: The results were statistically analyzed. Among the 70 ureters studied, 33 (49.1 %) were observed to have VUR. Of these, 17 (51.5 %) had mild, 14 (42.4 %) moderate, and 2 (6.1 %) severe reflux. A significant relationship was observed between DRNC results and DMSA renal scan findings ($P<0.05$).
Conclusion: Based on our results, we suggest that DRNC may reveal VUR despite a normal VCUG in children with hydronephrosis, abnormal acute DMSA, and/or recurrent febrile UTI.

Determination of the severity of ureteropelvic junction obstruction using urinary epidermal growth factor and kidney injury molecule 1 levels

Hamid Mohammadjafari[1], Alireza Rafiei[2], Mehrnoush Kosaryan[3], Yalda Yeganeh[4], Seyed Jalal Hosseinimehr[5]
1 Antimicrobial Resistant Nosocomial infection research center, Mazandaran University of Medical Sciences, Sari Iran
2 Molecular and Cell Biology Research Center, Department of Immunology, Faculty of Medicine, Mazandaran University of Medical Sciences, Sari, Iran
3 Professor of Pediatrics, Thalassemia Research Center, Mazandaran University of Medical Sciences, Sari, Iran
4 Department of pediatrics, Faculty of Medicine, Mazandaran University of Medical Sciences, Sari, Iran
5 Professor, Department of Radiopharmacy, Faculty of Pharmacy, Mazandaran University of Medical Sciences, Sari, IRAN

Introduction: Antenatal hydronephrosis (AH) occurs in approximately 0.5–1% of neonates. Most commonly, patients with AH have an obstructive entity such as a ureteropelvic junction obstruction. This study aimed to assess the urinary concentrations of epidermal growth factor (EGF) and kidney injury molecule 1 (KIM-1) in patients with severe hydronephrosis and to compare them with those in infants with milder forms of the disease and those without obstruction.
Methods: This was a diagnostic study. Neonates with a history of prenatal hydronephrosis were enrolled in 3 groups. Group 1 included neonates with severe obstruction who required surgical intervention; group 2 included neonates with milder obstruction; and group 3 included neonates with a prenatal history of hydronephrosis but with normal findings on postnatal ultrasonography. Urinary levels of EGF and KIM-1 were measured and their ratios to creatinine (Cr) were calculated.
Results: Fifty-nine neonates were enrolled into the 3 groups: group 1, 24 patients (21 males, 3 females); group 2, 18 neonates (16 males, 2 females); and group 3, 17 neonates (15 males, 2 females). No statistically significant differences were observed between urinary EGF and KIM-1 levels among these groups. EGF: Cr and KIM-1: Cr ratios were significantly higher in group 1 than in group 2. The cutoff values were measured as 16.855 ng/mg (sensitivity 71%, specificity 77%) and 0.4765 ng/mg (sensitivity 81%, specificity 71%) for EGF:Cr and KIM-1:Cr ratios, respectively.
Conclusion: Evaluation of the urinary KIM-1: Cr ratio may help identify neonates with severe obstructive hydronephrosis who require surgical intervention. Higher EGF: Cr ratios were observed in neonates with severe obstruction. This finding is inconsistent with those of most previous studies, which warrants additional larger studies.

The incidence and risk factors for urinary stone formation in infants with prenatal history of hydronephrosis

Hamid Mohammadjafari, Samaneh Ahangardarabi
Antimicrobial Resistant Nosocomial infection research center, Mazandaran University of Medical Sciences, Sari Iran

Introduction: Antenatal hydronephrosis (AH) is found in 0.5-2% of neonates. There is some tendency to develop nephrolithiasis in the hydronephrotic infants for stasis of urinary stream. The aim of the study was to assess the frequency of nephrolithiasis in infants with antenatal hydronephrosis and the risk factors of stone development.
Methods: Neonates with a history of prenatal hydronephrosis were enrolled study from March 2002 until March 2012. Those with any evidence of urinary tract stone were assessed for infectious and metabolic risk factors of stone formation.
Results: 285(220male) neonates were studied, 52(18.2%) of them had nephrolithiasis on ultrasound studies and were enrolled into the study. The male to female ratio was 40 to 12, ten patients excluded because of inadequate follow up. The stone diameter was 3-9 mm, only 1 patient had bladder stone and all other stones were located in kidneys, more in left kidney. The stone was observed in 10% of patients with vesicoureteral reflux (VUR) and in 20-25% of infants with obstructive urinary disorders. Hypercalciuria was the most common metabolic abnormality, hypocitraturia and hyperoxaluria were found only in 2 and 1 patients respectively. 6 (15%) of patients had urinary tract infection before detection of stone and 5(13%) had UTI after diagnosis of nephrolithiasis was diagnosed. The frequency of UTI in patients with VUR and ureteropelvic junction obstruction was 29% and

13% respectively. There were no infectious or metabolic risk factor in 23(58%) of patients.
Conclusion: Urolithiasis in a common and important complication in infants with prenatal history of hydronephrosis. Hypercalciuria and UTI were observed in one third of patients. 64% of the patients had no risk factor other than hydronephrosis for stone formation.

The Etiology of Fetal hydronephrosis in pediatrics that patients consult a physician in pediatrics medical center in 1385 to 1389

Niloofar Hajizadeh, Soheila Mahdavynia, Shahin Behgati
Pediatrics medical center, Tehran university of Medical Sciences

Introduction: the most common anomaly diagnosed by prenatal sonograms is fetal hydronephrosis with incidence of 1-5%. Overall 50% of all prenatally diagnosed anomalies consist of fetal hydronephrosis. Recent developments of diagnostic techniques and routine prenatal sonograms helped diagnosing urinary tract anomalies earlier in life.
Methods: this trial was composed of all the infants referred to neonatal, nephrologic or urologic clinic in children's Medical center who were diagnosed with hydronephrosis according to their prenatal sonograms.
Results: 62 infants with diagnosed hydronephrosis had entered this study, 56 (90.3%) being male and the remaining 6 (9.7%) female. 47 infants were diagnosed with double sided hydronephrosis (75.8%) and the other 15 had single sided hydronephrosis (24.2%). 109 renal units out of the total 123 units suffered from hydronephrosis.
Conclusion: Given the facts from other studies indicating that even with normal postnatal sonogram reflux may be found in 1/4 of cases, or that even with mild hydronephrosis postnatal pathologies are probable, and the reported reflux, PUV and UVJO even with mild cases of hydronephrosis in this trial, it is recommended to perform VCUG in infants with prenatal hydronephrosis.

Vesicostomy

Hilda Dehghan, Executive Supervisor -OR

Vesicostomy is a surgery that makes an opening from the bladder to the outside (skin). Its location is in the below of the umbilicus and above the pubic bone and should be done in the operating room. The opening allows urine to drain out and prevents urine from being trapped inside the bladder (urine retention). A vesicostomy may be done for newborns or a baby who is not able to empty his or her bladder, or when intermittent catheterization is not an indication or is not possible. A vesicostomy may also be needed if a child has a blocked urinary system causing hydronephrosis and hydroureter.

Urinary tract obstruction in children

Sorraya Shojaee, Iran University of Medical Sciences

Each year about 2 per 1000 people in the United States are hospitalized due to urinary tract obstruction. Urinary tract obstruction is a blockage that inhibits the flow of urine through its normal path (the urinary tract), including the kidneys, ureters, bladder, and urethra. Early diagnosis is important, because most cases of obstruction can be corrected and because a delay in treatment can lead to irreversible kidney damage. In children, obstruction may be more commonly due to UPJ or UVJ obstruction, ectopic ureter, ureterocele, megaureter, or posterior urethral valves. Symptoms depend on the cause, location, and duration of the obstruction. Treatment usually aims to relieve the cause of obstruction. Nursing Priorities is including Alleviate pain, maintain adequate renal functioning, Prevent complications, Provide information about disease process/prognosis and treatment needs.

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AKI Abstracts

Acute Kidney Injury in Iranian Children -What do we know about?

Nakysa Hooman, Pediatric Nephrology, Ali-asghar children hospital, Pediatric Transplantation and Dialysis Research Center (PTDRC), Iran University of medical sciences.

Introduction: Acute kidney injury (AKI) is a reversible deterioration of renal function that waste products accumulate and fluid imbalance occurs. The epidemiology of AKI has been changing since years. The aim of this study was to find the epidemiology of AKI in hospitalized children in Iran.
Methods: A literature search from March 2000 to March 2014 was conducted through MEDLINE, EMBASE, Scholar. google, IranMedex, MagIran, SID, and manual reference search of identified articles. The retrospective and prospective cross-sectional studies with clear definition of acute kidney injury or failure were included.
Results: From twenty-three articles found, seven studies met criteria. The incidence of AKI declined from 36% (2006-2008) to 15.4% (2010-2011) in PICU setting of three referral teaching hospitals in Tehran. According to classification, 10% had pre-renal failure, 86% had intrinsic renal failure, and 4% had post-obstructive uropathy. The follow up was limited to the days of hospitalization. Overall reported mortality rate was 18% in pediatric departments. Acute glomerulonephritis including hemolytic uremic syndrome were the most common underlying disease (46.5%). Acute tubular necrosis was reported in 33%. One third of acute renal failure was happened in children aged less than two years.
Conclusion: The real incidence of acute kidney injury might be higher by considering unified standard definition. Acute gloemrulonephritis and acute tubular necrosis are the most common etiology.

Opioid poisoning in children: A report of 90 cases

Zahra Pournasiri, Assistant professor of Shahid Beheshti University of Medical Sciences

Introduction: The opioid overdose epidemic is a worrying and considerable public health problem in many countries. A few studies have been done in children about opioid poisoning. The aim of this study was to explain the clinical symptoms and laboratory findings of opioid poisoning and the associated complications among children.
Methods: This prospective cross-sectional study was conducted on 100 children less than 14 years of age, poisoned with opium, tramadol, buprenorphine, methadone, dipheoxylate, admitted to Loghman-Hakim hospital, a major center for poisoning treatment in Tehran-Iran, from April, 2011 to April, 2012. The exclusion criteria were a history of musculoskeletal diseases, concurrent ingestion of other drugs, intramuscular injection and a history of trauma. The clinical presentation and renal and electrolytes complications were recorded.
Results: Finally, 90 out of 100 admitted children were eligible to be included in the study , 64 boys and 26 girls(median age 40.3 +/- 32 months, ranged between1 month to 11 years old).The Minimum duration of admission was 1 day and the maximum was 29 days with a mean of 2 days. The major opioid substance was methadone. The most common symptom was decreased level of consciousness following bradypnea. Incidence of opioid- induced rhabdomyolysis was 2.2%,but none of the them complicated with acute renal failure or electrolyte disturbance.
Conclusion: Concerning this study we recommend attention to muscle enzymes rising and preventive spadework for its complication in children poison with opoiods.

Comparison of Serum Cystatin C and Creatinine Values in early detection of acute kidney injury in hospitalized patients in ICU

Anoush Azarfar, Mohamad Esmaeili, Mitra Naseri, Yalda Ravanshad, Aida Foroutan,Fatemeh Ghane, Mahmood Maleknejad, Jalil Moshari

Introduction: Serum creatinine concentration is significantly associated with sex, age, weight, body mass, and only when the glomerular filtration rate is reduced more than 50 percent, increase. Studies in chronic renal failure indicate that Cystatin c a reliable marker for estimating GFR with high diagnostic value than serum creatinine. The aim of this study was to compare the value of serum cystatin C and creatinine in early diagnosis of AKI in NICU.
Methods: patients were older than 6 months and were admitted in ICU for any reason. After obtaining informed consent for blood on the first day of admission serum creatinine and Cystatin c were measured. Every 48 hours, blood samples for serum creatinine and Cystatin checked. Measurements were continued until 3 days. Serum Creatinine and Cystatin c and glomerular filtration rate in each patient after each measurement were compared to determine which markers may indicate early development of ARF.
Results were analyzed by SPSS software using statistical tests.
Results: In this study, 54 patients admitted the ICU at Children's Hospital of doctor Sheikh. The mean age of patients were 98/3 ± 09/4 years. On the fifth day, 48 patients remained in the study, 13 patients (9/38%) had an acute kidney injury. Cystatin C in all patients, generally have been significant changes in time.(P=0/000) Cystatin C in acute kidney injury stage changes from normal individuals and those at risk of kidney damage have been higher. Changes in Cystatin C in acute renal failure stage is also more than all other groups.(P>0/05)
Conclusion: serum cystatin C is a better marker of renal function in early stages of AKI and is less affected by body mass, and ethnicity. Use of serum cystatin C based GFR may be more accurate and useful for early detection of renal function.

The Anti-Inflammatory Effect of Erythropoietin and Melatonin on Renal Ischemia Reperfusion Injury in Male Rats

Shokofeh Banaei, Department of Physiology, Ardabil University of Medical Sciences, Ardabil, Iran

Introduction: Renal ischemia reperfusion (IR) is an important cause of renal dysfunction. It contributes to the development of acute renal failure (ARF). The purpose of this study was to investigate the anti-inflammatory effect of erythropoietin (EPO) and melatonin (MEL), which are known anti-inflammatory and antioxidant agents, in IR-induced renal injury in rats.
Methods: Male Wistar Albino rats were unilaterally nephrectomized and subjected to 45 min of renal pedicle occlusion followed by 24 h reperfusion. MEL (10mg/kg, i.p) and EPO (5000U/kg, i.p) were administered prior to ischemia. After 24 h reperfusion, blood samples were collected for the determination of total antioxidant capacity (TAC), malondialdehyde (MDA) and serum creatinine levels. Also, renal samples were taken for Immunohistochemical evaluation of Bcl2 and TNF-α (tumor necrosis factor-α) expression.
Results: Ischemia reperfusion increased creatinine, TAC, MDA levels and TNF-α expression, also, IR decreased Bcl2 expression. Treatment with EPO or MEL decreased creatinine, MDA levels, and increased TAC level. Also, MEL up-regulated Bcl2 expression and down-regulated TNF-α expression compared with EPO.
Conclusion: Treatment with EPO and MEL had a curative effect on renal IR injury. These results may indicate that MEL protects against inflammation and apoptosis better than EPO in renal IR injury.

Prevalence Acute Kidney Injury in Perinatal Asphyxia

Saboute M, Parvini B, Khalessi N, Kalbassi Z, Kalani M, Khosravi N
Department of Pediatrics and Neonatology, Iran University of Medical Sciences, Tehran, Iran

Introduction: The kidney is the most damaged organs in asphyxiated neonates. The severity of AKI is correlated with the degree of neurological damage.

Objectives: We determined the prevalence asphyxia associated acute kidney injury (aki)
Methods: It was a retrospective study from September 2012 to 2013 in aliasghar and akbarabadi hospital in 38 newborn with perinatal asphyxia (based on the below findings: apgar score ≤ 7 at ≥10 minute, using of PPV for >1 minute or first cry delayed > 5 minute, prolonged (>1 hour) antenatal acidosis) and renal function was assessed by creatinine on day 3 of life. AKI was defined by a level of creatinine above 1/5 mg/dl.
Results: Mean gestational age was 36 week with, mean birth weight was 2733 gr , . 56% were male and 44% female. 9% were NVD and 91% C/S. 26.5% of cases were in grade 1 and 50.6% in grade 2 and 17.65% in grade 3 asphyxia. 9 (23%) out of 38 cases died which 83.3% of them belonged to grade 3 asphyxia and 16.9% were in grade 2 asphyxia. Serum creatinine was measured in 23 of cases in third day from which 3 had serum creatinine ≥1/5 mg/dl. Its level was ≥1/5 mg/dl. Two of them were in grade 3 asphyxia and 1 in grade 2.
Conclusion: AKI was seen in grade 3 asphyxia. Further prospective studies are necessary for prevalence and outcome in these patients.

RIFLE Criteria as a Predictor of Mortality in Critically Ill Neonates with Acute Renal Failure

Masoumeh Mohkam[1], Abolfazl Afjeii[1], Farshid Kompani[2], Fatemeh Golchin[1]
1 Pediatric Nephrology Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran
2 Ahvaz University of Medical Sciences

Introduction: Neonatal acute renal failure (ARF) can increase the rate of mortality in NICUs. Early diagnosis and prompt treatment of ARF can decrease the rate of mortality and morbidity in neonates. Studies to evaluate the RIFLE criteria in the definition of neonatal ARF have not been performed. The aim of this study was to evaluate the role of RIFLE criteria as a predictor of mortality in NICU.
Methods: This cohort study was conducted on 904 critically ill neonates. The author determined the RIFLE criteria for each neonate based on serum creatinine and urine output at the second day of admission. Prevalence of AKI and mortality were determined based on old definition of ARF and RIFLE criteria separately.
Results: Based on RIFLE criteria, 22.5% of study group had normal renal function and 77.5% had AKI at the second day of admission. Among patients with AKI 43% met the risk, 51% the injury and about 6% the failure criterion. Based on old definition of ARF in neonates, the rate of ARF in our study group was 3.2%. There was a significant difference between AKI prevalence by RIFLE criteria and the former definition (P<0.001). The overall mortality rate in critically ill neonates was 14%. Of those who died, 81.9% had AKI. In patients with normal renal function there was no mortality and in patients with AKI based on RIFLE criteria the mortality rate was 21.7% (P<0.031, Odds Ratio=1.103, 95% CI=1.05-1.16) and in patients with ARF based on old definition the mortality rate was 61.5% (P<0.001, Odds Ratio=6.741. A progressive and significant increase in mortality was correlated with increasing severity of ARF as determined by RIFLE criteria in all neonates.
Conclusion: RIFLE criteria can detect neonatal AKI earlier and is a good predictor for mortality in critically ill neonates.

Acute Kidney Injury in Iranian Neonates- Systematic review

Nakysa Hooman, Nastran Khosravi
Iran University of Medical Sciences

Introduction: Acute kidney injury (AKI) is a reversible deterioration of renal function that waste products accumulate and fluid imbalance occurs. The aim of this study was to find the epidemiology of AKI in hospitalized neonates in Iran.
Methods: A literature search from March 2000 to March 2014 was conducted through MEDLINE, EMBASE, Scholar. google, IranMedex, MagIran, SID, and manual reference search of identified articles. The retrospective and prospective cross-sectional studies with clear definition of acute kidney injury or failure were included.
Results: From twenty-three articles found, thirteenth studies met criteria. The studies were from Tehran, Mashhad, Kerman, Kermanshah, shiraz, Isfahan, Ahwaz, and Tabriz. The setting was NICU. From 9581 neonates in study, 380 (182 females, 265 males) were included. The reported incidence of renal failure was between 2.5% and 5%. The mean age was 7.8 days, The mean

gestational age was 35.5 wks. The mean serum creatinine was 2.69 mg/dl. Sepsis was mentioned as an underlying disease in 375 cases. According to classification, 161(42%) had pre-renal failure, 186 (49%) had intrinsic renal failure (103 was drug induced, 78 had asphyxia, 90 neonates had other reasons), and 33 (8.7%) had post-obstructive uropathy. The follow up was limited to the days of hospitalization. 42 of the neonates died and five had persistent lose of renal function during hospitalization.

Conclusion: The real incidence of acute kidney injury might be higher by considering unified standard definition. The high rate of intrinsic renal disease including drug induced nephropathy was detected the reason of acute renal failure in neonates.

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CKD and UTI Abstracts

Piperazine Side-effects in a Patient with Pre-existing Renal Insufficiency

Majid Malaki, Peditric nephrologist , 3rd of Shaban hospital,Tehran, Iran

Piperazine as an antihelminth drug has many adverse side effects, especially on patients with preexisting renal insufficiency. We report the side effects of using piperazine in a girl with a moderate to severe kidney disease due to Biedl Bardet syndrome. She developed coma and acute kidney injury due to acute interstitial nephritis (AIN) ovewhelmed on her preexisting chronic kidney disease, anemia and thrombocytopenia. The presence of fever, proteinuria, acidosis, anemia, sterile pyuria and non-oliguric renal failure strongly suggested AIN. Her problems mainly neurological and loss of consciousness were abated mostly by discontinuing of piperazine usage beside to supportive therapy, except anemia and thrombocytopenia due to AIN that appeared with delay and persisted longer.

Attention deficit hyperactivity disorder in children with early stages of Chronic Kidney Disease

Parsa Yousefi Chaijan[1], Mojtaba Sharafkhah[2], Bahman Salehi[3], Mohammad Rafiei[4]
1. Department of Pediatrics, School of Medicine, Arak University of Medical Sciences, Arak, Iran
2. Students Research Committee, School of Medicine, Arak University of Medical Sciences, Arak, Iran
3. Department of Psychiatry, School of Medicine, Arak University of Medical Sciences, Arak, Iran
4. Department of Biostatistics and Epidemiology, School of Medicine , Arak University of Medical Sciences, Arak, Iran

Introduction: Attention Deficit Hyperactivity Disorder (ADHD) is the most common childhood neurological disorder. This disorder is more prevalent in some chronic disease.

Aim: The aim of this study was to investigate ADHD in children with early stages of chronic kidney disease (CKD) and compare it with healthy children.

Methods: 75, 5-16-year-old children with early stages of CKD (stage 1, 2 and 3) and 75 healthy children without CKD were included in this case –

control study as case and control groups, respectively. Subjects were selected from children who were referred to the pediatric clinic of Amir Kabir Hospital of Arak, Iran, in the form of simple probability and based on inclusion and exclusion criteria. ADHD was diagnosed by Conner's Parent Rating Scale – 48 (CPRS-48) and DSM-IV criteria and was confirmed by psychologist consult. Data were analyzed by Binomial test in SPSS18.
Results: ADHD inattentive type was observed in 8 cases (10.6%) with CKD and 2 controls (2.6%) (P=0.109). Moreover, in the case and control groups, 7 (9.3%) and 6 (8%) children were affected by ADHD hyperactive-impulsive type (p = 0.997), and 9 (12%) and 12 (16%) children were affected by ADHD mixed type (p = 0.664), respectively.
Conclusion: There were no differences between prevalence of ADHD in the children with early stages of CKD and the control group. However, due to the importance of relationships between different types of psychiatric disorders and CKD and lack of enough evidence concerning the relationship between ADHD and different stages of CKD in children, conducting further studies in this field is recommended.

Obsessive-Compulsive Disorder in children with Chronic Kidney Disease

Parsa Yousefi Chaijan[1], Mojtaba Sharafkhah[2], Bahman Salehi[3], Mohammad Rafiei[4]

1 Department of Pediatrics, School of Medicine, Arak University of Medical Sciences, Arak, Iran
2 Students Research Committee ,School of Medicine, Arak University of Medical Sciences, Arak, Iran
3 Department of Psychiatry, School of Medicine, Arak University of Medical Sciences, Arak, Iran
4 Department of Biostatistics and Epidemiology, School of Medicine , Arak University of Medical Sciences, Arak, Iran

Introduction: Chronic Kidney Disease (CKD) is defined as renal injury and/or a Glomerular filtration rate (GFR) <60mL/min/1.73 m2 for >3 months. Neurologic symptoms in CKD are Fatigue, poor concentration, headache, drowsiness, memory loss, seizures, and peripheral neuropathy. Obsessive-Compulsive Disorder (OCD) is a chronically disabling illness characterized by repetitive , ritualistic behaviors over which the patients has little or no control .Common obsessive include contamination and thoughts of harming loved ones or oneself. Washing and cleaning compulsions are common in children, as are checking and straightening.
Aim: The aim of this study was to investigate OCD in children with CKD and compare it with healthy children.
Methods: In this case-control study, we evaluated 186 children 6-17 years-old who were presented in pediatrics clinics of Amir-kabir hospital. Control group was consisted of 93 healthy children, while the case group was consisted of (demographic matched) 93 children with stage 1 to 3 CKD. Then child's behavioral status was evaluated using The Children's Yale-Brown Obsessive-Compulsive Scale(C-YBOCS) .The C-YBOCS is helpful in identifying of OCD. The data was analyzed using descriptive and analytical statistics in SPSS-16.
Results: Compulsive was observed in 31 case (33.3%) with CKD and 7 controls (7.5%).Obsessive was 3 case (3.2%) with CKD and 4 controls (4.3%).This important different in Compulsive was significant (P-value=0.021), However in Obsessive ,this difference not significant between the 2 group (p-value=0.3). The most common symptom in CKD children with compulsive was repeating words silently.
Conclusion: Compulsive in children with CKD is common than non-CKD children. The observed correlation between Compulsive and CKD makes psychological counseling mandatory in children with CKD.

rhGH therapy in chronic kidney disease

Fahime Soheilipour, Iran University of Medical Sciences, Tehran, Iran

In children with chronic kidney disease (CKD), growth retardation is not a rare problem. Factors such as malnutrition, anemia, metabolic acidosis, inadequate dialysis and growth hormone resistance may cause growth retardation in these children. Growth stimulation in these children can be done by supraphysiologic doses of recombinant human GH (rhGH). It stimulates growth in prepubertal CKD children, in end-stage renal disease and after kidney transplantation. Its underling mechanism may be the reversal of hyper catabolic state of uremia or increases circulating level of insulin-like growth factor (IGF). We recommend stating the treatment when the patient height falls below the third percentile

and spontaneous catch-up growth does not happen despite stabilization of other contributing factors. It is better to start rhGH therapy at a young age because in pre terminal CKD there is a better response than those on dialysis state. We use rhGH in CKD children in about 0.045 to 0.05 mg/kg / day dose via subcutaneous injections every evening and the height greater than the third percentile of the general population is our minimal goal.

Evaluation of Preventive Behaviors of UTI Based on Health Belief Model (HBM) in Mothers with Girls Younger Than 6 Years Old

Azam Mohamadloo[1], Mohamad hossein Baghiani Moghadam[2], Shojaeazadeh Davoud[3], Fallahzadeh Hossein[4], Ranjbary Mohamad[5]
1 Candidate of Health Education & Promotion Shahid Beheshti University of Medical Sciences
2 Department of Health Services, Shahid Sadoughi university of Medical Sciences
3 Department of Health Education, Tehran University of Medical Sciences
4Department of Biostatics& Epidemiolog, Shahid Sadoughi university of Medical Sciences
5 Urologist, Payambaran Hospital, Tehran

Introduction: Urinary tract infection is the second common infection in children. In the first year of life, UTI is more common in boys than girls but thereafter the incidence rate becomes much more common in young girls. UTI complication in children is various, such as early hypertension, impaired glomerular function, proteinuria and finally, end stage renal failure.
Methods: The objective of this descriptive study was to illustrate the effect of mothers' preventive behaviors on the Urinary tract infection of their girls using the Health belief model (HBM) in 2011-2012. For analyzing the data SPSS, software was used.
Result: The results indicated that the knowledge score was good only at 2/9% of cases. Perceived susceptibility in 58/7% of cases, perceived severity in 66/7% of cases and Perceived barriers in 65/2% of cases. There was a direct correlation between the sensitivity, interests, behavior and self-efficacy Also, between intensity, threat, practice guide and self-efficacy, between interests and self-efficacy, between practice guide, behavior and self-efficacy, finally between behavior and self-efficacy. There was a significant inverse correlation between barriers, sensitivity, interests, practice guide and self-efficacy. And finally a significant correlation occurred between intensity and mother's age, between threat and intensity, between behavior and self – efficacy and number of children, between behavior and mothers occupation, between practice guide, self – efficacy and family income and between practice guide, behavior, self – efficacy and history of child previous UTI.
Conclusion: In accordance with the data, using the Health Belief Model as an education curriculum to improve UTI prevention behavior is effective.

Senior-Loken syndrome – A case report

Ali Ahmadzadeh, Azin Ahmadzadeh
Pediatric Nephrology Division, Abuzar Children`s Hospital, Ahvaz Jundishapur University of Medical Sciences

Senior-Loken syndrome (SLS) is a rare AR disorder characterized by nephronophthisis (NPH) and progressive eye disease. Mutations in several genes have been shown to cause SLS. The prevalence of NPH is estimated to be 1 in 100,000, with 1 in 10 affected individuals having retinal dysfunction, constituting SLS. Defective urinary concentration leading to polyuria and polydipsia are earliest presenting signs .The onset is insidious and most cases do not present until renal failure is advanced. Retinal lesions in SLS are variable. A 13-year old girl, known case of minor β-thalassemia was referred due to elevated serum creatinine level. While, in addition to her anemia, she had history of polyuria, polydipsia and intractable enuresis for years. In the recent years, her vision was also reduced. She had no history of edema or UTI. Her parents were related. There was no similar case in the family. On examination, her weight and height were 30 kg and 140 cm, respectively and her BP was 130/90 mmHg. The rest of examination was unremarkable. Laboratory data were as follows: Hb 7.2g/dl, serum creatinine 2.6mg/dl and uric acid 7.5mg/dl. Urinalysis showed a low density with unremarkable microscopic findings and no glucosuria or proteinuria. Renal ultrasound demonstrated small-sized kidneys, without renal cysts or ureteral dilatation. She was diagnosed as a case of CKD and ophthalmologist consult was done. After medical treatment her condition was

improved and the BP and Hb returned to the normal ranges. But, her vision reduced, due to RP, confirmed by electroretinogram. Firstly, based on the history, insidious presentation, slow progression and ruled out of glomerulopathies or CAKUT, the juvenile NPH and finally regarding to progressive RP, SLS was diagnosed. Recently, she experienced kidney transplantation. This report highlights the importance of routine control of renal function tests in all children with chronic anemia, polyuria.

Depression in children with chronic kidney disease

Fatemeh Ghane Sharbaf, Zahra Rasoli
Department of Pediatric, Dr.Sheikh hospital, Mashhad University of Medical Sciences

Introduction: Depression is a common, but underdiagnosed and understudied problem in children with chronic kidney disease (CKD), and Close attention to screening and treating depression in all patients may be necessary. Aim: This study was undertaken to investigate whether depression occurs more often in patients with CKD than in controls. The demographic and clinical variables associated with depression were also determined.
Methods: Fifty Children with a registered diagnosis of CKD, aged 5-17 years, with more than 6 months on conservative management or dialysis were selected. A face to face interview with all patients and their parents has been done. Depression was assessed using the Beck Depression Inventory scale. A random sample of subjects without a registered diagnosis CKD acted as controls.
Results: In patients with severe CKD (stage IV and V), the prevalence of depression was 28.3% compared with 5.9% in controls and 10.5% in patients with mild to moderate CKD (stage II and III).
Positive correlations were found between ages on diagnosis of renal disease and kind of treatment. Feelings of social isolation, excessive dependence upon the parents and death wish were common.
Conclusion: Depression is one of the frequent psychiatric problems in children with chronic renal disease and may predict patient outcome and mortality. The results of this study underscore the importance of periodic screening and treatment for depression in pediatric chronic renal failure.

Etiology and outcome of chronic kidney disease in Iranian children: a single-center experience

Neamatollah Ataei, Pediatric Chronic Kidney Disease Research Center, Department of Pediatric Nephrology Children's Hospital Medical Center, Tehran University of Medical Science

In a retrospective study etiology and outcome of 337 children aged 3 months to 18 years with, chronic kidney disease (CKD) was studied during the period 1991 – 2010. Three hundred thirty seven children (166 boys, 171 girls) with CKD Stages 2–4 and CKD Stage 5, defined as a glomerular filtration rate below 75 ml/min per 1.73 m2 body surface area, were identified. The mean age at the time of diagnosis with CKD was 8.36±3.94 years (range 0.4 –16.7 years); 49.26% were males. The etiology was reflux nephropathy and pyelonephritis in 69 (20.5%), chronic glomerulonephritis 68 (20.2%), Cystic, hereditary, congenital disease 62 (18.4%), Congenital obstructive uropathies 41 (12.2. %), and cause unknown in 64 (18.9%). Of the 337 children, 48 (14.2%) were on conservative treatment,148 (43.9%) had end-stage renal disease (ESRD), with chronic hemodialysis, 24(7.12%), were on continuous ambulatory peritoneal dialysis and 52(15.4%) underwent on renal transplant. Death occurred in 49 patients (14.5%). A large group of children developed CKD secondary to reflux nephropathy and /or Cystic, hereditary, congenital disease. Congenital obstructive uropathies also represents a common etiology of CKD in our series. Planning for screening, early detection and instituting timely treatment of preventable causes could lead to a lower incidence of CKD in this group of children.

First report on percentiles of glomerular filtration rate in general Iranian children using 2009

Hamidreza Sadeghiyan[1], Roya klishadi[2], Peyman Roomizadeh[1]
1 Student of medicine, Isfahan Kidney Diseases Research Center, Isfahan University of Medical Sciences, Isfahan, Iran
2 Department of Pediatric Nephrology, Isfahan University of Medical Sciences, Isfahan, Iran

Introduction: GFR is the best indicator of renal function in children and adolescents and is critical for diagnosing acute and chronic kidney impairment, intervening early to prevent end-stage renal failure, prescribing nephrotoxic drugs and drugs cleared by a failing kidney, and monitoring for side effects of medications In this study, we investigated the percentiles of glomerular filtration rate (GFR) in general Iranian children with no known renal disease using 2009 Schwartz equations (the updated and the combined equation).
Methods: Between 2010 and 2011, 687children aged 7-16 years were selected from Isfahan province of Iran by random cluster sampling. Blood samples were analyzed for blood urea nitrogen, creatinine and cystatin C. For each child, we calculated GFR using two Schwartz equations.
Results: The mean age was 11.5 ± 2.7. The mean GFR was 100.06 ± 19.80 ml/min/1.73 m2 based on the updated equation and 96.10 ± 18.44 ml/min/1.73 m2based on the combined equation. We determined the age- and gender-specific 5th, 25th, 50th, 75th and 95th percentiles of GFR values based on each equation.
Conclusion: This is the first study on GFR percentiles in Iranian children. The knowledge on GFR percentiles may be of interest to pediatricians in evaluating renal function of the children.

Detection of urine Interleukin-8 levels as a noninvasive method for diagnosis of VUR in children after resolving UTI

Parvaresh S[1], Ahangar Davudi M[1], Dabiri S[2]
1 Department of Pediatric, Kerman Medical Univercity
2 Department of Pathology, Kerman Medical Univercity

Introduction: The retrograde flow of urine from the bladder to the ureter (Vesicoureteral reflux) is a common finding in children with urinary tract infection (UTI) that can result in renal injury. Diagnosis of reflux requires interventional invasive imaging (VCUG). Detection of urine Interleukin-8 (IL8) levels as a noninvasive method can be usefull method for diagnosis of VUR in children after resolvent UTI.
Methods: In this cross sectional study, 80 children that at least one month passed from UTI treatment were assessd. According to VCUG, the children were devided in to two groups;" case group" consisted of 40 patients with VUR and "control group" consisted of 40 patients without VUR. Then urinary levels of IL8 and creatinine were assessed. T_Study and chi_Square are used for analytical conclusions in SPSS software.
Results: From 80 children, 12 ones were male and 68 ones were female. Overall mean age was 32/48 months. From 40 VUR patients, 22 ones had unilateral reflux. Relation of IL8 to Ucr in first group (VUR positive) was 4.92±7.60 pg/µmol and in second group was 5.18±9.46 pg/µmol that revealed no significant relationship between two groups. Also there was no relationship between IL8/Ucr in difference grades of reflux and uni/ bilateral cases and infant age with older.
Conclusion: Urinary IL8 is not a benefit marker for screening and diagnosis and follow up of patients with VUR.

Bacteriuria as a presentation of labial adhesion in girls

Anoush Azarfar, Mashhad University of Medical Sciences

Introduction: The purpose of this study is to evaluate the clinical presentation, laboratory findings and response to treatment in girls with labial adhesion younger than 23 months.
Methods: A retrospective chart review of all girls younger than 23 months with the diagnosis of labial adhesion referred to Sheikh Children Hospital in mashhad between 1998 and 2013.
Results: 63 patients were diagnosed with labial adhesion during the review period. Most patients were diagnosed by physicians during the physical examination or during the evaluation for their voiding problems. The most prevalent symptom among patients was dysuria and restlessness while voiding. 21 (33.3%) patients had a history of urinary tract infection. 17(26.9%) patients had sterile pyuria and 69.8% showed presence of bacteria in their urine samples.
Conclusion: Pediatricians may frequently encounter prepubertal girls whose urinalysis may show sterile pyuria or presence of bacteria with colony counts less than 105 in the absence of urinary tract infection symptoms. In these cases labial adhesion must always be suspected and genital examination be performed.

First report on percentiles of glomerular filtration rate in Iranian children, using 2009 Schwartz equations

Alaleh Gheissari, Peiman Roomizadeh, Roya Kelishadi
IUMS, Isfahan, Iran

In this study, we investigated the percentiles of glomerular filtration rate (GFR) in a population-based sample of Iranian children with no known renal disease by using the updated and the combined 2009 Schwartz equations. Between 2010 and 2011, 687children aged 7-16 years were selected by random cluster sampling. Blood samples were analyzed for blood urea nitrogen, creatinine, and cystatin C. For each child, we calculated GFR using two Schwartz equations. The median of age was 12 (SD) years. The mean GFR was 100.06 ± 19.80 ml/min/1.73 m2 based on the updated equation and 96.10 ± 18.44 ml/min/1.73 m2 based on the combined equation. We determined the age- and gender-specific 5th, 25th, 50th, 75th, and 95th percentiles of GFR values based on each equation. This is the first study on GFR percentiles not only in Iranian children, but also in the Middle Eastern population. The knowledge on GFR percentiles may be of interest to pediatricians in evaluating renal function of children.

Sleep disorder in children with CKD –Getting a good night's sleep with omega-3 supplementation

Parsa Yousefichaijan, Bahman Salehi, Mohammad Rafiei
Arak University of Medical Science, Arak, Iran

Introduction: Most sleep problems in children may be broadly conceptualized as resulting from either inadequate duration of sleep for age and sleep needs or disruption and fragmentation of sleep as a result of frequent, repetitive, and brief arousals during sleep .Chronic kidney disease (CKD) is defined as renal injury (proteinuria) and/or a glomerular filtration rate <60 mL/min/1.73 m2 for >3 mo. There is some evidence that omega-3 fatty acids are related to mental health, including that they may tentatively be useful as an add-on for the treatment of sleep disorder and there is preliminary evidence that omega 3 supplementation is helpful in cases of sleep disorder.

Methods: This research was a single blind randomized clinical trial. Sixty children 6-12 years old, who were followed in pediatric nephrology outpatient clinics of Amir-Kabir hospitals Arak Iran, were recruited. All patients had stage 2, 3 and4 CKD, with underlying abnormalities of urinary tract. Patients were randomly divided into two equal groups (Intervention and Control groups). Control group received instructions regarding general conservative measures for CKD and Intervention group, in addition to these measures, received cap omega 3. Then Patients were followed for 4 months for sleeps disorder episodes.

Results: The mean age was 9.42 ± 1.2 years. The mean number of sleep disorder episodes in the first (p=0.2), second (p=0.1), third (p=0.4) and fourth (p=0.8) months was not significantly low in CKD children in all 4 months of the follow up period.

Conclusion: On the basis of these results, we reject the hypothesis that treating sleep disorder in CKD with omega 3 is beneficial. However, it is necessary to perform further studies to determine the association between sleep disorder and omega 3 deficiency and the effectiveness of omega 3 (with different therapeutic doses) on sleep disorder in CKD.

Role of Metabolomics in chronic kidney disease

Afshin Safaei Asl, Pediatric nephrologist, associate professor, Guilan University of Medical Sciences

Nowadays, the appearance of systems biology has brought forward the concepts of "-omics" technologies, including genomics, transcriptomics, proteomics, and metabolomics. Metabolomics is ideally suited for biomarker, as well as for Therapeutic target, discovery.

Metabolites are small molecules such as metabolic substrates and products, lipids, small peptides, vitamins, amino acids, nucleic acids, organic acids, and other protein co-factors. Urine, compared to other biological liquids, has the advantage of being a Complex fluid with numerous components, including the intermediate metabolites. Regardless of CKD cause, tubulointerstitial injury is an invariant pathologic feature of chronic renal disease. Indeed, the degree of tubulointerstitial disease correlates better than glomerular injury with disease prognosis. Metabolomics is an ideal

technique for studying this syndrome, as it is quite probable that most, if not all, of the uremic toxins are actually fairly small (<1 kD) metabolites that are well within the scope of global metabolomics. Study utilized liquid chromatography–mass spectrometry to identify small molecules that accumulated in the serum in uremic patient, the principal uremic toxin candidate metabolites were identified as indoxyl sulfate, phenyl sulfate, hippuric acid and p cresyl sulfate. The levels of these metabolites all increased as a function of decreasing creatinine clearance. In patients with CKD, metabolite changes were correlated with changes in estimated glomerular filtration rate (eGFR) many of the compounds whose levels i increased with worsening eGFR have already been reported; however, nine novel cationic compounds were also identified. Systems biology and molecular approaches are better for their rapidity, impersonalism, high-accuracy, sensitivity, and specialty, and have brought to the treatment of renal disease. Many promising developments and exciting options, such as diagnostic biomarkers, which are indicative of early disease phenotypes and subphenotypes, or predictive of disease progression and outcome. However, disadvantages still exist.

Novel antifibrotic treatment in CKD

Afshin Safaei Asl, Pediatric nephrologist, Associate professor, Guilan University of Medical sciences

Tubulointerstitial fibrosis is widely regarded as the common pathway of chronic progressive kidney disease. Antifibrotic therapies directed at fibroblasts either aim to inhibit de novo accumulation of fibroblasts, normalize fibroblast behavior or resolve fibroblast accumulation. Tubular epithelial cells several drug candidates inhibit EMT (transforming growth factor β [TGF β] antibody and connective tissue growth factor [CTGF] antibody) or reverse EMT (BMP 7 mimetic) and are being developed as antifibrotic therapies.
Microcirculation
Defective microcirculation is evolving as a prominent determinant of CKD. Normalization of the microcirculation can be achieved either through administration of proangiogenic molecules, such as vascular endothelial growth factor (VEGF), or through inhibition of antiangiogenic molecules, such as thrombospondin 1. Anti-inflammation
In most cases, fibrosis is associated with a robust mononuclear infiltrate and, in the absence of infectious agents or specific immunogens, sterile inflammation is considered to have a prominent role in the initiation of the fibrotic process.
Developmental stimuli
Fetal kidney which is rich in developmental mediators, such as paired box protein Pax 2 (Pax-2)—displays higher regenerative capacity and lesser susceptibility to develop fibrosis than the postnatal kidney. Furthermore, renal regeneration upon acute injury is associated with increased expression of mediators of kidney development, such as Pax-2, Pax-8, Wnt-4 and Wnt-9b.
Cell-based therapies cells with capacity to differentiate into all cell types are expanded ultimately used to regenerate any injured organ.
Epigenomic reprogramming
Epigenetics reprogramming that can impact gene expression without altering the nucleo¬tide sequence. Treatment with the histone deacetylase inhibitors trichostatin A or valproic acid inhibited experimental renal fibrosis in several mouse models
Current state of the art
Current therapeutic strategies focus on treating comorbid conditions, such as high glucose levels and blood pressure.
Prime candidates for translation
BMP 7 and its agonists, Connective tissue growth factor, Pirfenidone, Endothelin 1 antagonists,
Phosphodiesterase inhibitors, NOX1 and NOX4 inhibitors

Glomerular filtration rate estimated by cystatin C and creatinine for determining renal function in children among different clinical presentations

Afshin Safaei asl, pediatric nephrologist, associate professor, Guilan University of Medical Sciences

Introduction: Cystatin C, which is produced endogenously at a constant rate, is freely filtered in the glomeruli and is completely reabsorbed and catabolized by the proximal renal tubule. We planned a study on renal diseases in order to compare the performance of the three creatinine based equations with cystatin C-based equations for GFR measurements.
Methods: we selected 72 patients with kidney diseases such as reflux nephropathy, nephrotic syndrome, renal malformation, obstructive uropathy and hereditary renal disease. Data

including age, sex, weight, last serum creatinine level, Serum cystatin C. The patients' GFRs were calculated using the Schwartz and 24 hr creatinine clearance. cystatin C-based equations including the Grubb, simple, Hoek, and Larsson equations. The Spearman correlation coefficient test was applied to determine the relationships and the linear regression models for the relationship between different methods of GFR assessment. P values less than 0.05 were considered significant.

Results: Using Pearson Correlation Coefficient there was positive correlation among all formulas and the standard method (R2 for Schwartz, Hoek, Larsson, Grubb and Simple formula was respectively 0.639, 0.722, 0.705, 0.712, 0.722). and there was statistically significant correlation (P value < 0.001). Cys C-based formulas could predict the variance of standard method results with high power. On the other hand, these formulas had correlation with Schwarz formula by R 2 0.62-0.65 (intermediate correlation). Also, using Linear Regression and calculating the constant, it revealed that Larsson, Hoek and Grubb formulas can estimate GFR amount swith no statistical difference compared with standard method; but Schwartz and Simple formulas overestimate GFR.

Conclusion: This study shows that Cys C –based formlas have strong relationship with 24 hour urinary creatinine clearance. So, it seems that using these formulas, it is possible to determine GFR in children with kidney injury, easier and with enough correctness.

Renal amyloidosis in a child with juvenile rheumatoid arthritis

Anoush Azarfar. Jalil Moshari, Mohamad Esmaeili, Mitra Naseri, Fatemeh Ghane
Department of pediatric, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

Amyloidosis represents a heterogeneous group of disorders of protein metabolism and is characterized by deposition of fibrillar proteins in the intra- and extracellular spaces. We report a case of a rare disorder of renal amyloidosis occurring as a complication of juvenile rheumatoid arthritis in a 7year-old male.

He presented with generalized edema and hypertension. The laboratory work-up showed nephrotic-range proteinuria and hypoalbuminemia and normal renal function despite bilateral normal kidneys revealed by the abdominal ultrasound. His renal biopsy showed deposition of amyloid fibrils in the form of homogenous eosinophilic. Material within the glomeruli demonstrating the pathognomonic apple-green birefringence by polarized light microscopy.

Prevalence of urinary tract infection in Torbat Heydaria

Fatemeh Esmaeil , Amiri Akhoundi

Introduction: UTI is one of the infections most common in childhood. Approximately 3-5% girls and 1% of boys are Affected.UTI mostly induce by Enterobacteriaceae in girls (75-90%). UTI can cases serious morbidity and long complications .In children early diagnosis and efficient cure can prevent from morbidity and mortality.

Methods: This is a descriptive study that performed on 145 children who affected by UTI.A questionnaire consist of sex, age, clinical symptoms and urine culture.

Results: Results showed that majority of patient were female. The most common age for affections was between 1 month to 1 year (44%). And following 1-5 years (37%).The most common signs were fever (64.1%) and dysuria (23.4%). E coli were the most common pathogenic germ (91%).

Conclusion: According to our results UTI was most common in female, and under the 5 yeas old. E coli were the most pathogen.

Psychosocial and Somatic Health Related Quality of Life Are Both Affected In Iranian Pediatric Patients with CKD

Ahmadi M[1], Mamiyanloo H[2], Abdolreza Gharebagh Z[2], , 3 Leila Ghafari [1], Parvin Tatapoor[1], Hooman N[1]
1 Ali-Asghar children hospital, Iran University of Medical Sciences, Tehran, Iran
2 Faculty Member of Islamic Azad University, Tehran Medical Branch
3 Physiology Research Center, Iran University of Medical Sciences, Tehran, Iran

Introduction: Under dialysis patients are focus of health care providers to improve their quality of life and increase potentials of growth, development and normal family condition. This study is aimed to investigate quality of life dimensions statuses in Iranian under dialysis pediatric patients as a single center study.
Methods: The study was done on 2013 to 2014 admitted patients in Ali- Asghar hospital. Patient's parents were asked to complete pedSQL(TM 4.0) questionnaire appropriate to patient's age. The second questionnaire was child burn scale.
Results: 13 patients, aged 7.3±3.5 years were included. Comparison of mean scores of various subscales revealed there is no statistical difference among subscales. Scores show a total decrease in all dimensions of quality of life. (P=0.2 ANOVA) There was no significant difference among CBS scores of fathers and mothers (p=0.2 independent T-test). Inter-parents difference was also insignificant (p= 1.00- paired T-test).
Conclusion: Our single center study revealed under dialysis pediatric patients have a both psychosocial and somatic functioning impairment. Parents are both affected by chronic disease in a same manner.

Evaluation and treatment of growth failure in children with CKD

Rama Naghshizadian. Kurdistan university of medical science

Growth failure is almost inextricably linked with chronic kidney disease (CKD). Growth failure in CKD has been associated with both increased morbidity and mortality. Growth failure disease is multifactorial and is related to poor nutritional status as well as comorbidities, such as anemia, bone and mineral disorders, and alterations in hormonal responses, as well as to aspects of treatment such as steroid exposure. This review covers updated management of growth failure in these children including adequate nutrition, treatment of metabolic alterations, and early administration of recombinant human growth hormone (GH).after several years of management and clinical experience in pediatric nephrology ward of aliasghar hospital.
We suggest a simple and useful algorithm for GH therapy in CKD children with growth retardation. At first stage we select patient with GFR<75and hight sds<-1.88 and then we treat any other causes for growth retardation such as metabolic acidosis, malnutrition, salt wasting, oseteodystrophia and hypothyroidism. Then we start GH therapy with 0.05 mg/kg/day subcutaneously only after ruling out any other causes of growth retardation. Then we observe our patients for growth rate and GH therapy side effects every 3-4 month. After 12 month we will evaluate our patient for effectiveness of treatment. If growth rate is adequate, GH therapy will be continue or adjusted based on expected dose. If growth rate is inadequate, re evaluation for underlying cause of growth retardation and patient compliance will be done. If we could not find any etiologic factor for growth retardation in spite of adequate GH therapy we will consult endocrinologist for more evaluation. We suggest discontinuation GH therapy in following circumstance: Achieved height goal based on mid parental height or 50% percentile for age, Closed epiphyses, Active neoplasia, Slipped femoral epiphyses, Intracranial hypertension, Non compliance, sever hyperparathyroidism per CKD stage: Stage 2-4: PTH=400 pg/ml, Stage 5: PTH>900pg/ml.

Correlation of hyponatremia and hyperkalemia with DMSA scan findings in children with febrile urinary tract infection

Farshid Kompani[1], Mohammad Mehdi Gholami[2], Mohsen Ali Samir[3], Mohammad Reza Khalilian[4]
1 Chronic Disease Care Recearch Center, Assistant Prof. of Pediatric Nephrology Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
2 General Practitioner, Ahvaz Jundishapur University of Medical Sciences,Ahvaz,Iran
3 Assistant professor of pediatric pulmonology, Ahvaz Jundishapur University of Medical Sciences,Ahvaz,Iran
4 Assistant professor of pediatric cardiology, Shahid Beheshti University of Medical Science, Tehran, Iran

Introduction: Urinary tract infection (UTI) is one of the most common serious bacterial infections among children. It can lead to scar formation with resultant hypertension and chronic renal failure. The present study was done to investigate the correlation of some variables including hypernatremia, hypokalemia, fever severity and duration, ESR, CRP, age and sex with pyelonephritis as is evidenced by a positive DMSA

scan.
Methods: This is a retrospective study in which 198 children with febrile UTI were divided into two groups based on a positive or a negative DMSA scan and the aforementioned variables were studied.
T-test and chi square were used for data analysis.
Results: Age and sex showed no correlation with DMSA scan findings. Fever duration and severity, leukocytosis, sodium level, hyponatremia, and hyperkalemia had a positive correlation with a positive DMSA SCAN(P<0.01). All were higher in the group with a positive DMSA scan with the exception of serum Na level which was lower.
Conclusion: Hyponatremia, hyperkalemia, fever duration and degree, leukocytosis, ESR, and CRP can be used as indicators of the probability of a positive DMSA scan and the presence of pyelonephritis.

Serum Zinc, Copper, Selenium and Lead levels in children with chronic renal failure

Mohammad Esmaeili, Forough Rakhshanizade
Mashhad University of Medical Sciences

Introduction: Reduction of trace elements serum level is reported in children with end stage renal disease (ESRD) in various studies, particularly in hemodialysis patients. On the other hand trace elements have a crucial role in metabolism and enzymatic pathways, and also act as co- enzymes. So reduction in serum trace element concentration might lead to grow retardation. The aim of this study was to evaluate trace elements level in chronic kidney disease (dialytic and nondialytic) patients and control group (healthy children).
Methods: After ethical approval and obtaining informed constant from parents, 200 children were selected regard to inclusion criteria as a cross sectional study. Children divided into 4 groups (hemodialysis, peritoneal dialysis, end stage renal disease and control). One blood sample test was performed for all children and an extra sample was performed for hemodialysis patients after dialysis section. Serum zinc, serum copper, serum selenium and serum lead levels were evaluated and compared between groups. Data was analyzed by SPSS version 16.
Results: From 200 children 78 were in control group and 122 had chronic kidney disease. Mean copper, selenium, lead and zinc level were 65.47±6.32, 232.57 ±1528.1 ،16.32±102.1 ، 21.6±78.6 in hemodialysis patients. These level were 283.13 ±1493.56 ،11.82±100.44 ، 18.07±74.19 28.98±60.18 and 225.56 ±1100.79 22.39±117.71 ،16.12±93.5 ٢٦.٥٧±١٤.١٥ و in peritoneal dialysis and normal health children, respectively. Mean copper, selenium, lead and zinc level were
Conclusion: Selenium, copper and zinc level were significantly lower in children with end stage chronic kidney disease in compare with control patients, so they need supplementary use. Lead level decreased after dialysis

Puberty Has No Impact on Plasma Cystatin-C in Diabetic Type 1 Patients

Rohani F[1,2], Hooman N[2], Ahmadi M[1,3]
1 Endocrine research center, institute of endocrinology and metabolism, Iran University of medical sciences, Tehran, Iran
2 Department of pediatrics, Ali Asghar Hospital, Iran University of medical sciences, Tehran, Iran
3 Physiology Research Center, Iran University of Medical Sciences, Tehran, Iran

Introduction: Serum creatinine is the most commonly used parameter for estimation of GFR. Creatinine is produced by muscle mass, which increases with growth and pubertal development. Furthermore, according to the physiologically low serum creatinine in children estimation of GFR using creatinine may be not well accurate. This study is aimed to investigate that the plasma concentration of cystatin-C how is altered by puberty, in comparison with plasma creatinine and control of GFR.
Methods: In 91 type 1 diabetic patients, plasma creatinine and cystatin-C concentration were measured simultaneously. GFR were calculated using both creatinine and cystatin C. Analysis of variance were used for comparison.
Results: despite plasma creatinine that had significant difference in pre pubertal, pubertal and post pubertal stages, there was no significant difference for plasma cystatin-C. GFR, both calculated using creatinine and cyctatin-C, have no significant difference.
Conclusion: plasma creatinine is not altered by puberty in diabetic type 1 patients. It is recommended for more investigation to be used in GFR estimation. Puberty stage Plasma Cystatin C

Under Treatment-Euthyroid Hypothyroidism Affect both Plasma Cystatin-C and GFR Calculated Using Cystatin-C in Children with Type 1 Diabetes Mellitus

Farzaneh Rohani[1], Nakysa Hooman[2], Mohammad Ahmadi[3]
1 Endocrine research center, institute of endocrinology and metabolism, Iran University of medical sciences, Tehran, Iran
2 Department of pediatrics, Ali Asghar Hospital, Iran University of medical sciences, Tehran, Iran
3 Physiology Research Center, Iran University of Medical Sciences, Tehran, Iran

Introduction: Hypothyroidism and diabetes type 1 are associated diseases. Cystatin-C is introduced for earlier prediction of renal failure in diabetic patients. This study is aimed to investigate impact of treated well controlled, hypothyroidism on cystatin-C and cystatin -C based GFR.
Methods: Serum cystatin-C, creatinine, GFR calculated using creatinine and serum cystatin-C, age, body mass index ,diabetes duration hemoglobin A1c and urine albumin were compared between pediatric patients with diabetes type1 with and without hypothyroidism. Analysis was done using independent T test.
Results: All hypothyroid patients were euthyroid. Diabetic patients with treated hypothyroidism had higher serum cystatin-C and lower GFR calculated using serum cystatin-C. there was no signi9ficant difference between serum creatinine, creatinine-C based GFR, body mass index, 24 hours-urine albumin, age and diabete4s duration were higher in hypothyroid patients, therefore, linear regression analysis were used to adjust plasma cystatin-C and cystatin-C based GFR. New comparison showed significant difference is disappeared. To explain role of age and duration of diabetes, pubertal stages were compared against hypothyroidism. Significantly, most of the patients with hypothyroidism were on late stages of puberty, whereas, most of the euthyroid patients were pre pubertal.
Conclusions: hypothyroidism may impact cystatin based GFR and serum cystatin-c in patients of diabetes type 1, may true late onset of hypothyroidism or impact of puberty on hypothyroidism.

Role of nurses in the management and care of children with chronic renal failure

Parvin Tatarpoor, Educational Supervisor
Workplace: School of Nursing and Midwifery

Introduction: Patient and family education is one of the basic responsibilities of nurses. The main purpose is educating the patient and family to maintain their independence in their care.
Methods: This study aims to influence education nursing care of children with chronic renal failure in 30 patients with available sampling society, both in 1391 in the years to 1393 carried Hospitals. Samples and 40% were female and 60% male between the ages of 4 and 14 years, respectively.

Results: The results show that the majority of parents in the education of 80% very satisfied and 10% were satisfied and 10% stated that doctors should also cooperate in education. The knowledge gained from the doctor about 28% of parents with basic information on admission and after training at the time of admission and after discharge in 83% of them and in terms of performance in the areas of pharmaceuticals, diagnostic and therapeutic follow-up, 30% before training diet And after training was changed to 88%.
Conclusion: Patient education is one of the recognized standards of care provided by nurses. Successfully manage the care of chronic disease self-care is important. Chronic kidney disease, especially children, need to effective investment ,in order to be considered, and awareness of patients who received the necessary information and skills to care are. Self-education and self-management of chronic kidney failure children, the sick and the most important tasks first necessary step nurses that can cause changes in the child's life In this context, nurses trained alongside other health professionals can play an important role in empowering patients by providing information as poster, face to face education for children with chronic renal failure and his family have consults telephone and in

person with the child and family nurses can play a major role in the child's life.

Seizures and other neurologic disorders in children with Chronic Renal failure

Afsharkhas Ladan, Ali-Asghar Children Hospital, ran University of Medical Science, Tehran, Iran

Introduction: Chronic renal failure is defined as renal injury with glomerular filtration rate <60 mL/min/1.73 m2 for more than three months. There are neurologic complications in children with CRF including headache, seizure, dialysis disequilibrium syndrome, cerebral hemorrhage, Wernicke's encephalopathy, uremic neuropathy, and some neurologic complications of transplantation. n this present study we investigate neurologic disorders in children with CRF.
Methods: In this descriptive, cross sectional study, we evaluated 30 patients with CRF referred to nephrology clinic in Ali-asghar children hospital between April and December 2014.Data was recorded on age ,sex, causes of CRF, renal transplantation and neurologic disorders.
Results: Thirty patients had CRF with 4 months to 23 years of age. Mean age was 10.86±5.25 years. Seventeen cases (56.7%) were male. Fourteen (46.7%) of cases had been transplanted. Twelve (40%) of patients had neurologic disorders including seizures7 (23.3%), tension type headache 3 (10%), developmental delay 2(6.6%) and increased intracranial pressure 1(3.3%) of cases. Causes of CRF were included congenital anomalies (46.7%), glomerulopathies (30%), tubulopathies (10%) and idiopathic cases (13.3%). Neurologic complications was significantly seen more in male patients (p value=0.016). There was not significant relationship between age, causes of CRF, history of renal transplantation and neurologic disorders. Two (7%) cases died which both had seizures.
Conclusion: Some complications such as seizure, headache, increased ICP and developmental delay in patients with CRF are seen especially in childhood period. it is recommended to evaluate neurologic disorders and treated properly in these cases.

Herbal medicine in treatment of chronic kidney disease

Hossein Emad – Momtaz, Hamadan University of Medical Sciences

Introduction: Chronic kidney disease is defined as irreversible renal damage but many clinicians around the world try to at least slow progression of it to ESRD by any possible measure. Complementary medicine in general and herbal medicine in particular has been suggested to have a role in treatment of chronic kidney disease. In this article we intend to review scientific literature about potential benefits of herbs in treatment of chronic kidney disease to provide information basis for future researches and use of this option in clinical practice.
Methods: keywords of (herbal) and (chronic kidney disease) were searched in “pubmed” medical database and related articles to renoprotective effects of herbs were selected and reviewed.
Results: most articles found in our search refer to traditional Chinese medicine, herbs with scientific evidence of renoprotection include: “cordyceps sinensis” a fungus with antioxidant activity, inhibition of mesangial proliferation and decrease in serum creatinine in CKD patients.” Rhubarb root “another herb was reported to decrease serum creatinine, proteinuria and glomerulosclerosis in research on animal models and human studies.” sairei-to” is a polyherbal preparation that decreases blood pressure and proteinuria, in addition it has anti inflammatory and anti mesangial proliferation effects. Combination of ”stragalus membranaceus” and “Angelica sinensis” showed antiproteinuric and anti fibrotic activity in animal studies. “Salviae miltiorrhizae” has strong antioxidant effect which may decrease proteinuria, glomerular sclerosis and crescent formation, in addition it protects kidney from ischemic injury.” Stephania tetrandra” reduces glomerulosclerosis and accumulaton of extracellular matrix.” Tripterygium wilfordii” lowers protein excretion and inhibits cellular immune response. “Picrorhiza scrophulariiflora” by it’s antioxidant effect can improve renal function and pathology in rats with

chronic kidney damage. “Salacia Chinensis” may retard progression of CKD in diabetic patients. Combination of “Curcuma longa” and” Boswellia serrata”, reduced level of IL6 in patients with CKD.

Evaluation of Predisposing Factors for Nephrolithiasis and Renal Impairment in Patients with Cystic Fibrosis: Two centers experience

Nasrin Esfandiar, Pediatric Nephrology Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Introduction: With increasing life expectancy from less than 2 years to more than 40 years in recent years, Patients with cystic fibrosis (CF) are frequently at risk for complications such as nephrolithiasis or renal function impairment .To investigate this complication, renal function tests and blood and urinary evaluation were performed in these patients.1-14

Methods: During two years, fifty-five patients with CF (29 male, 26 female) with Mean age±SD of 8.22± 5.66(4 month-22 year) were enrolled. All patients underwent renal ultrasonography (US) and special blood (Na, K, Ca, Ph, Alk-P, Uric acid, VBG), U/A, U/C and 24 hours urinary collection or urine random evaluations.

Results: No patient had urolithiasis on US. The mean±SD of GFR (based on Schwartz formula) was 100±20.62 ml/min/1.73m2. Nineteen patients (34.54%) had lower GFR based on age. GFR was 90-99% of normal range based on age in 6 patients (10.90%), 60-89% in 12 patients (21.81%) and 15-30% in one patient (1.81%). Hypercalciuria was detected in 33patients (60.03%). Hyperuricosuria, hypocitraturia and hyperoxaluria were found in 26(47.3%), 14(24.53%) and 23(41.81%) patients, respectively. Mild proteinuria was observed in 12/55 patients and one patient showed nephritic range proteinuria. No patient showed proteinuria on urinanalysis. So, low molecular weight proteins not albumin were excreted. Venous blood gas (VBG) was normal in 28 patients. Five, ten, five and seven patients had respiratory acidosis, acute respiratory alkalosis, metabolic alkalosis and mixed disorders on VBG, respectively.

Conclusions: There was low level of renal impairment and low molecular weight proteinuria in CF patients. Hypercalciuria, hyperuricosuria, hypocitraturia and hyperoxaluria might lead to the higher risk of urolithiasis in patients with CF.

The role of urinary MMP9 and TIMP1 in anticipating scar formation in children with urinary tract infection Introduction

Seyed-Mohammad Abedi[1], Hamid Mohammadjafari[2], Alireza Rafiei[3], Abdolrasoul Aalaee[1], Sara Bazi[4]

1 Department of Radiology, Faculty of Medicine, Mazandaran University of Medical Sciences, Sari, Iran
2 Antimicrobial Resistant Nosocomial infection research center, Mazandaran University of Medical Sciences, Sari Iran
3 Molecular and Cell Biology Research Center, Department of Immunology, Faculty of Medicine, Mazandaran University of Medical Sciences,Sari, Iran
4 Department of pediatrics, Faculty of Medicine, Mazandaran University of Medical Sciences, Sari, Iran

Introduction: Urinary tract infection (UTI) occurs in 1.8–6.6% of children under 6 years old. The most severe form of UTI is acute pyelonephritis (APN), which can be complicated by permanent renal damage or scar formation. The aim of this study was to assess the urinary concentrations of 2 biomarkers, matrix metalloproteinase 9 (MMP9) and tissue inhibitor of metalloproteinase 1 (TIMP1), in children with APN and the potential to develop renal scarring.

Methods: Children who had experienced an episode of APN were divided into 2 groups. Group 1 included children with APN who exhibited scarring in a late DMSA scan performed 6 months after infection; group 2 included children with APN who had a normal first or late DMSA scan. Urinary levels of MMP9 and TIMP1 were measured and ratios of each marker to creatinine (Cr) levels in the acute phase of infection were also calculated. A receiver operating characteristic (ROC) curve was generated to allow calculation of cut-off values.

Results: Sixty-one children were enrolled across the 2 groups: group 1 contained 16 patients (all female); group 2, 38 children (36 female and 2 male). Urinary levels of MMP9 and TIMP1 were significantly higher in group 1 than in group 2 (p =0.037 and 0.022 respectively). For comparison of groups 1 and 2, the cut-off values were measured as 75.5 ng/ml (sensitivity 75%, specificity 55.3%, PPV 48%, NPV 82%), 16.1 ng/ml (sensitivity 77%, specificity 72%, PPV 41%, NPV 84%), and 1310.7

ng/ml (sensitivity 75%, specificity 60.5%, PPV 44%, NPV 85%) for MMP9, TIMP1, and MMP9×TIMP1 levels, respectively. Only 2 of the 21 children with low levels of both MMP9 and TIMP1 had scar formation (specificity 90%).
Conclusions: Evaluation of urinary MMP9 and TIMP1 levels may help to identify children with APN who are at risk of developing renal scarring.

Study of Nosocomial Urinary Tract infection in the Ali Asghar Hospital during 1391-1392

Masoumeh Miradi, Mahshid Modisanei, Esmat Soad Mohtashami

Nosocomial infections, with their associated increased hospital mortality and hospitalization costs because of increases the length of stay of Patients in the hospital and increases a lot of risks, are discussed as one of the major health problems in communities. Managers, physicians and hospital staffs led to struggles to do their best possible prevention of nosocomial infections, one of these infections is Urinary tract infections are known as the most common nosocomial infection, that Which is sometimes due to lack of hand washing conditions, Non-compliance with conditions of sterilization, Not removed on time of urine catheter, Long-stay patients in hospital, Infection and other diseases, that well known as a secondary infection. This study was done on 12733 patients admitted to the different wards in one of Tehran hospital (Ali Asghar) according to this matter Two years data collected, monitored and analyzed and the results show below fact: Among the 12733 patients admitted to hospital, 384 of them suffered with nosocomial infection were divided into 4 groups: Pneumonia, Surgical wound, Blood, Urinary tract. Of the target population, 34 patients had urinary tract infection (about 8 percent). In 26 out of 36 patients microorganism has grown. In 8 out of 34 patients no microorganism has grown but there have been signs of urinary tract infection. Type of obtained microorganism are as follow; 4% Pseudomonas 7% Acinetobacter, 4% Basil gram (positive & negative), 54% candidal bicis 19% celeb silka, 12% Escherichia coli.

Palliative care: The last hours and days of life

Elahe Gerami
Iran University of Medical Sciences

Patients in the last days/hours of life often have unrelieved physical suffering, as well as significant emotional, spiritual, and social distress. Recognizing that a person is entering the dying or terminal phase of their illness is critical to appropriate care planning, with a shift to comfort care. Despite the benefits of palliative and hospice care, many patients in the terminal stages of a serious life-threatening illness die in settings where they do not receive care designed to address suffering in the last hours of life. Recognizing that a patient is dying before his or her last week of life is associated with fewer deaths in the hospital and more deaths in a preferred place. Patients enrolled in hospice programs are also less likely to die in the hospital. Once a patient has begun the transition to the actively dying phase, the goals of care should shift toward maintaining physical comfort, and alleviating emotional, spiritual, and social distress for the patient and family. Among the issues that are important to resolve are preferences for location of care and preferences for limits on invasive or aggressive resuscitative therapies that often are ineffective in a patient with end stage disease. Discussions about cardiopulmonary resuscitation (CPR) are of vital importance for patients with a terminal illness, and preferably these discussions should take place prior to the active dying phase. For patients who are actively dying from a terminal illness, CPR constitutes a non-beneficial or harmful and inappropriate medical treatment. Nonetheless, it may be an intervention that is expected by patients and their families, and as such, it should be addressed through proactive communication.

Prevention of chronic renal failure in children

Esfandiar Bodaghi, Pediatric Nephrologist

To reduce the number of children suffering from chronic renal failure (CRF) is a splendid goal of the wise pediatric nephrologist. Fortunately many of anomalies of the urinary tract (UT), are detected soon during fetal life so supervised, even cured on time. Hereditary& acquired renal diseases are better investigated, managed and followed now. However, there are hidden causes; if they remain unknown or neglected will threat later during adult life. The pediatric nephrologists, pediatricians in charge of education of medical students as well as those who potentially are in charge of care providing to pediatric population do explain carefully the importance of thinking to these anomalies. A meticulous observation tacking; the past history, lessening to the parents &child complaints accompany with estimation of growth & nutritional state, followed by a complete clinical examination including arterial palpation and measurement of blood pressure (AP) are mandatory. This will be completed by a routine urine testing (UT), by reactive tapes at least for estimating PH, Proteins, RBC & WBC. AP& UA, often normal, logically are recommended to be repeated periodically as a routine exam. In case of abnormal findings, or obvious clinical doubt a specialist consultation for further investigations are recommended. Moreover, new changes in life style, must be kept in mind by these scholars; -during teaching as well as consultations they have to emphasize the ongoing overthrow of life style in parts of the society! For example Malnutrition as its vast definition and significance, especially in eating habits, in choosing foods and eating style. Or luck of physical exercises, spending too much time to watch or to play with audio-visual gadgets that could disrupt the balance of a normal life. Many harmful consequences, such as obesity, arterial hypertension, cardiovascular and other organ damages have been reported. Obviously these multifactorial problems need more attention by the family, schools and health providers! Obviously the Pediatrician has a main role to advice in this field, cooperate with other disciplines supervise the promotion of the plan.

A Case of type 1 diabetes with nephrotic syndrome

Arash abbasi MD[1], Neamatollah Ataei MD[2]
1. Assistant Professor of Pediatrics, Pediatric Nephrologist
2. Professor of Pediatrics, Pediatric Nephrologist
Pediatric Chronic Kidney Disease Research Center, Children's
Hospital Medical Center, Tehran University of Medical Sciences,
Tehran, Iran

A 5-years-old female with type 1 diabetes for four months was referred to our department after complaining of an edema that was 14 days in duration. She was being treated with insulin. Physical examination revealed blood pressure of 95/65 mmHg, pulse of 80 beats/min, normal breathing, and no fever.

The patient's eyeground was examined; no abnormalities were found. Her weight at that time was 13 kg, and her baseline weight was approximately 12 kg. She had pitting edema on the legs and face. Her heart and lungs were normal, and no liver, spleen or lymph node enlargements were detected.

Urinalysis showed 6-8 white blood cells, no red blood cells, and 20-25 granular casts per high-power field.

Proteinuria was 3.14 g/24 h; blood urea, 12 mg/dL; serum creatinine, 0.5 mg/dL; serum total protein, 4.8g/ dL; albumin, 1.8 g/dL; total cholesterol, 444 mg/dL; blood glucose, 487 mg/dL; hemoglobin, 10.2 g/ dL; Hemoglobin A1c (HbA1c) 6.7 and proteinuria, 4763 mg/24 hours. Serology for hepatitis B and C, HIV, vasculitis and lupus were negative.

A percutaneous renal biopsy was performed. The biopsy specimen contained 11 glomeruli. Megangial hypercellularity was seen in less than 50% glomeruli. No capillary wall thickening was identified. Tubular atrophy was seen in 30% of tissue surface. Interstitial fibrosis was seen in 30% of the specimen. Interstitial inflammation was evident in 20% of tissue surface. No vasculitis was identified. Renal histopathologic findings were compatible with FSGS.

Prednisone therapy using 2 mg/kg/day was started, and the patient's insulin dosage not changed during the course of treatment. Prednisone dose discontinued after 2 months of treatment due to massive proteinuria (2223mg/24 hr). Steroid therapy changed to cyclophosphamide 2 mg/kg/day. Treatment with cyclophosphamide discontinued after 7 weeks because of high proteinuria. Tacrolimus 0.1 mg/kg/day was administered. Six months after the treatment, her urine protein decreased from 450 to 205 mg/day. There was no evidence of relapse over 3.5-year follow-up.

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Hypertension Abstracts

Prevalence of hypertension and renal dysfunction after pediatric liver transplantation

Mitra Basiratnia[1], Seyed Mohsen Dehghani[2]

1 Shiraz nephrology urology research center, Shiraz university of medical sciences, Shiraz, Iran
2 Shiraz neonatology research center, Shiraz University of medical sciences, shiraz, Iran

Introduction: Liver transplant recipients are at increased risk of renal damage. The purpose of this study was to assess the prevalence of hypertension and glomerular and tubular dysfunction in children with liver transplantation.
Methods: Forty six patients, aged 7 to 18 years (mean: 12.2±3.3; 24 female) who were transplanted at least in the previous 6 months with GFR> 60, were enrolled in this cross sectional study. Patients' data, such as age, gender, date of transplantation were extracted from charts. Glomerular and tubular function were examined by cystatin C and creatinine based GFR, urinary Alb/Cr ratio, tubular reabsorption of phosphate (TRP), fraction excretion of Mg and uric acid(FEMg, FEUA), and urinary Ca/Cr. Blood pressure was taken by causal and ambulatory blood pressure (ABPM) methods.
Results: The mean Cyctatin C –based GFR (66.4±14.4) was lower in comparison with creatinine-based GFR (149.5±36.2). The prevalence of CKD according to cystatin C based GFR was: stage 1 (4.3%), stage 2 (63%), stage 3a (28.4%), and stage 3b (4.3%). Creatinine based GFR showed CKD stage 1 in 97.8% and stage 3a in 2.2% of the patients. The ABPM showed hypertension in 20 patients (43.5%), systolic non-dipping in 37% and diastolic non-dipping in 36.6% of the patients. Office measurement showed 7 patients (15.2%) with high blood pressure. Hyperuricosuria was detected in 4.3%, micro-albuminuria in 26.1%, hypercalciuria in 6.5%, abnormal FEMg in 43.5%, and abnormal TRP in 4.3% of the patients.
Conclusion: Glomerular and tubular function is impaired and the prevalence of hypertension is high in children with liver transplantation. Using Cyctatin C instead of creatinine for GFR estimation and blood pressure monitoring by ABPM is essential for detection of renal function disturbances in liver transplant recipients.

A brief of New ABPM 2014 guideline of children

Hamidreza Badeli, Pediatrics growth disorder research center, 17 shahrivar hospital, school of

medicine, Guilan university medical sciences, Rasht, Iran

Ambulatory blood pressure monitoring (ABPM) evaluates blood pressure at regular intervals. It has been noted as an effective tool for evaluating and management of hypertension in adults but has only been applied to children and adolescents more recently. Recently, the American Heart Association (AHA) revised the previous recommendation (2008) for performance and interpretation of ABPM in pediatrics. Based on this revised version no studies are yet available relating ABPM levels in children to outcomes such as myocardial infarction or stroke, therefore, it seems that clinicians can apply this new (2014) AHA statement for children and adolescents with hypertension and white coat hypertension and masked hypertension.

Ambulatory Blood pressure Monitoring in Children with Nephrotic Syndrome

Leila Moghiseh, Zahra Saffar, Hayedeh Maanavi, Nakysa Hooman
Iran University of Medical Sciences, Tehran, Iran

Introduction: Hypertension is a risk factor in patients with nephrotic syndrome. Prevalence of hypertension is associated with type, duration of kidney disease and the medications. In contrast, those who have been on long term corticosteroid might show some episodes of hypotension due to adrenal axis suppression. Conventional blood pressure measurement has some limitation to detect earliest stage of blood pressure changes. The aim of this study was to assess blood pressure status in children with nephrotic syndrome.
Methods: Between 2013-2014, 24 (11 males,13 females) children with nephrotic syndrome went on ambulatory blood pressure monitoring. Mean blood pressure more than 95% and blood pressure load more than 25% considered hypertensive. If the drop of blood pressure at night was less than 10% non dipper statues was defined.
Results: All patients have been on steroid with various dosages. Some received other immunosuppressive such as cyslosporine, cyclophosphamide, or mycophenolate. Most of them had ACEI or ARB as co adjuvant to reduce proteinuria or control blood pressure. From 24-ABPM measurements, ,high blood pressure was detected in 45.8% of the subjects and pre-hypertension was detected in 8.3% From 24 cases, no dipper statues was detected in 75%(18 patients). None of them had hypertensive episodes.
Conclusion: Considerable percentages of patients had hypertension by 24-hour ABPM. Utilizing this device might improve cardiovascular care of children with this chronic disease.

ABPM in Transplanted Patients

Saffar Z, Mogheise L, Maanavy H, Ghafary L, Homan N, Hoseini R.
Iran University of Medical Sciences, Tehran, Iran

Introduction: Hypertension is one of the main problems in patients with kidney disease. Prevention and control of blood pressure in help to improve kidney survival of the graft. Prevalence of hypertension is associated with type, duration of kidney disease, vascular disorder before transplantation and the medications. Conventional blood pressure measurement has some limitation to detect earliest stage of blood pressure changes. The aim of this study was to assess blood pressure status in children with kidney transplant.
Methods: Between 2013-2014, 13 (8 males,5 females) children with kidney transplantation went on ambulatory blood pressure monitoring. Mean blood pressure more than 90% and blood pressure load more than 25% considered hypertensive. If the drop of blood pressure at night was less than 10% non dipper statues was defined.
Results: All patients have been on steroid with various dosages. Some received other immunosuppressive such as cyclosporine, prograf, or mycophenolate. Most of them used ACEI or calcium blockers to reduce or control blood pressure. From 24-ABPM measurements, high blood pressure was detected in 30.8% of the subjects and pre-hypertension was detected in 30.8% From 13 cases,. 38.5% of them had normal blood pressure.
Conclusion: Considerable percentages of patients had hypertension by 24-hour ABPM. Utilizing this

device might improve cardiovascular care of children with this chronic disease.

Pheochromocytoma – case report

Moradkhani-Zadeh, Hooman N, Razaghi Azar M, Mehrazma M, Zarei M ,
Iran University of Medical Sciences (IUMS)

From 1385 to now, 7 cases about pheochromocytoma are investigated but 2 of them are certainly diagnosed.

Case 1: A 9 Y/0 boy with Headache and neck pain, Diaphoresis, Flashing of face, Redness of hands and eyes, Weight loss (26kg to 23.5kg),Constipation, Anxiety

PH.Ex: Hypertension,-Weight loss, -BP:Upper (R: 150/100, L: 150/100), Lower (R: 150/100, L: 150/100)

PR: 130, RR: 20,Temp: 36ºc,W: 23.5kg,H: 133cm,Heart: NL, Chest: NL, Abdomen: NL

Urine: 24h :Metanephrin: 37.3 mic gr/deg, Normetanephrin: 1848 (NL<600 mic gr/deg),VMA: 3.2 (0-13.6),TFT: NL, Renin: 473.7 miro IU/ m Li (at rest 10-160) (at motion 35-300), Aldestron: 298 pgr/ m Li (at rest

Imaging: There is a well defined heterogeneous abdominopelvic CT Scan. Enhancing mass measuring 34*32 mm. Anterior to upper pde of lt. kidney. Mild to moderate enhancement of solid component and wall of the mass is seen. Lt adrenal is not seen. These findings are in favor of lf adrenal mass. There is no evidence of vascular invasion. MIBG: The scintigram was performed in multiple. Static images 24 and 72 h after IV injection of less than 1 ma 131 I-MIBG. The images revealed focal abnormal tracer accumulation in the region of the left adrenal gland ; superior to the left kidney .

Macroscopic: External surface is smooth cut section are yellowish-brown areas of hemorrhage are noted (Partially submitted in one block).

Microscopic: Sections reveal neoplastic tissue composed of variable shape and size cells with round enlarged nuclei, prominent nucleoli and slight basophilic cytoplasm that array in well defined nest. Foci of hemorrhage as well as necrosis are identified a rim of normal adrenal gland is also seen.

IHC Markers: Inhibin: negative in tumoral cells, S100: weekly positive in sustenicular cells, Synaptophysin: positive in tumoral cell, Ki67: positive in less than 2% of tumoral cells

Diagnosis: Left adrenal mass, excision: Pheochromocytoma, A rim of unremarkable adrenal gland, noted Tumor size: 5cm in the greatest diameter and 4*3.5cm In other dimension Capsular invasion: Not identified Lymph vascular invasion: Not identified

Case 2: A10 Y/0 boy with: HTN, Palpitations, Headache, Sweating.

PH.EX- BP: Upper) R: 180/120, L: 180/120 Lower) R: 180/110, L: 180/100, PR: 140, RR: 23,Temp: 37ºc

W: 28.5kg,H: 135cm,Abdoman: Mild tenderness of RUA

Urine: 24h Metanephrin: >3000 (Normetan ephrin>5700),Serum VMA: 3.2 (0-13.6)

TFT: NL, Renin: 286.9 (at rest, Aldosterone: 554↑

There is a well defined enhancing mass measuring 55*41*69mm in RT suprarenal. This finding is suggestive of adrenal mass. Macroscopic: The specimen received in formalin consists of an encapsalated, gray tan mass measuring 6.5*5*3 cm and weighing 45gr with smooth, unremarkable external surface on cut sections, a solid cystic mass foci of hemorrhage is seen accompanied with a portion of normal adrenal gland tissue M:3.5*0.5*0.3.

Microscopic: Sections show an neoplastic tissue composed of nests of monomurphic tumoral cells with vesicular round nuclei, prominent nucleoli and indistinct cytoplasmic border which are separated by thin fobrovascular bundles (Zellballen appearance). Mild nuclear atypia is also noted. No mitosis is seen. No vascular invasion is seen. IHC Markers: IHC study shows: strongl positive reactivity for chromogranin and synaptophysin, negative reactivity for inhibin and Melan A, positive reactivity for S100 in sustenicular cells. Ki67 marker shows about 5% positive reactivity in tumor cells.

Diagnosis: Right adrenalectomy: Pheochromocytoma, Note: in cases of pheochromocytoma with ki67 more than 3%, an aggressive behavior may be seen.

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Glomerular and Tubular diseases Abstracts

Kidney Anion Exchanger 1 (kAE1) alteration in some Iranian Children with Distal Renal Tubular Acidosis

Nakysa Hooman[1], Hassan Otukesh[1], Ibrahim Torktaz[2], Hassan Fazilaty[3], Rozita Hosseini[1], Babak Behnam[4]

1 Department of Pediatric Nephrology, Iran University of Medical Sciences, Tehran, Iran
2 Department of Molecular Genetics, National Institute of Genetic Engineering and Biotechnology, Tehran, Iran
3 Department of Medical Genetics, Tehran University of Medical Sciences, Tehran, Iran
4 Department of Medical Genetics and Molecular Biology, Faculty of Medicine, Cellular and Molecular Research Center, Iran University of Medical Sciences, Tehran, Iran

The aim of the present study is to report novel different deletion mutations of SLC4A1 (AE1) gene in 12 Iranian families whose children had distal renal tubular acidosis (dRTA). Mutations of SLC4A1 encoding the kidney anion (Cl-/HCO3-) exchanger 1 (kAE1 or band 3) can result in either autosomal dominant (AD) or autosomal recessive (AR) form of dRTA. All exons were investigated through PCR results, DNA sequencing and bioinformatics analysis. Surprisingly, 10 out of 12 patients (> 83%) showed an alteration in SLC4A1 gene with a real hot spot in its exons 15 and 11. Meanwhile, homozygote and heterozygote deletions in exon 15 have been confirmed in 5 (50%) and 3 (30%) of SLC4A1 alterations, respectively. Two remained patients (20%) showed homozygote deletions in exon 11 of SLC4A1 gene. Parents' consanguinity of these patients reveals that cousins are high risk for this disease. Multiple alignments show that Start point region of deletion in exon 15 is conserved in Iranian patients suggesting an alteration in structures leads to alteration in function and change in the current role of this protein. By in silico approach we predicted 3D structure of native and mutant proteins by multi template method using PHYRE and Hidden Markov Model algorithms. Because of frame shift mutations, structures of mutant models vs. native one are different in conformation and amino acid type. These models suggest that alteration in structures leads to alteration in function and change in the current role of this protein.

A Case of acquired Thrombotic Thrombocytopenia Purpura without renal dysfunction

Mahdi Shahriari[1], Babak Abdolkarimi[2], Maral Mokhtari[3], Samir Silavizadeh[2] Sezaneh Haghpanah[4]

1 Assistant professor of pediatric hematology oncology
2 Pediatric hematology oncology fellowship
3 Pathologist
4 Assistant professor of community medicine

Thrombotic thrombocytopenia purpura (TTP) is the most malignant variant of microangiopathy that caused by special underlying disorders and a deficiency of ADAMTS-13 activity due to auto antibodies against this protease in idiopathic condition. It is clinically characterized by five typical symptoms include thrombocytopenia with

platelet consumption, hemolytic anemia characterized by schistocytes, neurological abnormalities, fever and renal impairment but atypical presentation causes mistake in diagnosis and delay in treatment. In sporadic cases ADAMTS-13 activity can also confirm diseases. We reported a TTP case without renal dysfunction. Absence of renal impairment doesn't rule out this condition and may have a better prognosis than typical TTP.

NPHS2 gene polymorphism and FSGS patients

Nikou Fotouhi[1], Mohammad Reza Ardalan[2]
1 Faculty of Natural Sciences, Tabriz University of Medical Sciences
2 Head of chronic kidney disease research center, Tabriz University of Medical Sciences

Introduction: Focal segmental glomerulosclerosis (FSGS) accounts for around 20% of the nephrotic syndrome in children and 40% in adults. FSGS is clinically and genetically heterogeneous entity. Mutations in NPHS2 can cause an autosomal recessive steroid-resistant form of FSGS. NPHS2 gene encodes podocin (1q25-q31) which is fundamental in the establishment of the glomerular filtration barrier. The podocin variant R229Q (G>A) of NPHS2 gene, which is presented in 3.6% of the white population, is often reported as a disease-causing polymorphism.
Methods: A total of 60 unrelated cases, who have received a clinical and pathological diagnosis of FSGS were included (25 patients with sporadic primary FSGS and 35 cases as control group). Exon 5 of NPHS2 gene was amplified and the PCR amplicon was screened using ClaI (Bsu15I) which cuts the amplicon into the two fragments in wild type-allele.
Results: Of the 50 alleles of referred patients none of them showed the R229Q polymorphism (A status). Of the 25 cases 13(52%) were males and 12(48%) were females and the age range of patients was 4-30 years. Interestingly, the P.R229Q was not detected in control group as well.
Conclusion: Our result is in agreement with some populations like Japanese and Korean (0%). There are evidences that there is no significant difference between patient and control groups in the Middle East and North of Africa. This result suggests that the some other mutations in podocin and/or other genes which are responsible for FSGS like nephrin, Actin4, WT1 and TRPC6 would affect the incidence and severity of the disease in this cohort. Although p.R229Q is one of the common non-synonymous NPHS2 variants in Caucasians, it is detected in similar frequencies in patient and control groups so this could be concluded that our Iranian Azari cohort is in agreement with similar studies.

Long-term evaluation of Ifosfamide-related nephrotoxicity in children

Shahla Ansari, Nakysa Hooman, Zahra Motaghi
Ali asghar children hospital, Iran University of Medical Sciences

Introduction: one of the most important complications n chemotherapy is nephrotoxicity .there are Many potential causes for chronic renal failure in patients treated for cancer or leukemia ,such as malignant procedure ans treatment complications. The aim of study was determination of Frequency in chronic nephrotoxicity in patients with a history of treatment by Ifosfamide and its related risk.
Methods: In this cross sectional study, Population study was children with sarcoma, retinoblastoma and Wilms' tumor who have undergone chemotherapy with Ifosfamide. Our variable include age, sex, type of malignancy, Onset of chemotherapy age, Ifosfamide dose, follow up duration, GFR in onset,1 year later and end of 10 years, PO4 and HCO3 serum level in onset,1 year later and end of 10 years was evaluated.
Results: 40 children were enrolled the study. 23 patients were (57.5%)girl and 17 patients (43.5%) was boy.3 cases (7.5%) with rhabdomyosarcom,30 cases (75%) with Wilms' tumor and 7 of them (17.5%) was retinoblastoma. The mean level of Cr at the first was 0.56. The mean level of Cr 1 year after chemotherapy was 0.64 and 10 years after was 0.73. Cr levels increased significantly in the last 10 years (P= 0.001). The mean rate of GFR was 107.7 at the first, the mean rate of GFR was 102.3 1 year after chemotherapy and 10 years after was 93.2. GFR levels did not increase significantly in the last 10

years (P = 0.062). Average phosphate and bicarbonate in the past 10 years was not significantly different (P> 0.05).
Conclusion: In this study the Cr Serum levels over the time course of chemotherapy were also more that this kidney injury can be drug-induced and it is necessary careful follow-up of patients to prevent of more damage.

Evaluation of Microalbuminuria 4 to 6 Years Following

Mohsen Akhavansepahi, Associate professor of pediatric nephrology ,Pediatrics Medicine Research Center, Qom University of Medical Sciences, Qom, IR Iran

Introduction: Diabetic nephropathy is one of the major complications and a leading cause of mortality
and morbidity in diabetes mellitus. Microalbuminuria is the earliest sign of diabetic nephropathy and
it is highly related to glycemic control. Progression of diabetic nephropathy is mostly asymptomatic until advanced stages of renal failure. In this study microalbuminuria and its correlation with duration
of diabetes and quality of diabetes control (HbA1c) is evaluated in 50 children with type 1 diabetes mellitus
Methods: Fifty children 4 to 6 years following the onset of type 1 diabetes, below 20 years of age, were enrolled in this study. Twenty four hours urine was checked twice within 3 to 6 months period for microalbuminuria by nephelometry method and values >30 mg/24hrs were considered abnormal. Also HbA1c level and FBS level assessed simultaneously. Mean FBS level during the years of diabetes and number of attacks of DKA were.
Results: Fifty children, 4 to 19 years old mean age of 14.54 ± 3.62 years, 28 (56%) males completed the study. Nineteen (38%), 14 (28%) and 17 (34%) children enrolled in this study 4, 5, 6 years after the onset of their diabetes respectively. At 1st evaluation microalbuminuria was detected in 5 (26.3%), 4 (28.6%) and 6 (35.3%) children, 4, 5, 6 years after diabetes respectively. At 2nd evaluation these values were 4 (21.1%), 6 (42.9%) and 7 (41.2%). There was no significant correlation between HbA1c level, FBS level, and mean FBS level during the years of diabetes in microalbuminuric and non-microalbuminuric children.
Conclusion: Despite small sample size of this study, microalbuminuria was detected in children even 4 years after the onset of diabetes and its frequency increased in children with 5 - 6 years of diabetes. We recommend earlier than usual recommendations for microalbuminuria screening in diabetic children.

The Effects of Blocking Angiotensin Receptors on Endothelial Dysfunction in Type 1 Diabetes

Alaleh Gheissari, Shaghayegh Haghjooy Javanmard, Roohollah Shirzadi
IUMS, Isfahan, Iran

Introduction: Inhibition of the renin-angiotensin system (RAS) may be effective partly in preventing diabetic nephropathy through improving responsible mechanisms. However, there is limited evidence about such beneficial effects in those patients with early stage of DN. This study aimed to investigate the beneficial effects of angiotensin receptor blockers on markers of endothelial function in patients with early stage of DN.
Methods: This cross sectional study was carried on 32 participants with type 1 diabetes (IDDM) from January 2010 to May 2011. The participants were candidate for receiving ARBs or ACEIs to decrease microalbuminuria. The inclusion criteria were as follows: The age of onset of IDDM less than 15 years; normal glomerular filtration rate (GFR); normal blood pressure; normal cardiovascular examination; negative urine culture, receiving no medications except insulin. Microalbuminuria was measured in two fasting urine samples with a sampling interval of 1-2 month by ELISA method. Microalbumin to creatinine ratio equaled to or more than 30 mg/gm was considered abnormal. The urine and blood sample to determine urine microalbumin and serum NO and VCAM were obtained at the time 0 (before starting the study), and after 2 months of receiving the medication. Colorimetric assay kit (Cayman, USA) and ELISA kit (Bendermed, UK) were used to measure NO and

VCAM, respectively. Valsartan tablet (Diovan, angiotensin receptor blocker from Novartis Company) with a dose of 1 mg/kg/day up to 80 mg/day in a single dose was administered.

Results: Urine microalbumin to creatinine ratio after Valsartan consumption was lower than microalbumin level before the medication, P< 0.05. After valsartan consumption, serum VCAM-1level reduced and NO level increased significantly, P<0.05.

Conclusion: Angiotensin receptor blocker (valsartan) reduces VCAM-1 and microalbuminuria and increases NO levels in early stages of DN. Thus administration of ARBs might be considered even in early stages of DN.

High Frequency of acquired ADAMTS13 deficiency in symptomatic Hemiscorpius Lepturus (scorpion) stung children

Ehsan Valavi[1], Ali Ahmadzadeh[1], Parisa Amoori[1], Aidin Daneshgar[2]

1Divission of Pediatric Nephrology, Abuzar Children's Hospital, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

2Faculty of Medicine, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

It has recently been reported that the activity of ADAMTS13 decreases in a wide variety of conditions, including liver cirrhosis, chronic uremia, TTP, Hemolytic uremic syndrome (HUS), disseminated intravascular coagulation (DIC), systemic lupus erythematosus, leukemia, sepsis, pregnancy, postoperative state, neonatal period, advancing age, malaria, snake bite and scorpion sting. The aim of this study was to estimate the frequency of acquired ADAMTS13 deficiency in severe cases of Hemiscorpius Lepturus stung patients and the frequency of acute renal failure in these patients. We studied 60 scorpion stung children which referred with severe hemolysis and hemoglobinuria. None of them had received blood products and no one had kidney failure in the past. Plasma levels of ADAMTS13 and ADAMTS13 antibody (IgG) was measured using ELISA. ADAMATS13 was decreased in 91.7% of patients and the anti-ADAMATS13 antibody (Ab) was increased in 98.3%. ADAMATS13 decreased in all of the patients with renal failure and none of those with normal levels of ADAMATS13 developed to renal failure; all patients with renal failure had also increased levels of ADAMATS 13Ab. Acute renal failure was found in 23.3% and it has significant association with severe anemia, thrombocytopenia, Pyuria, hematuria and considerable proteinuria (p<0.001). Disseminated intravascular coagulation (DIC) and Hemolytic uremic syndrome (HUS) developed in 6.7% and 10% respectively. Overall, the findings demonstrate that Hemiscorpius lepturus sting is usually associated with ADAMATS13 deficiency, and increased ADAMATS13 autoantibody. These combined mechanisms may contribute to scorpion sting-induced coagulopathies and may predispose patients to develop DIC and HUS.

Implication for diagnosis Primary Hyperoxaluria type 1 (PH1) in Iranian children by analysis AGXT1 mutation spectrum

Babak Behnam[1,2], Nakysa Hooman[2], Hassan otukesh[2], Abbas Madani[3], Daryoush Fahimi[4], Farzaneh Vali[1]

1 Department of Medical Genetics and Molecular Biology, Iran University of Medical Sciences, Tehran, Iran

2 Department of Pediatrics Ali-Asghar Children Hospital, Iran University of Medical Sciences, Tehran, Iran

3 Department of Pediatrics Children Hospital Medical Center, Tehran University of Medical Sciences, Tehran, Iran

4 Department of Pediatrics Bahrami Children Hospital, Tehran University of Medical Sciences, Tehran, Iran

Primary hyperoxaluria type 1 (PH1) is an autosomal recessive inherited metabolic disease, and characterized by a shortage of liver-specific alanine-glyoxylate aminotransferase (AGXT) resulting in renal failure in children. AGXT mutation is the main cause (~80%) of the disease. The study of mutational spectrum causing PH1 in Iranian children was the aim of present study to provide an accurate diagnostic tool. In a cross-sectional study, direct sequencing used to detect AGXT mutations in genomic DNA samples from 37 involved children. Molecular analysis revealed twelve mutations causing PH1 in Iran. The mutations were identified along exons 1, 2, 3, 4, 7, 9 and 11. Nineteen out of 37 studied cases (51.3%) showed mutations in the exon 2 of the AGXT including 8 (21.6%) and 11 (29.7%) homozygote and heterozygote mutations, respectively. The most common observed mutation was c.253 T>A (p.C84X) in the second

exon. Other detected mutations occurred in exons 1, 3, and 4 with a frequency of two cases (5.4%) each, as well as in exons 7, 9 and 11 with just one (2.7%) case each. In 3 patient cases (8.1%), an intron alteration was observed without any mutation in the coding sequence of the gene. Overall, we detected AGXT mutations in 31 out of 37 patient cases (83.8%) of PH1 in this study. These results confirm the mutational heterogeneity related to PH1 in Iranian population. Most of the mutations (58.1%) are in a homozygous state, confirming the significant impact of consanguineous marriage in Iranian population. The patient cases with no AGXT mutation may be due to type 2 primary hyperoxaluria and addressed by an alteration in the gene encoding glyoxylate reductase/hydroxypyruvate reductase (GRHPR). Mutation analysis through DNA sequencing may be useful as the first line molecular approach and an accurate tool for genetic counseling and screening potential presymptomatic patients.

Bartter syndrome type II, a case and novel mutation report

Babak Behnam[1,2], Nakysa Hooman[2], Hassan Fazilaty[1,3]
1 Department of Medical Genetics and Molecular Biology, Iran University of Medical Sciences, Tehran, Iran
2 Department of Pediatrics Ali-Asghar Children Hospital, Iran University of Medical Sciences, Tehran, Iran
3 Instituto de Neurociencias CSIC-UMH, Avda. Ramon y Cajal s/n, San Juan de Alicante, Spain

Bartter syndrome type II or neonatal Bartter syndrome is a hypokalemic renal salt-wasting disease that shows autosomal recessive pattern of inheritance. This disease is genetically characterized by alterations in KCNJ1 (also ROMK) gene that is located on chromosome 11q24. It encodes KCNJ1 channel which plays crucial roles in potassium and sodium balance. Patients of type II Bartter syndrome who carry alterations in this gene typically show hyperkalemic metabolic alkalosis, nephrocalcinosis, natriuresis, diuresis and elevated prostaglandin E2 and renin. A referred patient to Ali-Asghar Children Hospital forwarded to the molecular genetics lab characterized by typical symptoms of type II Bartter syndrome, transiently hyperkalemic, and low urinary chloride, calcium and sodium. Molecular genetic analysis was performed to confirm the disease, using genomic DNA extracted from peripheral blood. Result from polymerase chain reaction (PCR) and sequencing procedures (ABI, Macrogen), performed by specific primers targeting coding region of the KCNJ1. In sequence analysis of the gene all amplicons, a homozygote nonsense mutation (K88Xfs) resulting in premature truncation of the ROMK protein has been observed. This mutation is novel and most likely disease causing due to the presence of frame-shift. Additionally, we performed prenatal diagnosis (PND) test for the fetus to prevent any further involvement of other sibs, which resulted to legal abortion.

Evaluation of causes of nephrocalcinosis and its effect in renal function and body growth, in patients referred to pediatric nephrology clinic, in Loghman hospital during 2006-2013

Zahra Pournasiri, Assistant Professor of Pediatric Nephrology at SBMU

Introduction: Nephrocalsinosis (NC), defined as renal calcification that can be tubular or interstitial. Prevalence of NC in preterm neonates with birth weight less than 1500 gram is 27-64% and this risk increased by incidence of low birth weight and prematurity. NC is not a single concept and occurs due to various renal and metabolic disorders and medications. Etiology and clinical significant of nephrocalcinosis is not yet known, and the prognosis is not fully understood. In this study, we aimed to analyze retrospectively the etiology of NC and to evaluate the results of follow-up on growth disorder and renal function of patients with NC.
Methods: This is a cross-sectional study which performed on 30 patients diagnosed NC between 2006 and 2013 admitted to Loghman Hakim Hospital. The records of patients were evaluated for age, sex, etiology of NC, clinical, GFR, hSDS and wSDS presentation, and follow-up period.
Results: Mean age presentation was 2.2±2.5 (range: 0.1-9.7) year. 14 patients (47%) were male. Mean follow-up time was 7.1±5.2 (range: 1.0-20.9) year. The most symptoms were urinary tract infection (25%) and growth retardation in 18% of patients. The etiology of NC included distal renal tubular acidosis (dRTA) in 34.5%, idiopathic

hypercalciuria in 17.2%, Bartter syndrome in 10.3% and 6.9% unknown. Mean GFR was 75.6±29.1 in presentation and 105.7±21.9 ml/min/1.73m2 in follow-up time (P<0.001). Four of 30 (14.3%) patients had hSDS<-2 at presentation, remained at the last examination.
Conclusion: The results of the study indicate that the etiology of nephrocalcinosis was almost similar to other studies. By treatment of the underlying disease can be expected to have a significant increase in GFR and physical growth. The findings of this study can be used in diagnosis and treatment planning, and prevention of high costs diagnostic and preserve renal function.

بررسی فراوانی سندرم نفروتیک اولیه مقاوم به درمان کورتون و ویژگیهای بالینی و آسیب شناختی آن در بیماران ۱ تا ۱۴ ساله مراجعه کننده به بخش نفرولوژی بیمارستان مرکز طبی کودکان بین سال های ۱۳۹۰-۱۳۸۰

فایزه جوادی لاریجانی، دانشگاه علوم پزشکی تهران

مقدمه: سندرم نفروتیک شایع ترین بیماری مزمن کلیوی کودکان است.این بیماری در غالب موارد با استفاده از استیروئید کنترل میشود. در میان بیماران سندرم نفروتیک مقاوم به استروئید پاتولوژیهای متعددی مطرح میباشند. در میان آنها گلومرولواسکلروز فوکال و سگمنتال ممکن است یک سر طیفی باشد که سر دیگر آن را تغییرات ناچیز (MCNS) تشکیل میدهد. بررسی ویژگیهای کلینیکوپاتولوژیک بیماران می تواند در روشن شدن علل مقاومت به استیروئید وتعیین پیش آگهی بیمار کمک شایانی نماید.
روش بررسی: ۷۱ کودک ۱ تا ۱۴ ساله مبتلا به سندرم نفروتیک مقاوم به درمان مراجعه کننده به بخش نفرولوژی بیمارستان مرکز طبی کودکان بین سال های ۱۳۹۰-۱۳۸۰ در این مطالعه واردشدند .
نتایج: از ۱۵۰ بیمار مورد بررسی ۷۱ کودک (۴۷.۳%) مبتلا به سندرم نفروتیک مقاوم به درمان بودند.(۶۲ %) ۴۴ این کودکان پسر هستند .در بررسی های پاتولوژی سندرم نفروتیک مقاوم به درمان، FSGS با شیوع ۳۲.۴% بیشترین و MGN (۵.۶%)کمترین شیوع را دارد.۹۴.۴% این کودکان دارای ادم و۲۹.۶ % دارای هایپر لیپیدمی می باشند.۳۸% نیز دارای هایپرتانسیون می باشند هماچوری میکروسکوپی در ۴۹.۳% بیماران مشاهده می شود. متوسط سن شروع بیماری در این کودکان ۴.۷ سالگی و متوسط سن انجام بیوپسی ۶ سالگی می باشد.

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Electrolytes and Acid Base Disturbances Abstracts

Suitable intravenous fluid for preventing dysnatremia in children with gastroenteritis: a Randomized controlled trial

Hamidreza Badeli, Pediatrics growth disorder research center, 17 shahrivar hospital, school of medicine, Guilan university medical sciences, Rasht, Iran

Introduction: Selecting an appropriate volume and type of fluid in gastroenteritis, is the main constituent of patients' treatment. During recent decade, administration of hypotonic fluids to these children has been criticized by researches and there is no consensus on the ideal method of treatment. Therefore, we aimed to assess suitable intravenous fluid for preventing dysnatremia in children with gastroenteritis.
Methods: This is a double blind randomized clinical trial which was conducted on 6 months infants to 14 years children admitted in 17 Shahrivar Hospital. Children were randomly assigned by blocking in two different groups. Group A received 20cc/kg 0.9% Isotonic saline as a bolus as needed, and 0.45% hypotonic saline as

sum of maintenance fluid and volume deficit. Group B was treated with 20cc/kg 0.9% Isotonic saline as a bolus and 0.9% Isotonic saline with 20 meq/l kcl as sum of maintenance fluid and volume deficit. Blood and urine samples were taken at admission, 4 and 24 hours after commencing IV therapy.

Results: This study comprised of 75 patients. Baseline hyponatremia and isonatremia were detected in 24(31.5%) and 51(67.1%) patients, respectively. Also, in patients at T0 was noted Mean level of sodium between groups based on T0, T4 and T24 mentioned no significant difference. No hypernatremia was noted by administering isotonic saline. Results showed that after 4 and 24hours administering isotonic saline (group B), the mean plasma sodium differs significantly in baseline hyponatremic patients. However, no significant difference was noted after 4 and 24 hours administration of 0.45% hypotonic saline (group A).

Conclusion: According to considerable effect of isotonic saline on hyponatremic patients, it seems that administering isotonic fluids regardless of the types of dysnatremia can be recommended to lessen clinicians' conflicting decision making in selecting an appropriate fluid at the commence of treatment in patients with GE.

Life Treating Metabolic Alkalosis In Hemodialysis

Leila Ghaffari, Leila Moghise, Zahra Safar, Nakysa Hooman
Iran University of Medical Sciences

Bicarbonate hemodilaysis has progressively replaced acetat dialysiate for better compliance and less complication. We presented two adolescents on regular hemodialysis who accidentally developed sever life threatening metabolic alkalosis (PH:7.57, HCO3: 44.2), hypernatremia (Na:157), hypertension, and pulmonary edema . The patients presented with auditory hallucination, chest pain, paresthesia, dizziness and headache, myoclonus, as the same time in May 2014. The investigation made clear that providing acid hemodialysis concentration solution1 that is suitable for acetate HD instead of bicarbonated HD was the main problem. It contained high sodium level and acetate and 1 to 30 dilution by the B-Braun machine that did not alarm. By changing to acid hemodialysis concentration solution 2, the symptoms recovered and the blood gases and electrolytes corrected. Any change in the suppliesor devices of HD should be announced and consulted with HEMODIALYSIS–unit.

Correction of resistant hypernatremia by insertion percutanuous endoscopic gastrostomy in a child with central diabetes insipidus and central adipsia

Mahnaz Sadeghian, Nakysa Hooman
Ali-asghar children hospital, Iran University of Medical Sciences

Hereby we present a child with midfacial defect who had central diabetes. She admitted frequently for hypernatrmic dehydration episodes despite of intranasal desmopressin or oral Minirin. When she received fluid intravenously, the sodium level decreased to normal level but after starting per oral, hypernatremia occurred. With the diagnosis of the adipsia and central DI, the endoscopic percutanous gastrostomy inserted and mother encouraged to feed the calculated water deficit through PEG during 24 hours in addition to intranasal desmopressin. The sodium level remained in normal level since then. After 10 years follow up, she had normal height and no episodes of hypernatremia any more. In conclusion PEG is a good way to prevent hypernatremia episodes by prescribing extra necessary water through it.