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Effect of Grape Seed Extract on Apoptosis in Experimental Diabetic Nephropathy

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Introduction. Diabetes mellitus and its complications are a public health problem. Antioxidant Materials are frequently recommended in the type I and type II diabetes mellitus and can decrease oxidative stress. The purpose of this study was to investigate the effect of grape seed extract on apoptosis in diabetic nephropathy.

Methods. In this study, 56 twelve-week-old rats (200 to 300 gr) were selected and divided into two groups (case [treatment] and control). In these two groups, diabetes was induced by intraperitoneal injection of streptozocin (50 mg). The treatment groups were kept in normal conditions of food and place and treated by daily grape seed extract for 12 weeks. In control group, we had normal conditions (food and place). After 12 weeks, renal tissues were sampled in both groups and 5- to 6-micron tissue sections were prepared using H&E and TUNEL assay staining method.

Results. Histopathological analysis of tissue sections in both groups demonstrated that the deference of histopathological changes and apoptosis were significant $P < 0.005$.

Conclusion. We demonstrated that grape seed extract was able to reduce the oxidative stress and apoptotic changes. Also, grape seed extract improved diabetic nephropathy disease in patients resulting in the reduction of HbA1C, oxidative stress, hyperglycemia, VLDL, expression of apoptosis regulatory gene, and TGF- β , and increased insulin sensitivity, HSPG, HS, HDL, IGF, and EGF.

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Quality of Life in Chronic Iranian Hemodialysis Patients

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Introduction. Quality of life (QoL) is an important predictor of outcome in End-Stage Renal Disease (ESRD) patients. Therefore, QoL needs to be regularly assessed in this setting. Our study describes QoL, as well as demographic and clinical variables associated with QoL in chronic Iranian haemodialysis (HD) patients.

Methods. Prevalent chronic HD patients ($N = 970$;

mean age, 45.7 ± 12.6 years) in one dialysis centre from the twenty main regions of Iran were included in the study. All of them completed the Short-Form Health Survey (SF-36) and the Kidney Disease Quality of Life Questionnaire Short Form (KDQOL-SF).

Results. Mean physical component summary (PCS) score was 64.3 ± 19.2 and the mean mental component summary (MCS) score was 45.1 ± 19.3 . These figures were lower than those previously assessed in non-dialysis age-matched Iranian individuals. The mean kidney disease summary component (KDSC) score was 72.3 ± 11.3 , similar to other studies. The worst dimension of QoL was work, whereas the best ones were cognitive function and quality of social interaction. We found older age, female gender, lower socio-economic status, and higher level to be associated with lower QoL scores. **Conclusion.** The QoL of HD patients in Iran is lower than that in the general population. Our results suggest that at least one-third of these patients may be considered for rehabilitation therapy, in order to try and prevent complications and mortality.

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Incidence of Uric Acid Stones in Diabetics with Nephrolithiasis

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Introduction. Deficiency of amoniogenesis in diabetes results in decreased urinary PH and predisposition for renal stones. Increased incidence of uric acid stones has been reported in diabetic patients. We have studied the incidence of uric acid stones in diabetics with renal stones referring to Ghaem hospital in Mashhad during 2008-2009.

Methods. From 210 (137 male and 73 female) patients between 30-70 year-old (mean age of 44.9 ± 11.1) with renal stones. We studied 28 patients who had diabetes. Diabetes was considered if they had history of known diabetes or had FBS of \geq to 126 mg/dl in 2 occasions. These patients did not have history of receiving corticosteroids, vitamin D, calcium supplements and diuretics. We measured FBS, BUN, Creatinine, Uric acid, Ca, P, alkaline phosphatase, urine analysis, 24 hour urinary uric acid. We studied PTH in patients who had abnormal Ca in 2 occasions. All removed stones were analyzed.

Results. In diabetics the composition of stone was Calcium (50%), uric acid 46.4% and struvit 3.6%. In non diabetic patients composition of renal stone was calcium, 69.2%, uric acid 23.6% and struvit 7.1%.

Conclusion. Diabetes may be a risk factor for Uric acid stones.

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Effect of a Nutritional Educational Program on Quality of Life in Hemodialysis Patients

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Introduction. Patients on maintenance hemodialysis (MHD) experience decreased quality of life (QoL) and significantly greater rates of malnutrition, inflammation, hospitalization, and mortality compared with the normal population. The dietary approach in the different phases of (CRF) is one of the most important, and yet controversial, topics in the whole history of nephrology, when dialysis facilities were not yet easily available. Malnutrition has been cited as a possible contributory factor towards a poor prognosis in patients, and any suggestion of worse nutrition needs to be explored further. Nurses' role in patients' education about a proper diet is essential. While much progress has been made in recent years in recognizing the link between malnutrition, different disease, and increased mortality, no consensus has yet been reached concerning the best assessment and management of nutritional status in dialysis patients with many physical and psychological complications in Iran.

Methods. A total of 70 patients in the educational hospitals in Urmia were divided into two groups and requested to fill in the validated with the SF36 questionnaire QOL questionnaire. The SF36, a short-form QoL scoring system with 36 items consists of 36 questions that are compressed into eight multi-item scales: (1) physical functioning is a ten-question scale that captures abilities to deal with the physical requirement of life, such as attending to personal needs, walking, and flexibility; (2) role-physical is a four-item scale that evaluates the extent to which physical capabilities limit activity; (3) bodily pain is a two-item scale that evaluates the perceived amount of pain experienced during the previous 4 weeks and the extent to which that pain interfered with normal work activities; (4) general health is a five-item scale that evaluates general health in terms of personal perception; (5) vitality is a four-item scale that evaluates feelings of energy and fatigue; (6) social functioning (SF) is a two-item scale that evaluates the extent and amount of time, if any, that physical health or emotional problems interfered with family, friends, and other social interactions during the previous 4 weeks; (7) role-emotional (RE) is a three-item scale that evaluates the extent, if any, to which emotional factors interfere with work or other activities; and (8) mental health is a five-item scale that evaluates feelings principally of anxiety and depression.

Results. During the follow-up period, no patient died. A total of 35 questionnaires distributed to case control patients and 35 questionnaires distributed to

other patients. Nearly, two groups were similar in age, educational level, gender, and duration of dialysis treatment; 46.8% of the patients were female. The SF-36 total score was slightly higher in men compared with women, but this difference was not statistically significant ($P = 0.05$). Thirty-five patients were taught a diet for hemodialysis and 35 of them were not. There were differences between the two groups in terms of physical health or mental health dimensions. Results of the dimensions were better in the educated group. But, the difference between physical health ($t = 2.04$, $df = 34$, $P = 0.049$), work activities ($t = 2.04$, $df = 34$, $P = 0.049$), and quality of life was statistically significant ($t = 2.28$, $df = 1.96$, $P = 0.43$).

Conclusion. Because of the increased use of the SF36, it has become possible to compare mean scale scores among groups of patients undergoing dialysis and between different populations of individuals. QOL was nearly diminished in HD patients, but this amount was greater in the group that was not taught about their nutrition. Improvement could be achievable in patients if discomfort could be more effectively treated. One of the methods for this is education about their nutrition program. More research is needed to assess whether interventions improve quality of life and lower these risks among hemodialysis patients.

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Characteristics of Iranian Children with Persistent Hypertension

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Introduction. Hypertension (HTN) is defined as a blood pressure exceeding a threshold that separates individuals at risk for adverse outcomes. It is present in 3% to 5% of pediatric population and is frequently undiagnosed. There is increasing evidence that adult HTN has its antecedents during childhood, as childhood blood pressure (BP) predicts adult BP. The risk of developing left ventricular hypertrophy (LVH) and evidence of early development of atherosclerosis in children would make its detection and intervention important in childhood to reduce long-term health risks. The purpose of the study was to determine the etiology and clinical manifestation of Iranian children presented with sustained hypertension.

Methods. We reviewed the records of 64 children with newly diagnosed sustained HTN who were evaluated by our pediatric nephrology services between 1996 and 2008. Mean age at presentation was 8.5 years (range, 2.5 months to 16 years). All patients initially underwent urine analysis and culture, CBC, blood level of sodium, potassium, urea, creatinine, calcium, phosphorous, and abdominal sonography. A more extensive work up

including echocardiography, urine catecholamine level, plasma renin activity, dimercaptosuccinic acid (DMSA) or captopril scan, intravenous pyelography (IVP), renal biopsy, nuclear or voiding cystourethrography (VCUG), and renal angiography with renal vein renin sampling were performed whenever indicated. A diagnosis of primary hypertension was accepted only after a complete diagnostic evaluation was normal.

Results. There were 30 boys and 34 girls. Only 3 patients were obese (BMI > 25). Four patients had stage one hypertension, (blood pressure between 95th and 99th percentile plus 5 mmHg) and 60 patients (94%) had stage II hypertension (blood pressure above 99th percentile plus 5 mmHg). An underlying cause was found in 94% of the patients and 4 were accepted to have essential hypertension. Thirty-nine patients presented with a hypertensive emergency. In 14 patients, life threatening complications were the first presentations of HTN (22%). Twenty-two percent of all patients with stage II HTN were completely asymptomatic. Symptoms related to HTN were found in 57% of the patients with emergent HTN. Renal parenchymal disease was the most common cause of HTN in all age groups (70%). Reflux nephropathy was the most common subtype of parenchymal disease. Other causes were renovascular disease (12.5%), congenital kidney anomalies (6.3%), hypertensive type congenital adrenal hyperplasia (3.1%), and Wilms tumor (1.6%). In 36 patients with available echocardiogram findings, only 6 (17%) had completely normal echocardiogram and 78% had some degrees of left ventricular hypertrophy.

Conclusion. Our study identified a high prevalence of symptom-free children with severe HTN. It seems that due to importance of HTN and high risk of its complications, measurement of BP among asymptomatic children may be useful and should be considered.

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Inflammation and Bone Mineral Density in Hemodialysis Patients

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Introduction. Chronic kidney disease changes both the quality and quantity of bone through multifactor influences on bone metabolism, leading to increased risk of fractures. However, some other factors such as age, sex and probably nutritional and inflammatory factors may have impact in this process. We performed this study to evaluate role of these factors in hemodialysis patients.

Methods. The study was performed on 61 hemodialysis patients who were divided into two groups according to age (group1: 26 patients older than 60 years, group 2: 35 patients 60 years old or younger) and according to sex (27 females, 34 males). Dual energy X Ray

absorptiometry was used to measure bone mineral density (BMD) in the femoral neck (N) and lumbar spine (L2-L4). Clinical parameters such as serum PTH, Ca, P, Albumin, triglyceride, cholesterol, Alk-p, 2 microglobulin, and CRP were measured simultaneously.

Results. There was a significant difference for BMD in femoral neck (N) between the 2 groups (group 1: 0.695 0.093 gr/cm²), group 2; (0.796 0.127 gr/cm²; $P < 0.0011$) and T score [group 1: -2.32 (range, -3.37 to -0.21), group 2: -1.01 (range, -3.1 to -1.83)]. There was not any significant difference in serum albumin between the 2 groups but mean level of CRP was significantly higher in older patients. Body mass index and mean serum Ca, triglyceride, and cholesterol level were lower in group 1. After adjustment of the results by sex, female patients had lower BMD in N and lumbar spine. [N (female, 0.668 0.129 gr/cm²; male, 0.793 0.133 gr/cm²; $P < 0.005$), L2-L4 (female, 0.990 0.120 gr/cm²; male, 0.990 0.123 gr/cm²; $P = 0.000$].

Conclusion. We conclude that although nutritional status, age, sex, and duration of dialysis are important factors for BMD level, inflammation is also an important factor which influences on bone loss in hemodialysis patients.

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Comparison of Parathyroid Glands Sonographic Findings and Serum Levels of Parathormone and Alkaline Phosphatase in Patients on Chronic Hemodialysis

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Introduction. Secondary hyperparathyroidism and renal osteodystrophy due to hemodialysis treatment for renal failure are relatively common diseases and have a key role in disability of chronic renal failure patients. Prevention, early diagnosis, and treatment of hyperparathyroidism can result in better outcomes. There are some methods for diagnosis of this complication but it seems that high resolution sonography of parathyroid glands is more helpful in management of the patients on chronic hemodialysis.

Methods. In this cross-sectional study, high resolution sonography (14MHz) of parathyroid glands was performed in 91 patients who were under hemodialysis. Level of serum PTH (parathormone), alkaline phosphatase, calcium, and phosphorus were compared to sonographic findings. Data analysis was carried out using SPSS software and statistical tests of Chi-Square and non-paired *t* test.

Results. A total of 40(43.9%) patients showed enlargement of parathyroid glands. There was a significant relationship between serum level of alkaline phosphatase ($P = 0.01$) and iPTH ($P < 0.0001$) and sonographic findings. Sensitivity

and specificity of sonography in our study was 87.5% and 58.8%, respectively.

Conclusion. Our results show that high resolution sonography is rapid, noninvasive, and more helpful for early diagnosis of secondary hyperparathyroidism.

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Impact of Troponin I Levels and Left Ventricular Hypertrophy on Long Term Risk of Mortality in Patients on Hemodialysis

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Introduction. Some studies reveal that the patients suffering from chronic renal failure have elevated serum levels of cardiac markers and enzymes. But, the impact of the elevation in the cardiac markers and enzymes on increased risk of all cause mortality in end stage renal disease patients on hemodialysis is unclear. We elevated the relationship between elevation in the cardiac troponin I and mortality in the patients undergoing hemodialysis. We also investigated the association between mortality risk and left ventricular mass index.

Methods. This study was carried out on 85 patients who were on hemodialysis. Serum levels of troponin I were measured and left ventricular hypertrophy was determined using of echocardiography. The patients were followed for 4 years until date of death. We evaluated the relationship between LVH, troponin I, and mortality in the patients. For data analysis, we used SPSS software.

Results. A total of 37 (43.5 %) patients died during the follow-up period. The mean level of troponin I in alive and dead patients was 0.77 ± 0.58 and 0.92 ± 0.65 , respectively. There was not a significant relation between troponin I and mortality of the patients ($P = 0.3$). Mean left ventricular mass index in alive and dead patients was 236 ± 67.9 and 296.7 ± 98.6 , respectively. There was a significant relationship between left ventricular mass index and mortality ($P = 0.0$).

Conclusion. We conclude that left ventricular hypertrophy has important role in increased risk of mortality in ESRD patients on hemodialysis. But, our study reveals that elevation of troponin I does not associate with mortality risk in this patients.

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Hemodialysis With and Without Ultrafiltration on Spirometry Parameters

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Introduction. Patients with end stage renal disease (ESRD) maintained on either hemodialysis (HD) or peritoneal dialysis (PD) frequently have respiratory complications. We conducted this study to compare the effect of HD with and without ultrafiltration (UF) on pulmonary function tests.

Methods. In a cross-sectional study performed in ESRD patients on maintenance HD, spirometry was done before and after the dialysis session. HD was performed for 3 to 4 hours, using semi-synthetic or synthetic dialyzer membranes, and the bicarbonate-based dialysate. Blood flow rate, dialysate flow rate and UF rate were 250 to 400 ml/min, 500 ml/min, and zero or 1 to 3 liters, respectively. Alterations in spirometry parameters including forced expiratory volume in the first second (FEV1), forced vital capacity (FVC), and maximal midexpiratory flow rate (MMEF) were determined and their relation with UF rate were analyzed.

Results. A total of 160 HD patients (112 men and 48 women with median age of 52.26 years), were included in the study. Eighty-six patients undergoing conventional HD without UF and 74 patients on HD with UF were compared. In both groups after dialysis, there were a significant increase in FEV1 (both groups, $P = 0.000$), FVC (group 1, $P = 0.000$ and group 2, $P = 0.000$), and MMEF (group 1, $P = 0.02$ and group 2, $P = 0.000$). But the average rate of increment in FEV1 and FVC were more in patients undergoing HD without UF (FEV1, $P = 0.04$ and FVC, $P = 0.001$).

Conclusion. HD with and without UF causes significant increase in spirometry parameters but these increments are much more in patients undergoing HD without UF.

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Arterio-Venous Fistula Recirculation in Hemodialysis: Causes and Prevalence

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Introduction. The measurement of arterio-venous (A-V) fistula recirculation has important diagnostic implications because the efficiency of hemodialysis (HD) may be limited, resulting in dialysis delivery being less than that prescribed. The purpose of the study is to determine its prevalence and causes in our HD patients.

Methods. We randomly selected 100 HD patients with A-V fistula that were on dialysis more than 3 months.

Urea reduction ratio (URR) and kt/v were calculated for them; if URR was less than 40% or kt/v was less than 1.2, degree of recirculation was also measured with urea based two needle technique method. For each patient, distances between arterial and venous and distances of needles from fistula and its directions were also recorded. Echocardiography and A-V fistula color Doppler ultrasound were also performed.

Results. Blood flow rate and dialysate flow rate were 250 to 350 ml/min and 500 ml/min, respectively. The prevalence of A-V fistula recirculation (more than 10%) was 32% (32 patients). Average degree of recirculation between these patients was 19.67%. The most common cause was misplacement and or misdirection of needles (28 patients). The second cause was heart failure with ejection fraction more than 40% (8 patients), and the third cause was decrease of flow in the fistula because of stenosis (2 patients). No difference was seen between diabetic versus non diabetic ($P = 0.28$) and hypertensive versus normotensive ($P = 0.21$) HD patients.

Conclusion. A-V fistula recirculation is a common cause of inadequate HD and the most common cause of recirculation is misplacement and or misdirection of needles; thus, we should have more emphasis on education and training of HD staffs.

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Comparison of Temporary Dialysis Catheter and A-V Fistula Use at the Time of Starting Chronic Hemodialysis

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Introduction. The preferred type of access for chronic hemodialysis (HD) is a native fistula. However, for few years ago, in our country, most of the ESRD patients had not a mature fistula at the time of starting renal replacement therapy due to late referral of the patients to the nephrologists; thus, the manager physicians has to use temporary catheters with high rate of complications.

Methods. In a retrospective study, we determined and compared the prevalence of double lumen non-cuffed, non-tunneled catheters or arterio-venous (A-V) fistula use at the time of starting chronic HD between November 1995 and June 2008. We have divided our patients into three different groups. Group A (patients who accepted chronic HD between 1995 and 2004), group B (patients who accepted chronic HD between 2004 and 2006), and group C (patients who accepted chronic HD after 2006).

Results. A total of 473 ESRD patients (288 males, 185 females with mean age of 55.8 ± 16.4 years) were included in the study. Causes of ESRD were HTN (34.1%), DM

(25.4%), glomeronephritis (9.72%), obstructive uropathy (8.46%), ADPKD (5.94%), and unknown (16.21%). In overall, the prevalence of double lumen non-cuffed, non-tunneled catheters and A-V fistula use at the time of initiation of chronic HD were 86.5% and 13.5%. But, they were 93.6% and 6.4%, 85.0% and 15.0%, and 67.5% and 32.0% in groups A, B, and C, respectively. There was a significant increase in A-V fistula use at the time of starting chronic HD after 2004 ($P = 0.00$) and especially after 2006 ($P = 0.000$).

Conclusion. We conclude that although there was an increment in the A-V fistula use, it is not still enough and general physicians, nurses, and chronic kidney disease patients have to be educated about the benefits of early A-V fistula creation.

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Comparing the Effect of Clonazepam and Zolpidem on Sleep Quality of Patients on Maintenance Hemodialysis

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Introduction. Sleep disorders are very common problems in maintenance hemodialysis patients (MHP). Poor sleep quality has negative impact on patients' quality of life. Benzodiazepines have been used widely in HD patients who suffer sleep disorders; however, their potential to induce physical dependence remains a matter of concern. Non-benzodiazepine drugs such as zaleplon and zolpidem have been used as hypnotic agents without inducing physical dependence. Zaleplon has been administered in some European HD patients with insomnia and has shown positive effect on the sleep quality according to Pittsburgh questionnaire. Zolpidem, another non-benzodiazepine hypnotic medication is available in generic form in Iran. This study was designed to compare the effect of zolpidem on sleep quality of MHD patients with routinely administered benzodiazepine, clonazepam, in Iran.

Methods. During a double-blind, cross-over clinical trial on 16 MHD patients in Imam-Khomeini hospital between February 2009 and May 2009, sleep quality was assessed according to validated Iranian version of Pittsburgh questionnaire at baseline, after 2-weeks washout period of any previously administered sedative/hypnotic agents, after 2-weeks of zolpidem, and clonazepam with 3-4 nights wash out period between crossing process.

Results. The findings of this study showed that both

drugs significantly improved sleep quality in MHD patients and after excluding period effect, clonazepam significantly improved sleep quality more than zolpidem. **Conclusion.** According to the results of this study, clonazepam improves sleep quality more than zolpidem in MHD patients.

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Evaluation of Classic and Tunneled Methods for Hemodialysis Venous Catheter Placement

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Introduction. Venous catheter is one the best and fastest ways to reach the blood flow. Disadvantages of insertion of the catheter include early and late complications. In this study, we compared these complications using classic and tunneled methods.

Methods. In a prospective study in 2008 in Al Zahra hospital, we compared frequency of catheter-related complications within 24 hours and one month in 60 hemodialysis patients. Patients were randomized into 2 groups; in the first group, the catheter was placed via classic method and in the second group, tunneled method was used. Finally, data was analyzed using SPSS15 software.

Results. Mean duration of catheter remaining was significantly higher in tunneled group in comparison with classic group ($P < 0.0001$). Frequency of early complications in 2 groups showed no significant difference ($P > 0.05$). The frequency of thrombosis was not significantly different between the two groups ($P = 0.093$), but frequency of infection and catheter failure was less in tunneled group ($P < 0.0001$).

Conclusion. Tunneled catheterization is an effective and safe method for hemodialysis patients.

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Efficacy and Complication of Temporary and Permanent Central Venous Catheter in Patients with Renal Failure

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Introduction. Today, the use of temporary or permanent

venous catheters in patients with renal failure has been increased. Thus, being familiar with their clinical applications and complications is essential. The aim of this study was to evaluate the complications and effectiveness of temporary and permanent venous catheters.

Methods. This was a prospective study conducted in Al- Zahra hospital between 2006 and 2008. Patients with renal failure who were candidates for placement of both permanent and temporary central venous catheters were evaluated for early and delayed complications just after placement, one week, and four weeks, afterward. Data was analyzed by SPSS 16 using chi-square test and a P values less than 0.05 was considered significant.

Results. A total of 114 patients with temporary and 129 patients with permanent catheters were participated in this study. Majority of the complications in temporary catheter group included infection (15.3 %) and bleeding (5.4 %). In permanent catheter group, the most frequent complications were infection (12.6 %) and venous thrombosis (13.6 %). Venous thrombosis rate in temporary catheter group was significantly lower than permanent catheter group ($P < 0.01$). Catheter malfunction in temporary catheter group was 23.4 % and in permanent catheter group was 6.4 % ($P < 0.001$).

Conclusion. Permanent catheter has prolonged and better function in comparison with temporary catheter. Thus, permanent catheters are the first and the best method of central venous catheterizing for hemodialysis; but, in patients that have proper indication for arterio-venous fistula (AVF) until maturation of AVF, temporary catheter is preferred because of lower rates of venous thrombosis.

P215

Oral Vitamin C and Fatigue in Hemodialysis Patients

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Introduction. Fatigue is a debilitating symptom experienced by many patients on dialysis therapy. Fatigue has considerable effect on quality of life in these patients. The purpose of this study was to determine the effect of vitamin C on fatigue in these patients.

Methods. We investigated 55 hemodialytic patients who complained of fatigue and had been admitted at Emam-Reza and Bessat hospitals between 2008 and 2009. The inclusion criteria were oriented patients diagnosed with ESRD who received regular hemodialysis treatment for at least 6 months, aged 18 years or older, and had no other systemic disease causing or increasing fatigue such as CHD, MR, and cancer. The patients were excluded when adverse effects of vitamin C occurred. The patients were randomly chosen and equally assigned into case

and control groups. Case group members received 250 mg oral vitamin C three times a week for two months. Patients filled fatigue severity questionnaires before and after our intervention. The results were statistically analyzed using *t* test.

Results. The fatigue score of the patients in the case group before and after our intervention was 5.26 and 3.96, while in the control group, these numbers were 5.15 and 5.03, respectively. The results show a statistical significance in decrease of fatigue score ($P < 0.05$) using vitamin C.

Conclusion. We think that oral vitamin C is helpful in the hemodialytic ESRD patients who complain of fatigue.

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Prevalence of Malnutrition and Relationship with Inflammatory Response in Hemodialysis Patients

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Introduction. Malnutrition is a common problem in ESRD patients on chronic hemodialysis. Inflammatory response in these patients may aggravate malnutrition and its complications. In this study, we evaluated malnutrition and inflammation and their relationship in these patients.

Methods. We evaluated inflammatory indexes such as ESR, CRP, serum albumin level, and ferritin in addition to nutritional indices such as BMI, and body fat percentage in 90 ESRD patients on chronic hemodialysis in Golestan Hospital, Ahvaz, Iran.

Results. Mean age was 50.2 ± 12 years and male to female ratio was 1.14. Serum albumin level decreased in 40% and ESR increased in 74.4% of the patients that indicated an inflammatory response in our patients. BMI was less than 20 in 84.4% and malnutrition was reported in 31.5% based on body fat percentage. Inflammation and malnutrition were more severe in women. There was a significant reverse correlation between inflammation and nutritional indexes.

Conclusion. Malnutrition and inflammation are two coexisting and synergic phenomena in ESRD patients on chronic hemodialysis.

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Microalbuminuria and Hypertension after Pregnancy Complicated by Pre-Eclampsia in Iranian Women

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Introduction. Pre-eclampsia is a part of a spectrum of conditions known as the hypertensive disorders of pregnancy. Despite its frequent occurrence, relatively little research has been conducted about the long-term effects of pre-eclampsia in Iranian women. In view of these associations, we investigated whether Iranian women with past pre-eclampsia had a higher rate of either hypertension or microalbuminuria.

Methods. A total of 35 Iranian women with past history of pre-eclampsia and 35 women matched for year of delivery and age, who did not have a history of past pre-eclampsia were evaluated. Urinary albumin excretion rate, blood pressure, and renal function indices were assessed 5 years after delivery.

Results. A total of 28.57% of cases were hypertensive at follow-up compared to 2.9% in the control group ($P = 0.003$). Relative risk for hypertension occurrence after pre-eclampsia was 9.86. Microalbuminuria or proteinuria occurred in 25.74% of women with past pre-eclampsia and none of the controls. Relative risk for hypertension occurrence after pre-eclampsia was 5.65.

Conclusion. We conclude that Iranian women with past pre-eclampsia are at increased risk of developing chronic hypertension and microalbuminuria.

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Effect of L-Carnitine on Albumin in Hemodialysis Patient

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Introduction. It has been suggested that albumin concentration, a marker of malnutrition-inflammation complex syndrome, decreased in approximately half of all hemodialysis (HD) patients in the United States and strongly associated with increased mortality. Intravenous L-carnitine supplementation is expected to improve the level of plasma albumin in HD patients. This study was done to evaluate the effect of oral L-carnitine supplementation on albumin in HD patients.

Methods. In a double-blind, placebo-controlled multicenter study, 51 HD patients were randomly assigned into three groups to receive oral L-carnitine with the dose of 750 mg/day (16 patients), placebo (17 patients), or nothing (in control group; 18 patients) for 6 months. Albumin was checked at base, and each month for 6 months by standard methods. Patients were followed for side effects. The results were analyzed by

SPSS version 17.

Results. Mean age of the patients (26 men and 25 women) was 54 ± 17 years. The patients were on HD treatment for 37 ± 33 months. Twelve (23.5%) patients were diabetic; 20 (39%) had cardiovascular disease; and 7 (13.7%) suffered from other problems (urologic, glomerulonephritis, polycystic kidney disease). Albumin concentration at the start of the study was 3.87 ± 0.26 in carnitine group, 3.88 ± 0.35 in placebo group, and 3.96 ± 0.45 in the control group. Patients were followed for a mean of 5 ± 1 months. Baseline characteristics, albumin, and follow-up were not different in the three groups ($P > 0.05$). At the end of the study, albumin concentration was 4.39 ± 0.54 in the carnitine group, 4.44 ± 0.78 in the placebo group, and 3.84 ± 0.45 in the control group. By Repeated GLM, changes in albumin during 6 months was not different between the 3 groups ($P = 0.47$). Two cases of nausea and 1 case of diarrhea were reported in the carnitine group; 1 case of nausea, 2 cases of diarrhea, and 1 case of decrease in minimal status were reported in the placebo group. No significant increased side effects were reported in the carnitine group ($P > 0.05$). **Conclusion.** Administration of oral dose of 750 mg/day L-carnitine for six month cannot improve albumin more than placebo. Side effects were not increased in the carnitine group. More studies with higher doses of oral carnitine are suggested.

P219

Femorofemoral and Axillofemoral Arteriovenous Shunt Prostheses in Hemodialysis

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Introduction. Expanded polytetrafluoroethylene (ePTFE) is indicated of arterial vasoconstriction, primarily in the peripheral vascular region. It can also be used in extra-anatomical reconstructions, femorofemoral and axillofemoral. These grafts are also indicated for use as arteriovenous shunt prostheses in hemodialysis. This study was done to compare the outcome and complications of femorofemoral and axillofemoral arteriovenous shunt.

Methods. In a retrospective cohort study, we identified the records of all cases with ePTFE between Feb 2006 and February 2009. Patients were followed by phone calls and asked about the patency and complication of their prostheses.

Results. A total of 69 records of grafts were found. Forty-nine records had successful follow-up (18 femorofemoral and 31 axillofemoral grafts). Mean age of the patients was 62 ± 12 years. Immediate primary patency was 100%. Primary and secondary patency was not different

between femorofemoral and axillofemoral arteriovenous shunt prostheses groups ($P > 0.05$). Complications included bleeding, a puncture-site hematoma, thrombosis, infection, elevated venous pressure, need for excision, aneurysm and graft removal. In each group, we observed different percentages of occurrence of these complications. **Conclusion.** We found that the femorofemoral and axillofemoral arteriovenous shunt prostheses for hemodialysis access have equivalent patency rate. But the rate of complications was meaningful. These complications must be attended during different situations and for different patients.

P220

Effects of Oral L-Carnitine on the Cardiac Abnormalities of Chronic Hemodialysis Patients

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Introduction. Cardiac dysfunction still remains the major cause of mortality and morbidity in hemodialysis (HD) patients. Although controversial, the pathogenesis of cardiac morbidities and left ventricle dysfunction in HD patients has been attributed to the deficiency of L-carnitine. The aim of this study was to evaluate the effects of exogenous L-carnitine supplementation on the cardiac signs and symptoms in the long-term hemodialysis patients.

Methods. In a prospective study, 12 patients with ESRD and on chronic hemodialysis were randomly selected. The patients on hemodialysis were placed on L-Carnitine 500 mg/day orally for a period of 6 months while continuing their hemodialysis. The patients were examined for the cardiac symptoms and signs, echocardiographic parameters, hematocrit, and hemoglobin before carnitine administration, and monthly thereafter up to 6 months.

Results. Five out of 12 patients had congestive heart failure with functional class (FC) III that improved to FC II, I, and asymptomatic state after the therapy. Four out of 5 patients with congestive heart failure had paroxysmal nocturnal orthopnea that was disappeared after the therapy. Eight patients had LVEF less than 60% before the study (mean LVEF of $43.75 \pm 9.54\%$) that increased to $54.75 \pm 8.56\%$ at 6 months ($P < 0.05$). Left ventricular end-diastolic volume (EDV) was 112.7 ± 40.04 and at baseline and 6 months, respectively ($P > 0.05$). The left ventricular (LV) mass was 248.5 ± 63.6 and 256.0 ± 49.8 grams at 0 and 6 months ($P > 0.05$).

The mean hemoglobin was 8.78 ± 0.52 g/dl before the study that increased to 9.93 ± 0.44 g/dl after 3 months of L-carnitine administration ($P = 0.002$). The mean hematocrit was $25.79 \pm 1.42\%$ and $30.33 \pm 1.43\%$ at 0 and 3 months of L-carnitine supplementation, respectively ($P = 0.007$).

Conclusion. In conclusion, L-carnitine supplementation may improve subjective and objective manifestation of cardiac dysfunction in chronic HD patients without significant changes in EDV and LV mass.

P221

The Efficacy of Omega-3 on Pruritus in Hemodialysis Patients

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Introduction. Pruritus is a common and disabling symptom in end stage renal disease patients. The prevalence of pruritus is near 60%. There is not any effective treatment for pruritus. Drugs such as naltrexon, ketotifean, chromolyn sodium, antihistamins, and gabapentin were used for uremic pruritus but the results were controversial. In this study, we evaluated the efficacy of Omega-3 on pruritus in hemodialysis patients.

Methods. A randomized, single-blind, placebo-controlled study in 4 hemodialysis centers in Tehran (Shohada, chamran, labafinejad, Talegani hospitals in 1386-87 was designed. 22 hemodialysis patients with resistant pruritus were selected and divided in two groups [Omega-3_ placebo(A) and placebo-Omega-3(B)]. Treatment with Omega-3 caps (1 gr per 8 hours, for 20days) and after 14 days washing out period, with placebo for 20days and reversely were done. Pruritus assessment was performed with quantitative detailed pruritus score. The results were analysed by paired-test (manna-whitney U) and Hotellings T-square.

Results. Twenty-two patients completed the study. During the Omega-3 period, the mean pruritus scores decreased by 65% from 20.3 (95% confidence interval CI: 16.7 to 23.8) to 6.4 (95% CI: 2.9-9.8) and during the placebo pruritus decreased by 15% from 17.0 (95% CI: 12.4-21.6) to 14.4 (95% CI: 10.5-18.2; $P = 0.0001$).

Conclusion. Omega-3 is more effective than placebo in decreasing uremic pruritus and could be considered as a new effective and safe alternative treatment for uremic pruritus.

P222

Association of Hyperuricemia and Albuminuria in Patients with Type 2 Diabetes Mellitus

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Introduction. It has been stated that hyperuricemia is an independent risk factor for renal dysfunction in diabetic patients and albuminuria is considered as early stages of diabetic nephropathy. We tried to find a correlation between hyperuricemia and albuminuria in patients with diabetes mellitus.

Methods. In this cross-sectional study, 1275 patients (555 males and 720 females) with type 2 diabetes mellitus were recruited. Serum uric acid and daily urinary albumin secretion rate were determined. Other metabolic parameters such as lipid profile, kidney function (GFR), body mass index (BMI), blood pressure, and blood sugar were also assessed.

Results. Mean age of the patients was 52.45 ± 10.11 years. Serum uric acid levels for normo-albuminuric, micro-albuminuric, and macroalbuminuric patients were 4.49 ± 1.22 mg/dl, and 4.84 ± 1.52 mg/dl, and 6.15 ± 1.68 mg/dl, respectively. In patients with clinical metabolic syndrome, 27.5% (233) were in the fourth quartile of uric acid level (> 5.3 mg/dl); but in diabetic patients without these syndromes, only 80 (18.7%) were in this group. Although there was significant relation between hyperuricemia and triglyceride, GFR, blood sugar, BMI, blood pressure and age ($P < 0.05$), we did not find a significant relation between hyperuricemia and cholesterol, and duration of diabetes mellitus in these patients ($P > 0.05$).

Conclusion. Higher serum uric acid concentration is associated with greater probability of metabolic syndrome and especially albuminuria in patients with diabetes mellitus type 2.

P223

Asymptomatic Intra-Dialytic Hypotension and Occurrence of Regional Left Ventricular Dysfunction In Patients Undergoing Standard Hemodialysis

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Introduction. Cardiac failure and cardiovascular death are common events in dialysis patients. Recurrent subclinical myocardial ischemia is important in development of heart failure in nondialysis patients. We examined whether this phenomenon occurs in response to the stress of hemodialysis (HD).

Methods. Twelve long-term HD patients prone to IDH, that had been on dialysis therapy for more than 12 months and concordantly 15 chronic hemodialyzed

patients with no history of intradialytic hypotension were entered in this study. Echocardiographic images were recorded before starting dialysis (baseline), at 60 and 120 minutes after beginning of the dialysis (climax), and 30 minutes after the dialysis had finished (recovery). We calculated left ventricular end diastolic and systolic diameter, fractional shortening (FS), LV ejection fraction (EF), and regional wall motion abnormality score and index in all patients in 4 hemodialysis phases.

Results. Our results show that in patients with intradialysis hypotension, regional wall motion abnormality precedes reduction in ejection fraction and fractional shortening, but reduction in systolic blood pressure and increment in regional wall motion abnormality move hand in hand.

Conclusion. In conclusion, this study shows that reversible myocardial dysfunction occurs during dialysis. Potentially, this could be a mechanism contributing to intra-dialytic hypotension. We also showed the occurrence of regional wall motion abnormality was significantly less in normotensive patients suggesting that this phenomenon may be a target for intervention.

P224

Arterial Dysfunction as an Early Marker for Cardio-Renal Risk in Diabetic and Non-Diabetic Outpatients; A New Perspective

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Introduction. Impaired renal function not only shares many risk factors with cardiovascular (CV) diseases, but is also an established CV risk per se. Therefore, risk management and control of nephropathy, particularly in diabetes mellitus (DM) should also lead to CV benefits. Although microalbuminuria (mA) is a known cardio-renal risk marker in DM, its limitations have been accepted and additional (preferably earlier) markers require investigation.

Methods. In an outpatient referral setting, 203 patients including 100 DM (mean age, 59 years) with a wide range of renal function (normal to GFR \geq 15), were evaluated for metabolic risk factors, anemia, arterial compliance as well as mA.

Results. Hemoglobin, aortic pulse pressure (PP), and carotid-femoral pulse wave velocity (CF-PWV) increased and the pulse reflection time (rTR), ejection duration (ED), and PP amplification decreased with decline in eGFR, both in DM and non-diabetics (NDM) with a stepwise trend. CF-PWV (but not augmentation index) was greater in DM patients with every given level of eGFR, even in normoalbuminuric (nA) DM with eGFR > 80. While a modest association of albuminuria with

arterial stiffness and renal function was observed mainly with eGFR < 80, 42% of the patients with eGFR < 60 were nA. Age, anemia, arterial stiffness, and albuminuria were common determinants of renal function in DM and NDM patients. Meanwhile, male gender, hypertriglyceridemia, HbA1c, low DBP, and reduced ED had also important impact on eGFR in DM.

Conclusion. A multifactorial approach combining mA with other markers including arterial stiffness, estimated central BP measurements, anemia, and dyslipidemia as well as cardiovascular function may enhance the value of risk estimation in earlier stages of CKD in DM and non-DM patients. However, a combination of techniques is required for a valid arterial function assessment.

P225

Kidney Transplantation in Patients with Augmentation Cystoplasty: Early- and Long-Term Results

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Introduction. Low compliance, high pressure bladder is unsuitable for renal transplantation (RTX). Thus, augmentation cystoplasty is recommended for these cases before or after renal transplantation. In this study, we assessed the early- and long-term results of kidney transplantation in recipients with augmentation cystoplasty.

Methods. During 18 years (between 1989 and 2007), 1350 renal transplantations were performed in our center. Twenty-one cases of these recipients underwent augmentation cystoplasty, 3 to 6 months before renal transplantation due to low compliance, high pressure bladder (median age, 14 years [range, 6 to 35 years]). The etiologies of bladder dysfunction included neurogenic bladder (15 cases), posterior urethral valve (4 cases), and contracted bladder due to tuberculosis (2 cases). For augmentation, detubularized ileal segment was used in 14 cases (in 5 boys we transferred appendix as metriganoff procedure) and detubularized one or both ureters were used in 7 cases. We evaluated early and late complications after RTX and graft and patient survival rates in cases that had undergone augmentation cystoplasty.

Results. Mean follow-up period was 108 months (range, 12 to 216 months). All patients were continent and 9 cases (40%) were re-admitted within the first year after RTX due to urosepsis. Rupture of augmented bladder in one case and bladder stone in another case were recorded. One paraplegic case with functioning graft died due to urosepsis and chronic rejection was the causes of graft loss in 4 cases. Thus, the patient and graft survival in 1, 3, and 5 years after RTX was 100%, 93%, 95%, 89%, 95%, 82%, respectively.

Conclusion. Augmentation cystoplasty before renal transplantation is a safe and effective procedure for restoring lower urinary tract in recipients. Although the patient and graft survival is acceptable, there is a high incidence of urosepsis and therefore, meticulous observation is needed.

P226

Erectile Dysfunction among Hemodialysis Patients

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Introduction. Erectile dysfunction(ED) is a distressing problem in hemodialysis patients. A combination of organic and psychological factors has been reported to take part in the pathophysiology of this condition. The aim of this study was to determine the prevalence of sexual dysfunction among hemodialysis patients.

Methods. Between November 2008 and January 2009, a total of 59 male patients who had undergone hemodialysis therapy in Jahrom and Fasa medical centers, were entered in the study. The IIEF questionnaire was filled by the patients. We used the IIEF questionnaire to determine the sexual problems and the prevalence of erectile dysfunction in male hemodialysis patients. We used translated (Persian) version of the IIEF questionnaire, which had been modified according to the validation tests. Chi-square test (Monte Carlo test) was used for analyzing the data. *P* value less than 0.05 was considered significant.

Results. The mean hemodialysis patients' age was 54.73 ± 14.08 years (range, 23 to 78 years) and the duration of hemodialysis was 16.03 ± 15.66 months. Using IIEF, the prevalence of erectile dysfunction(ED) of any degree was 86.6%. The prevalence and the severity of ED showed significant increase as the age increased ($P < 0.05$).

Conclusion. Erectile dysfunction is highly prevalent in hemodialysis patients. The prevalence and the severity of ED increased with age. Evaluations and efficient therapy for ED should be included in routine assessment of hemodialysis patients.

P227

Comparison of Hepatitis C Virus Genotypes in Kidney Transplanted and Hemodialysis Patients with Non-Uremic HCV Infected Patients

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Introduction. Prevalence of Hepatitis C Virus (HCV) infection in dialysis patients is very high. The aim of this study was to compare the frequency of HCV genotypes and associated risk factors in kidney transplanted and hemodialysis patients with non-uremic HCV infected patients. This is an important predictive factor for clinical outcome of HCV infection and its response to anti-viral therapeutic agents.

Methods. A total of 96 patients with HCV infection in Imam Khomeini, Fatemeh Zahra, and Valiasr Hospital Sari were studied in 2007; 48 patients in case group were treated by hemodialysis and kidney transplantation and 48 of them were non-uremic HCV positive patients at 4 dialysis centers. In both groups, HCV infection was confirmed by Reverse Transcription-Polymerase Chain Reaction (RT-PCR) and HCV genotyping was performed using type specific primer and probe after hybridization with amplified sample material.

Results. The HCV genotypes depicted were 1(1 patient, 0.9%), 1a (17 patients, 15%), 1b (1 patient, 9%), 1c (0 patient, 0%), 3a (44 patients, 38.9%), 1a+1b (49 patients, 43.4%), and unclassified type (4 patients, 1.9%). The present study revealed that HCV genotype 1a+1b in uremic patients is the predominant one. There was no significant association between HCV genotypes and demographic or clinical features of the patients.

Conclusion. The data indicated that there was significant difference between the HCV genotypes in kidney transplanted and hemodialysis patients and non-uremic HCV infected patients ($P < 0.05$).

P228

Elevated Serum C-Reactive Protein Level and Microalbuminuria in Patients with Type 2 Diabetes Mellitus

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Introduction. Microalbuminuria is a marker of vascular endothelial damage. In addition, it is reported that high serum levels of C-reactive protein (CRP) is a novel cardiovascular risk factor that impairs endothelial function. The aim of this study was to evaluate the relationship between microalbuminuria and elevated serum level of high-sensitivity CRP (HS-CRP) in type 2 diabetic patients.

Methods. We measured serum levels of HS-CRP in 87 patients with type 2 diabetes mellitus. They were divided into a microalbuminuric group ($n = 45$) and those with a 24-hour urine albumin less than 30 mg/d ($n = 42$). The relationship of serum HS-CRP level with albuminuria and other characteristics of the patients were assessed.

Results. Patients with microalbuminuria were significantly older and affected by diabetes mellitus longer than those without microalbuminuria. Also,

their mean HS-CRP was significantly higher (4.98 ± 1.45 mg/L versus 2.82 ± 2.10 mg/L; $P < .001$). The Pearson correlation test showed a significant correlation between HS-CRP level and urine albumin level ($r = 0.43$; $P < .001$). The specificity and sensitivity of HS-CRP for detection of microalbuminuria were 78.5% and 68.8%, respectively, and the positive and negative predictive values were 77.5% and 70.2%, respectively.

Conclusion. In type 2 diabetic patients, microalbuminuria is accompanied by elevated HS-CRP, suggesting activation of inflammatory pathways in progression of renal and cardiovascular atherosclerotic disease. As an easier and cheaper test for assessment of diabetic nephropathy, we recommend further studies on HS-CRP in diabetic patients.

P229

Oral Calcitriol and Glucose Intolerance and Dyslipidemia in Hemodialysis Patients

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Introduction. This study was conducted to assess the effect of oral calcitriol on glucose metabolism in patients on hemodialysis (HD).

Methods. A total of 27 patients on HD at Mashhad University of Medical Sciences, none of whom had received calcitriol or had history of diabetes, were selected. The patients were randomly divided into two groups; group I; patients who received oral calcitriol for eight weeks and, group II; patients who received placebo. In all cases, levels of fasting glucose, insulin, lipid profile, calcium, phosphorous, parathormone (PTH), HbA1C and blood sugar after administration of 75 grams of glucose, insulin resistance, and beta cell function were measured, before and after the treatment period. The two sets of results were then compared with one another.

Results. In group I, the levels of the parameters studied before and after the study period were as follow: blood sugar after 75 grams of glucose (88.67 ± 8.68 versus 99.83 ± 34.42 mg/dl, $P = 0.045$), HOMA-IR (2.05 ± 1.42 versus 2.42 ± 1.33 , $P = 0.035$), HbA1C (5.99 ± 1.00 versus 6.14 ± 1.19 , $P < 0.001$), total cholesterol (153.3 ± 43.80 mg/dl versus 157.0 ± 52.62 , $P = 0.037$) and triglycerides (175.30 ± 99.65 versus 214.9 ± 117.7 mg/dl, $P = 0.036$). In Group II, fasting blood sugar (110.7 ± 26.12 versus 81.14 ± 13.31 mg/dl, $P = 0.002$), HbA1C (6.99 ± 1.44 versus 6.17 ± 1.66 , $P = 0.004$) and HOMA-IR (5.85 ± 5.11 versus 3.20 ± 2.39 , $P = 0.036$) significantly increased and beta cell function significantly decreased (149.5 ± 90.57 versus 355.7 ± 299.3 , $P = 0.032$) after the study period.

Conclusion. In conclusion, our results show that vitamin D has a significant influence on glucose metabolism.

Similar studies on larger sample sizes are required to confirm this observation.

P230

Evaluation of Aminophylline-Induced Hypercalciuria in Preterm Neonates

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Introduction. Nephrocalcinosis is a well known complication due to hypercalciuria induced by drugs, TPN, and assisted ventilation in admitted premature neonates. The aim of this study was to determine the effect of parenteral aminophylline on urine calcium excretion in premature neonates.

Methods. A cross-sectional study was conducted on 40 preterm neonates aged less than 2 days old admitted for their respiratory difficulties. They received 5 mg/kg loading dose of aminophylline, followed by 2.5 mg/kg every 12 hours. Urine Ca/Cr and Ph/Cr ratios as well as urine Na excretion rate were measured just before loading dose, 1 hour after, and 48 hours after the first dose of aminophylline.

Results. Forty neonates, 22 boys and 18 girls (mean gestational age: 33 weeks, mean birth weight: 1880 grams) were enrolled in the study. The mean urine Ca/Cr ratio just before administration of aminophylline was 0.57 mg/mg, and rose significantly one hour after loading dose (mean = 1.23, $P < 0.001$). Despite continuing aminophylline for 48 hours, its calciuric effect declined but was still higher than its base (mean = 0.66, $P = 0.012$). Hypercalciuric effect of aminophylline in girls was significantly higher than boys in our last measurement ($P = 0.04$). Aminophylline-induced natriuresis was significantly higher in preterm infants with gestational age less than 33 weeks and in girls ($P = 0.004$, 0.036, respectively). Phosphaturia showed no significant change in our study.

Conclusion. Aminophylline has been shown to have calciuric and natriuretic effect in premature neonates. Thus, long-term monitoring of preterm infants receiving aminophylline especially in female gender is advised to identify patients at risk for nephrocalcinosis.

P231

Upper Gastrointestinal Disorders and Helicobacter Pylori in Children on Long-Term Hemodialysis

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Introduction. Gastrointestinal (GI) lesions are common

in uremic patients. The aim of this study was to evaluate the prevalence of GI symptoms, endoscopic abnormalities, histologic gastritis and helicobacter pylori (*H.pylori*) infection in children with end stage renal disease (ESRD) undergoing maintenance hemodialysis.

Methods. Upper endoscopy and gastric biopsy were performed in 31 consecutive ESRD children between 2004 and 2007, before renal transplantation in Children's Hospital of Tabriz. *H.pylori* status was determined by urease test and histology. Urease breath test was performed 8 weeks after treatment to evaluate the eradication of *H.pylori*.

Results. Mean age of the patients was 11 ± 3.3 years (range, 4 to 16 years). The mean duration of dialysis was 12.4 ± 11 months (range, 1.5 to 54 months). Fourteen patients (53.8%) were symptomatic. Mean age of the symptomatic patients (13 ± 1.7 years) was significantly higher than mean age of the asymptomatic patients (8.3 ± 3.1 years; $P < 0.05$). Epigastric pain was the most common symptom followed by dyspepsia. Seventeen patients (65.4%) had endoscopic abnormalities. Antral erythema, esophagitis, antral nodularity, and diffuse gastritis were common endoscopic findings. Endoscopic abnormalities were more common in symptomatic patients (93%) than asymptomatic patients ($P < 0.05$). Seventeen patients (65.4%) were *H.pylori* positive. There was no statistical correlation between age, sex, serum creatinine level, presence of any symptoms and endoscopic abnormalities, and *H.pylori* positivity. The mean duration of dialysis in *H.pylori* negative patients was significantly higher in comparison with *H.pylori* positive patients. Histopathologic study revealed chronic gastritis followed by esophagitis, and duodenitis as the most common findings. Urea breath test in 17 *H.pylori* positive patients revealed eradication of *H.pylori* in 12 (70%) patients and treatment failure was observed in 5 (30%) patients. The five patients who did not respond to first-line therapy, were treated with clarithromycin and furazolidone.

Conclusion. High prevalence of endoscopic abnormalities and *H.pylori* infection in both symptomatic and asymptomatic patients emphasize the necessity of upper GI evaluation in ESRD children before renal transplantation.

P232

Evaluation of Sensitivity and Specificity of Pyuria as a Screening Test for UTI in Hemodialysis Patient

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Introduction. UTI is one of the most common infections

in normal population and also in hemodialysis patients. Because of this point, it is necessary to study this type of infection in hemodialysis patients. The aim of our study was to determine the pyuria and UTI frequency and relation of them with each other in HD patients.

Methods. This study was performed in the hemodialysis centers of Isfahan University between September 2008 and March 2008. In this study, 170 hemodialysis patients in the Al-Zahra and Noor hospital were selected. Based on the inclusion criteria, among of these 170 patients, 90 patients were selected for the study. For each patient, two urine samples, one for urine culture and the other for urine sediment, were obtained. Then, using the SPSS software, the results were classified and analysed.

Results. In our study, 90 patients with average age of 52.44 ± 14.16 were evaluated. A total of 34 patients were women with mean age of 53.73 ± 14.13 and 56 were men with mean age of 52.30 ± 14.27 . Generally, sensitivity of pyuria for screening UTI was 100% with specificity of 61.8%. Sensitivity of pyuria for screening UTI in men and women was 100% in both groups. Specificity of pyuria for screening UTI in men and women was 58% and 66.7%, respectively.

Conclusion. Early diagnosis of UTI in the hemodialysis patients can prevent the complications of infection. Taking into account the sensitivity and specificity of pyuria for diagnosis of UTI, and its availability and low cost, it is recommended to perform urine culture in hemodialysis patients without any symptoms, but with hyperleukocytoria.

P233

Zinc Sulfate for the Relief of Pruritus in Patients on Maintenance Hemodialysis

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Introduction. Pruritus is a common complaint in patients undergoing maintenance hemodialysis. The pathophysiology of pruritus in these patients is not well known, but the role of histamine release from mast cells has been reported. According to the inhibitory effects of zinc on histamine release and reported low levels of serum zinc in hemodialysis patients, we aimed to evaluate the effects of zinc sulfate for on pruritus in hemodialysis patients.

Methods. This double-blinded, randomized, placebo-controlled trial was conducted on 40 adults with end stage renal disease (ESRD) who were on maintenance hemodialysis in two university hospitals in Isfahan.

Patients were randomized to receive either zinc sulfate (440mg/day) or placebo for two consecutive months. Pruritus was assessed at baseline and then every two weeks using a numerical rating scale from 0 to 10 till one month after treatment. Drug side effects were also assessed along with pruritus.

Results. There were 40 patients with the mean age of 55.5 ± 15.2 (72.5% male) who completed the study. The two groups were similar in baseline characteristics. Pruritus was decreased in both groups after treatment but, there was a significantly more decrease in zinc sulfate group compared with placebo ($P = 0.019$). Patients' compliance was good and no severe side effect was observed.

Conclusion. Zinc sulfate (440 mg/day) is more effective than placebo for the relief of pruritus in patients under maintenance hemodialysis. Further studies with larger sample sizes, longer treatment duration and follow-up, and with various dosages of zinc sulfate are recommended.

P234

Helicobacter Pylori IgG Antibody in Association with Various Demographic and Biochemical Parameters of Kidney Transplanted Patients

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Introduction. To investigate the relationship of various demographic and biochemical parameters of kidney transplanted patients with serum *Helicobacter pylori* (H. pylori) IgG antibody titer as a sign of H. pylori infection, a cross-sectional study was conducted on a group of stable renal transplanted (RTx) patients who had referred to our clinic for continuing their treatment.

Methods. A total of 72 patients were enrolled in this study, including 47 men and 25 women. The age of the patients was 44 ± 12 years. Mean duration after transplantation was 67.5 ± 42 months (median; 62 months).

Results. The value of serum H. pylori specific IgG antibody titer of the patients was 3 ± 4.6 U/ml (median; 1 U/ml). The mean patients' intact PTH (iPTH), serum level of magnesium (Mg), and mean creatinine clearance level were 18.4 ± 8.2 Pg/ml (median; 16.5 Pg/ml), 1.9 ± 0.20 mg/dl (median; 1.9 mg/dl), and 53 ± 11 cc/min (median; 56cc/min), respectively. In this study population, there was no significant difference in the H.pylori IgG antibody, serum iPTH, magnesium, calcium, alkaline phosphatase (ALP), albumin (Alb), and body mass index (BMI) between males and females or diabetics and non-diabetic patients. There was no significant relationship between serum H. pylori IgG antibody titer and the age of the patients, BMI, serum Alb, phosphorus, calcium, serum leptin, and serum ALP. Significant negative correlations between serum H. pylori IgG antibody titers

and serum Mg ($r = -0.30$; $P = 0.01$) and also with serum iPTH ($r = -0.25$; $P = 0.03$) were detected. A significant positive correlation between serum H. pylori IgG antibody titer and creatinine clearance ($r = 0.26$; $P = 0.02$) was found. Also, a near significant positive correlation of serum H. pylori IgG antibody titers and duration of transplantation ($r = 0.20$; $P = 0.08$) was seen.

Conclusion. Few reports are available regarding the promoting factors that affect H. pylori infection in RTx patients. In hemodialysis patients, positive associations of serum magnesium, parathormone, and 25-hydroxy vitamin D level with H. pylori serology was shown in our previous studies. This study showed that, the correlation between H. pylori IgG antibody titer and some demographic or biochemical indexes of transplanted patients may be different in comparison to hemodialysis patients. Larger clinical studies are needed to find the clinical aspects of our results.

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Histopathological and Clinical Findings of Renal Diseases in Iran; A Single Center Study

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Introduction. Glomerular diseases are among the most common causes of ESRD. The prevalence of glomerular diseases is different in various regions of the world. There is no national renal biopsy registry system in the country. Although, there are some reports of renal biopsies data from a few number of kidney centers all over the country. In this study, we are going to report the native kidney biopsy findings of our center.

Methods. Registry of glomerulonephritis was established in Dr.Shariati hospital in October 2007 for performing studies on kidney biopsies and investigating the prevalence of different glomerulonephritis (GN) as well as clinical and histopathological findings of them. A questionnaire was designed and filled for all patients who had undergone kidney biopsy. In this descriptive study, we do not report transplant kidneys biopsies.

Results. A total of 333 renal biopsies had been performed between October 2007 and September 2009 in Dr.Shariati University hospital. Out of them, 56 biopsies were performed on transplant kidneys which were not considered in this report. Mean age of the patients was 37.3 ± 15 years and 134 patients were male. The most common clinical syndromes for performing renal biopsy were nephrotic syndrome (64 patients), acute renal failure (17 patients), asymptomatic urinary abnormalities (16 patients), and acute nephritic syndrome (11 patients). Renal diseases based on light microscopy and

immunofluorescence studies were categorized as follow; primary GN (97 patients), secondary GN (87 patients), tubulointerstitial nephritis (15 patients), and vascular nephropathies (3 patients). The most common pathologies were membranous glomerulonephritis (MGN), lupus nephritis, focal segmental glomerulosclerosis (FSGS), and IgA nephropathy.

Conclusion. This is a population-based descriptive report on native kidney biopsies data in a single center of Iran. We suggest establishing a national renal biopsy registry in the country by cooperation of all nephrologists and Iranian Society of Nephrology. In this way, we are able to do multicentre studies and describe the exact epidemiological features of renal diseases in the country.

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Arterial Atherosclerosis in Patients with Chronic Renal Disease and its Relationship with Serum and Tissue Endothelin-1 Level

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Introduction. Endothelin-1 has an important role in atherosclerosis formation and progression. Therefore, this study was designed to find a correlation between atherosclerosis, and tissue and serum ET-1 levels.

Methods. From Jun 2006 -Jun 2008, thirty five predialysis patients with CRD referred to Sina hospital enrolled in this study. We used a small piece of their collateral artery (that were unimportant as physiologically) during AVF surgery for tissue ET-1 level and atherosclerosis grading. Thirty-one patients underwent coronary artery bypass graft (CABG) with remarkable cardiovascular disease settled as positive atherosclerotic group. A piece of their aorta punched during coronary artery bypass surgery, was used. Twenty-six young kidney donors were our negative control group. A small piece of their renal artery was dissected during donation. Tissue ET-1 level was measured by immunoassay, R&D (Lot: 29870) kits and a single pathologist evaluated the specimens for atherosclerosis grading. Serum ET-1 level was measured by ELISA and Lipid profile (cholesterol, TG, LDL and HDL) was detected by biochemical methods.

Results. Atherosclerosis grading had positive correlation with tissue ET-1 level ($P < 0.001$, $r = 0.823$), serum ET-1 level ($P < 0.001$, $r = 0.608$), TG ($P < 0.001$, $r = 0.729$), LDL ($P < 0.001$, $r = 0.661$), and negative with HDL ($P < 0.001$, $r = -0.628$) in CKD patients. According to multiple regression analysis, tissue ET-1 level was the most important predicting factor (Beta coefficient = 1.085, $P < 0.001$) in atherosclerosis grading.

Conclusion. Tissue ET-1 concentration is more important

than serum ET-1, cholesterol, TG or LDL in atherosclerosis prediction. Blockade of tissue ET-1 receptors with its antagonists may prevent atherosclerosis progression.

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Esophageal Candidiasis after Kidney Transplantation

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Introduction. Renal transplant patients are at high risk for various infections. The infections usually occur in risk periods after transplantation, but clinical manifestations are usually atypical. *Candida Albicans* is a normal flora but in the patients who receiving immunosuppressive drugs, this fungus may cause severe opportunistic diseases.

Methods. In a 48-year-old male, one year after kidney transplantation, esophageal candidiasis due to *Candida Albicans*, was detected. The clinical manifestations were atypical and malignancy was initially suspected. Major complications of esophageal candidiasis such as ulceration, bleeding, and esophageal obstruction secondary to stricture and mycetoma formation were observed. After upper GI endoscopy and biopsy, the diagnosis was confirmed and the patient received the prolonged treatment with systemic anti-candida drugs afterwards. He became asymptomatic after three weeks.

Results. Endoscopy and biopsy may be used to document candidal esophagitis.

Conclusion. The fungal infections with atypical manifestations may occur in different periods after kidney transplantation. Therefore, these situations should be suspected and therapy should be started as soon as possible.

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Neuropathy in Patients with NIDDM after Renal Transplantation

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Introduction. The aim of this study was to evaluate the improvement or stabilization of polyneuropathy in type 1 diabetic patients with end stage renal disease (ESRD) after kidney transplantation (KT).

Methods. Electrodiagnostic tests of ulnar, peroneal, sural and median nerves were performed in thirty KT patients. Nerve conduction velocity (NCV), compound motor action potentials (CMAPs) and sensory neuron action potentials (SNAPs) amplitudes were analyzed at 1, 2 and 4 years after kidney transplantation longitudinally. Thirty non transplanted patients with ESRD and diabetes type 1 enrolled in this study as the control group.

Results. The NCV score improved in the KT group in second year of follow up period ($P < 0.01$ versus baseline). This parameter worsened significantly in the control group throughout the study ($P < 0.01$) and in a cross-sectional analysis between two groups ($P < 0.01$). Either SNAP or CMAP amplitudes improved in the KT (SNAP Sural=0.04, SNAP Median =0.01 and CAMP Peroneal=0.03, CAMP Ulnar=0.02) but they worsened in the control group (SNAP Sural= <0.001 , SNAP Median = <0.01 and CAMP Peroneal= <0.01 , CAMP Ulnar <0.01). **Conclusion.** Kidney transplantation may prevent long term worsening of polyneuropathy in type 1 diabetic patient with ESRD. Cross sectional analysis also revealed these statistical differences between studied groups.

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Results of Renal Transplantation of Azarbaijani Patients Transplanted in Hasheminejad Kidney Center

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Introduction. Living unrelated donors are increasingly used as a supplement to compensate organ shortage worldwide and constitute the major form of renal transplant (Tx) in Iran. As there has been a lack of Tx program in most of our neighboring countries, patients with end stage renal disease from Azerbaijan, Tajikistan and Afghanistan have undergone renal Tx in Iran during the past decades. According to Iranian regulations of live unrelated renal Tx, the donors should be brought by the recipient and from the same nationality. This study presents the results of renal Tx of patients from Azerbaijan, who underwent renal Tx in Hasheminejad Kidney Center (HKC). These patients returned to their country after Tx and are being followed there.

Methods. Forty patients from Azerbaijan, who underwent renal transplant in HKC between April 2001 and April 2009, were studied retrospectively through questionnaires filled by their physicians, including demographic, clinical and survival data.

Results. The 40 patients included 21 male and 19 female with a mean age 32.1 ± 12.5 years (10-52). Mean duration of dialysis before Tx was 14.7 ± 18.4 months (0 to 72). The underlying disease was unknown in 30, diabetes mellitus in 6 and polycystic kidney disease, reflux nephropathy, hemolytic uremic syndrome and acute tubular necrosis, each in 1 patient. Three patients had been previously treated for hepatitis B and 6 for hepatitis C. One recipient underwent coronary bypass graft before Tx. Donors were 30 male and 10 female with a mean age of 30.3 ± 7.1 years (20-47). Thirty- three donors were living unrelated and 7 living related. All patients had a functioning graft post- Tx with a mean 2 week serum

creatinine of 1.2 ± 0.5 mg/dl (0.6-3.5). One patient died 6 months after Tx due to septicemia and 1 patient lost the graft after 5 months and still survives on dialysis. So the overall mean patient and graft survival are 20.6 ± 19.5 months and 20.4 ± 19.7 months, respectively. The only patient and graft losses were during the first year, so 1 and 5 year patient survival were 97.3% and 1 and 5 year graft survival were 94.7%. Post Tx complications included 6 acute rejections, 3 post-Tx diabetes mellitus, 2 systemic infections, 1 urologic complication, 1 pulmonary thromboembolism and 1 drug induced hepatitis, all responsive to treatment.

Conclusion. We conclude that we had excellent patient and graft survival rates and few complications in our patients from Azerbaijan, which shows appropriate pre-Tx work-up, good care of the Tx team and optimum post-Tx follow-up. These results persuade our team to continue a well controlled transplant tourism program.

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Factors Influencing Height after Renal Transplantation

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Introduction. Growth retardation is a frequent finding in patients after renal transplantation. The aim of this study is to evaluate the height of patients receiving renal transplant during a 7-year period of follow-up and to determine the factors affecting the height after renal transplantation.

Methods. A total of 45 children (26 boys and 19 girls) who had undergone renal transplantation in Labbafinejad hospital between 1997 and 2004 were included. All patients had regular annual follow-ups until 7 years after transplantation. The patients received the active form of vitamin D within the first year after transplantation. No patient received growth hormone after transplantation. Their data was retrospectively reviewed and variables such as sex, age, height, serum calcium and phosphorous, serum level of cyclosporine, type of chronic renal failure, number of acute renal failure attacks, and history and duration of dialysis were evaluated. The paired sample *t* test and the Pearson coefficient of correlation were used in univariate analysis, and multivariate analysis was performed by linear logistic regression.

Results. The mean age of the patients was 10.8 ± 2.7 years. The mean standard deviation scores of height (HSDS) before surgery, 1 year, 3 years, 5 years, and 7 years post-operation were respectively -3.3 ± 1.9 , -2.6 ± 1.1 , -3 ± 1.4 , -3.5 ± 1.4 , and -3.3 ± 1.5 , respectively. The only significant difference was between HSDS before and one year after operation ($P = 0.007$). The factors affecting the HSDS at 3, 5, and 7 years after transplantation were the duration after transplantation and the cumulative

dose of corticosteroids.

Conclusion. Our results indicate that the early increase in HSDS does not continue in the following years and the kidney transplantation does not improve the final height of the patients. The role of cumulative dose of corticosteroid as a factor affecting the growth is important.

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Distribution of Pathologic Findings in Nephrotic Proteinuria According to Serum Albumin Levels and Demographic Findings

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Introduction. Previous studies of the nephrotic syndrome have not carefully examined the relationship between serum albumin and the distribution of pathologic diagnoses found at the time of biopsy. The spectrum of pathologic findings in individuals with nephrotic proteinuria and a normal serum albumin has not been determined. Knowledge regarding the spectrum of the findings in nephrotic proteinuria according to serum albumin levels may help nephrologists in the clinical decision making of when to perform a renal biopsy and in determining proper management of these patients. This study aims to evaluate the distribution of pathologic findings in nephrotic proteinuria according to serum albumin levels and demographic findings.

Methods. In an analytic-descriptive, cross-sectional study, profiles of 188 patients with nephrotic proteinuria (between 1997 and 2007) were reviewed in Tabriz Imam Khomeini Hospital. Sufficient data was available in 121 cases. Serum laboratory findings with emphasis on serum albumin level, as well as the histopathological type of the underlying cause of nephrotic proteinuria were recorded in each patient. Level of serum albumin and the patients' demographic information were compared between different histopathological findings.

Results. There were 37 cases with FSGS, 33 patients with MPGN, 16 cases with Mes.PGN, and 35 cases with miscellaneous histopathological entities. The mean level of serum albumin was significantly higher in cases with FSGS. There was no significant relation between the underlying etiologies of nephrotic syndrome with gender of the patients. However, the mean age of patients with Mes.PGN was significantly lower than that in FSGS and MPGN groups. ROC curve analysis yielded a value of serum albumin equal or greater than 2.85gr/dl with a sensitivity and specificity of 77.1% and 68%, respectively for predicting presence of FSGS. Serum

levels of creatinine and urea were also significantly higher in the patients with FSGS.

Conclusion. In patients with nephrotic proteinuria, it is possible to use serum levels of urea, creatinine, and albumin for primary diagnosis of FSGS without performing biopsy.

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Prevalence of the Clinical Presentations of Cytomegalovirus (CMV) Disease in Kidney Transplant Recipients

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Introduction. Cytomegalovirus (CMV) infection is an important cause of morbidity and mortality in immunosuppressed patients. The ubiquity of this virus, its propensity to be reactivated when host defense is compromised. Its ability to disseminate to several organs help explain its frequent occurrence in the transplanted population. Numerous studies have shown that majority of the patients develop evidence of active CMV infection following kidney transplantation; however, the clinical signs and symptoms are not frequently investigated. This study aimed at evaluating this issue.

Methods. In a cross-sectional retrospective setting, 261 recipients of renal graft were reviewed in Tehran Hasheminejad Hospital between 2005 and 2006. The patients with CMV disease were recognized and studied separately. The clinical and laboratory manifestations of the disease were determined and the frequencies were calculated.

Results. Thirty-nine (14.9%) patients suffered from the CMV disease. The mean age of these patients was 42.28 ± 12.30 (range, 15 to 68 years) years, 26 (66.7%) were males and 13 (33.3%) were females. Three (7.7%) patients were serologically high-risk. Anti-rejection therapy was employed in 11 (28.2%) cases and prophylactic treatment with ganciclovir was prescribed in 5 (12.8%). The most frequent clinical and laboratory manifestations were renal dysfunction (64.1%), anemia (61.5%), fever (56.4%), chills (33.3%), leukocytosis (23.1%), nausea, and vomiting (20.5%) and hepatic dysfunction (17.9%).

Conclusion. Based on our results, almost one seventh of renal transplantations are complicated with CMV disease, with renal dysfunction as the most frequent symptom. These results are in conformity with the reports from similar centers. It is interesting that, in high risk serologic patients (D+/R-), symptoms and signs are nonspecific; such as nausea, anemia, and fever.

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Relation between PAI-1 Polymorphisms and High-sensitive C-reactive Protein, Total Antioxidant, and Rate of DNA Damage in Renal Transplant Recipients Regarding Drug Treatment

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Introduction. Inflammation is a key mechanism in the initiation and progression of nephropathy in renal transplant recipients (RTRs). We evaluated the relation between PAI-1 polymorphisms and the factors manifesting the rate of inflammation in RTRs.

Methods. Our study was performed on 61 RTRs [26 females, 35 males, mean age 36.47 (range 12-61) years] with stable allograft function (Cr<2.2 mg/dl). The patients were randomized into two groups with two different immunosuppressive (IS) regimens [cyclosporine + prednisolone + azathioprine (CPA) group vs. cyclosporine + prednisolone + cellcept (CPC) group]. The genotypes of PAI-1 were determined by Amplification Refractory Mutation System Polymerase Chain Reaction (ARMS-PCR) following DNA extraction from the blood leukocytes. We checked 8-OHdG and malondialdehyde (MDA) as biomarkers of DNA damage and lipid peroxidation, respectively in each of PAI-1 polymorphisms. High sensitivity C-reactive protein and total antioxidant were also measured as inflammatory and antioxidative markers in each genotype. $P < 0.05$ was considered significant in the statistical analysis.

Results. Levels of total antioxidant and MDA were higher in the 5G/5G genotype of PAI-1, though total antioxidant was only significant in individuals <30 years ($P < 0.022$) and MDA only in the CPC group ($P < 0.028$). A direct correlation was found between the presence of 4G allele and level of urinary 8-OHdG in females ($P < 0.030$, $r=0.426$). There was no relation found between the levels of C-reactive protein in the 3 different genotypes.

Conclusion. Immunosuppressive treatment by CPC is associated with higher levels of oxidative stress markers in the 5G/5G genotype. The presence of PAI-1 4G allele is associated with higher DNA damage only in female RTRs.

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Expression Profile of SDF-1/CXCR4/ CXCR7 as Angiogenic and IP-10/

CXCR3 as Anti-Angiogenic Factors in Peripheral Blood Mononuclear Cells of the Patients with Bladder Cancer

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Introduction. Tumor angiogenic ability is one of the most important predictors of cancer progression. SDF-1/CXCR4/CXCR7 axis closely correlates with this process and contributes to the bladder cancer growth, production of proangiogenic factors, and metastasis. IP-10/CXCR3 axis has angiostatic effects and might suppress tumor progression.

Methods. This study examined the expressions of SDF-1/CXCR4/CXCR7 and IP-10/CXCR3 mRNA levels in peripheral blood mononuclear cells (PBMCs) of bladder cancer patients using real-time quantitative RT-PCR method.

Results. Results were compared to those of a sex- and age-matched control group. As a result, IP-10 mRNA was significantly expressed less in PBMCs of the patients in comparison with the controls. Analysis of the relationship between the histological grades and stages of the tumors and the mRNA levels showed that IP-10 mRNA was significantly expressed more in high-grade patients (grade 3). SDF-1 mRNA had lower expression in patients than controls but not as lower as IP-10. There were no significant difference in the expression of CXCR4 and CXCR7 mRNAs between PBMCs of the patients and normal individuals.

Conclusion. Differentially expressed SDF-1/CXCR4 as angiogenic factors showed this chemokine and chemokine receptor as one of the factors increasing the susceptibility of the patients to bladder cancer. In contrast, IP-10/CXCR3 expression might have a potent antitumor activity through its antiangiogenic effect. These findings could open new perspectives in clinical antitumor therapy through down-regulation of SDF-1/CXCR4 or up-regulation of IP-10/CXCR3.

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Seroprevalence of HSV-2 in Renal Transplant Recipients; A Single Center Experience

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Introduction. Viral infections are important in renal transplant (RT) recipients because of their immunocompromised background. This study aimed to evaluate HSV-2 seropositivity among RT recipients.

Methods. Serum samples of 91 renal transplant recipients from Urmia, Iran were examined serologically for antibodies against herpes virus type 2 using an Enzymelinked Immunosorbent Assay (ELISA).

Results. Mean age of the patients was 37.26 ± 14.22 years old. Seroprevalence of HSV-2 was 5.4% in Iranian RT recipients. Seropositive cases did not present any clinical manifestations of genital herpes. There was no association between age, sex, previous history of hemodialysis, transplantation, or blood transfusion, and immunosuppressive regimen, and HSV-2 serologic infection.

Conclusion. Seroprevalence of HSV-II is not high among Iranian renal transplant recipients. However, it remains important considering the severity of HSV infection in this specific population.

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Effects of Phentolamine on Rebound Hypertension of Clonidine Withdrawal

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Introduction. Hypertension is one of the most cardiovascular disorders. One of the drugs used to control the hypertension is clonidine. If a patient who has received this drug for a long time suddenly stops its usage, the hypertension rebounds. One of the drugs that is used to control the rebound hypertension of clonidine withdrawal is phentolamine. In this research, we would like to demonstrate this effect of phentolamine on field-mice as a model for future human researches.

Methods. From 14 field-mice with distinguished hypertension that had received clonidine for about 20 days, 10 were selected and restricted to receive no clonidine for about 24 hours. All of them showed increased amounts of blood pressure. After that, 7 of them were selected and received phentolamine. Three of them were left to receive a neutral liquid as a placebo.

Results. From 7 mice receiving phentolamine, 6 showed decreased amounts of blood pressures; however, 1 of them had high blood pressure in spite of receiving phentolamine. The blood pressure of this mouse was regulated only after receiving clonidine. The others (left 3 mice) that received placebo had high blood pressures during the time of the research.

Conclusion. Phentolamine is a useful drug for controlling the rebound hypertension of clonidine withdrawal according to this research.

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Kidney Transplant in Elderly; A Single Center Experience

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Introduction. Because of increased life expectancy and better medical care for hypertension and diabetes as the main causes of ESRD, the number of old patients who need renal replacement therapy have increased in last years. It seems that older age has worse effects on function and survival of kidney transplant. In this study, we evaluated effect of age on rate of rejection, early complications of transplant, and survival of patients and grafts.

Methods. We studied 43 patients older than 60 year old who were kidney transplanted between 1986 and 2007 in "Hasheminejad kidney center". This group of patients was matched to 37 patients younger than 60 year old for gender and date of transplant. Duration of admission, creatinine (cr) at discharge, need for anti-rejection therapy with polyclonal antibodies, and rate of delayed graft function were compared in these two groups. Allograft survival in older group was compared to last data from young patients' survival in the same center in 1170 patients.

Results. Mean age was 62.8 ± 2.9 year in older and 34.3 ± 10.2 in younger groups. Mean of duration of admission was 20.21 ± 10.97 days in older and 20.05 ± 8 days in younger patients ($P = 0.07$). Cr at discharge was 1.39 ± 1.06 in older and 1.67 ± 1.26 in younger group ($P > 1$). There were no significant differences in duration of admission and creatinine level. Rate of delayed graft function was 9.3% in older and 21.6% in younger patients that was significantly lower in older patients ($P < 0.05$). Fourteen percent of the patients in older and 37.8% in younger groups were treated by anti-lymphocyte globulin (ALG) or anti-thymocyte globulin (ATG) for acute rejection after transplant that was significantly more in younger patients ($P < 0.05$). Graft survival at 1, 3, 5, and 10 years were 83.7%, 80.5%, 70.1%, 62.3% and 94.5%, 90.6%, 85.8%, 78.8% in older and younger groups, respectively, that was significantly more in younger patients ($P < 0.05$); but, if we censored deaths with functioning grafts, the difference was not significant ($P = 0.99$). Death censored graft survival in older patients in 1, 3, 5, and 10 years after transplant was 92.8%, 83.7%, 83.7%, 75.2%, and in younger patients was 94.5%, 90.6%, 85.8%, 78.8%, respectively. Mortality rate was more in older group within the first year after transplantation and mostly due to infection.

Conclusion. Age does not have direct negative effect

on the function and survival of transplanted kidneys solely. Our study presented that rate of acute rejection and need for anti-rejection therapy was higher in younger patients than elderly group. We suggest that immunosuppressive protocols should be individualized based on patient age due to lower rate of rejection and increased susceptibility to infection in elderly recipients.

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Urinary Beta-2 Microglobulin and its Related Parameters in Patients with Thalassemia Major

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Introduction. Beta thalassemia major (Beta TM) is the most common hemolytic anemia in Iran and worldwide. There are about 20000thalassemia major patients. The frequency of beta TM varies considerably from area to area and is mostly prevalent around the Caspian sea and Persian Gulf. The most important cause of mortality and morbidity is organ failure due to deposits of iron. The aim of this study was to evaluate urinary Beta-2 microglobulin and its related parameters in patients with thalassemia major.

Methods. In this cross-sectional study, 80 children (aged 5 to 17 years old) diagnosed with Beta TM attending the department of thalassemia major in 17 Shahrivar Hospital were reviewed between 2007 and 2008. Fasting blood and timed urine sample for biochemical analysis were taken for their patients. The sodium, Magnesium, Creatinine, Hemoglobin and ferritin level were determined in blood sample. Sodium, Magnesium, Creatinine and Beta-2 Microglobulin level were measured in urine sample. FE -Na, FE-Mg, GFR were calculated with standard formulas. The length of patients was controlled. Urine Beta-2 Microglobulin levels were assayed by enzyme linked immunosorbent assay (ELISA). After samples measurement, patient had urine Beta-2 Microglobulin abnormal and this parameter was correlated with other parameters. Differences and correlations between urine Beta-2 Microglobulin abnormality and any parameters were compared with P-spearman test. A level of $P < 0.05$ was considered significant.

Results. Forty patients were male. Mean age of the patients was 11.99 ± 3.34 . The prevalence of abnormal urine beta-2 microglobulin, FE - Na, FE-Mg, Hb, and ferritin was 55%, 13.8%, 8.3%, 73.7%, and 93.7%, respectively. No GFR decreased was detected in pediatric patients. Only, a significant correlation was found between urine abnormality of beta-2 microglobulin and FE- Mg ($P = 0.012$). No correlation was found between Hb level, serum ferritin, and any of the parameters.

Conclusion. Proximal renal tubular dysfunction is one

of the complications in patient with beta thalassemia major even if clinical findings and GFR decrease does not appear in these patients. These findings suggest that tubular dysfunction does not correlate with GFR, age, sex, length, hemoglobin, ferritin, and FE-Na, but correlates with FE-Mg.

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Efficacy of Anti-Interleukin-2 Receptor Antibody (Daclizumab) in Reducing the Incidence of Acute Rejection after Renal Transplantation

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Introduction. Acute rejection is still a major problem in renal transplantation and is one of the most important causes of chronic allograft dysfunction and late graft loss. Daclizumab is a genetically engineered human IgG1 monoclonal antibody that binds specifically to α chain of the interleukin-2 receptor and may, thus, reduce the risk of rejection after renal transplantation. The aim of this study is to determine the effect of daclizumab induction therapy with triple immunosuppressive protocols including prednisolone, cyclosporine microemulsion (CsA), and mycophenolate mofetil (MMF) in reducing the incidence of acute rejection, in the living unrelated donor kidney recipients.

Methods. In this historical cohort study, 43 adult recipients of their first kidney allograft received daclizumab (1 mg/kg for three doses given every 1 week) with triple immunosuppressive therapy (steroids, CsA, and MMF). They were compared to 43 recipients of their first grafts who received a maintenance triple immunosuppressive therapy (steroids, CsA, and mycophenolate mofetil). The end point was the incidence of biopsy-confirmed acute rejection within six months after transplantation.

Results. At 6 months, 5 (11.6%) patients in the daclizumab group had biopsy-proven rejections, as compared with 14 (32.5%) in the control group ($P = 0.017$). Sex and age of the recipients had no impact on acute rejection episodes in the 2 groups.

Conclusion. Adding interleukin-2 receptor antibody (Daclizumab) to maintenance triple immunosuppressive therapy (prednisolone, CsA, and MMF) reduces episodes of acute rejection at six months in the living unrelated donor kidney recipients.

P250

Interstitial Nephritis and Uveitis; Report of a Rare Syndrome

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Introduction. Interstitial nephritis accompanying with uveitis (TINU) is a rare syndrome which was first reported in 1975. At present, near 150 cases has been reported and up to our knowledge, there is no report of this syndrome in Iran. Here, we report a 23-year-old man with history of weight loss, nausea and vomiting, and blurred vision.

Case Report. A 23-year-old man with uveitis referred to our clinic for systemic evaluation. He had no complaints of post nasal discharge, cough, arthritis, and mucosal or skin disease. His blood pressure was 120/80 mmHg and his physical examination was unremarkable. Lab studies showed high serum creatinine of 2.1 mg/dl, Hgb of 11 gr/dl, ESR of 35 mm/hr, 6-8/hpf WBC and trace protein in urine analysis, and 24-hour urine for protein showed a urine protein level of 325mg. The other lab studies including antinuclear antibody, antineutrophil cytoplasmic antibody, angiotensin converting enzyme activity, rheumatoid factor, complements level, cryoglobuline, serum protein electrophoresis, and viral markers were unremarkable. Patient's serum was sent for antitubular antibody. Imaging studies including chest X ray, chest CT scan, and gallium scan were normal. Renal biopsy showed granulomatous interstitial nephritis. During the workup, the serum creatinine decreased to 1.3 mg/dl without any therapy and uveitis was well controlled by local treatment. Renal involvement and uveitis usually guide the physician to well known syndromes such as Sarcoidosis, Sjögren's syndrome, systemic lupus erythematosus, Wegener's granulomatosis, and Behcet's disease.

Conclusion. Here, we report this case to show that a TINU syndrome should be under consideration in a patient with interstitial nephritis and uveitis.

P251

Comparison of Metabolic Profile and Renal Function in Kidney Transplant Recipients Receiving Normal Saline with Those Receiving Lactated Ringers Solution during Surgery

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Introduction. Normal saline (NS) is the most common crystalloid administered during renal transplantation.

However, it may be associated with hyperchloremic metabolic acidosis leading to hyperkalemia and decreased visceral perfusion. Since these complications are not seen with balanced-salt fluids like lactated ringers solution (LR), we compared metabolic profile and renal function in kidney transplant recipients receiving NS with those receiving LR intraoperatively.

Methods. In this double-blind study, 54 adult patients undergoing renal transplantation were randomized to receive either NS or LR intraoperatively. All the patients underwent living donor kidney transplants. Arterial blood analyses were performed before induction of anesthesia, and at 30-minute intervals thereafter and total IV fluids was recorded. Intraoperative acid-base and serum potassium status, as well as urine volume, serum creatinine, and BUN were recorded on 1st, 3rd, and 7th postoperative days (POD).

Results. There were no significant statistical differences in end of surgery PH (7.29 ± 0.07 vs. 7.31 ± 0.07), bicarbonate (16.37 ± 3.12 vs. 19.04 ± 4.37), and potassium (4.29 ± 0.62 vs. 4.41 ± 0.87) measurements between the 2 groups. There were also no significant statistical differences in cumulative urine volume on POD 1 (22.17 vs. 20.85), BUN on POD3 (31.24 ± 43.32 vs. 27.40 ± 13.55) and POD7 (27.20 ± 16.30 vs. 22.50 ± 11.21), and creatinine on POD3 (1.68 ± 1.43 vs. 1.42 ± 0.86) and POD7 (1.46 ± 0.81 vs. 1.37 ± 0.88) between the 2 groups.

Conclusion. Both NS and LR can be safely used in kidney transplant recipients during surgery. Metabolic profile and renal function do not differ in kidney transplant recipients receiving either NS or LR.

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Antimicrobial Resistance Pattern in Urinary Tract Pathogens Isolated from Hospitalized Children in Mashhad and its Impact on Empirical Therapy

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Introduction. Urinary tract infection (UTI) is a very common infection in the community. When antibacterials are selected for the empiric treatment of UTI, knowledge of the most likely causative organisms and the prevalence of resistance of pathogens to antibacterial agents are essential to avoid therapeutic failure. This paper aims to identify the most common etiologic agents responsible for UTI in admitted children in Mashhad educational hospitals and to determine their resistance pattern to various commonly used antibiotics.

Methods. Data was collected retrospectively from the educational hospitals of Mashhad by reviewing the

files of the patients with the diagnosis of UTI in children younger than 15 years. Isolates from urine samples were obtained during the period between 2005 and 2007 and analyzed using semiquantitative culture methods. The prevalence of the uropathogens and their resistance pattern to antimicrobial agents was studied.

Results. A total of 2057 files were reviewed and the results of 198 positive and uncontaminated urine cultures in children (male/female: 65/133) with confirmed UTI were analyzed. Bacteria most frequently isolated were *Escherichia coli* (79.3%), *Enterobacter* (7.1%), *Staphylococcus saprophyticus* (3.5%), *Citrobacter* (2.5%), *Pseudomonas* (2.5%), *Proteous* (1.5%), and *Klebsiella pneumoniae* (1%). The resistance pattern showed that more than 85% of the bacteria were resistant to Ampicillin, 72% to Trimethoprim-sulfamethoxazole, 51% to Cephalexin/cephradine, and 39% to Nalidixic acid, while Nitrofurantoin showed a low rate of resistance (13.5%). *E. coli* showed a high level of resistance to Ampicillin (86%) and Trimethoprim-sulfamethoxazole (71%). Resistance to Cefexime in bacteria was (38.1%); mostly in the patients with previous history of antibiotic therapy ($P < 0.05$).

Conclusion. Resistance rates of common uropathogens to many routinely used antimicrobials appear to be rising dramatically. Continued surveillance of resistance rates among uropathogens is needed to ensure that appropriate recommendations are made for treatment of infected patients. Therapy for the individual patient must be balanced with the possibility that antimicrobial use will promote further resistance; therefore, it should be avoided unless there is a clear clinical indication.

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Blood Serum Levels of IL-1 α , IL-6 and TNF- α in Patients on Maintenance Hemodialysis

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Introduction. Dialysis provides effective and safe treatment of ESRD, but patients who are maintained on chronic dialysis are at risk for cardiovascular disease. One major risk factor for cardiovascular disease in adult patients with ESRD is chronic inflammation. Cytokines are essential mediators of immune response and inflammatory reactions. During a hemodialysis (HD), cytokines are released mainly by monocytes activated by endotoxin-type compounds in dialyzer fluid, Complement factors and direct contact with dialyzer membrane. Aim of this study was to examine effects of the duration of HD therapy upon systemic profile of the pro-inflammatory cytokines (IL-1 α , TNF- α and IL-6) in patients on regular maintenance HD.

Methods. The study included 43 CRF patients, aged 59.32 ± 14.43 years, on regular HD maintenance therapy for mean 26.44 ± 41.29 months and 43 age and sex matched healthy controls. It was designed to assess serum levels of inflammatory cytokines: IL-1 α , IL-6 and TNF- α in CRF patients on regular maintenance HD.

Results. The serum IL-1 α , IL-6 and TNF- α level were statistically significantly higher in patients than in the controls. There were statistically significant positive correlations between the duration of HD therapy and serum levels of the inflammatory cytokines.

Conclusion. Elevated serum IL-1 α , IL-6 and TNF- α levels in our CRF patients on regular maintenance HD indirectly confirm that the hemodialysis in amplification of the chronic inflammation substantially depend on the duration of dialysis treatment is important.

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The Comparison of Alendronate Effect on Bone Mineral Density in Long Term Hemodialysis Patients and Kidney Transplant Recipient

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Introduction. Because of several reasons, bone mineral density in long term hemodialysis patients and in kidney transplant recipients is lower than normal population. In this study, the effect of alendronate and its response was evaluated in these two groups of patients.

Methods. Eighty-four long term hemodialysiant patients and 64 kidney transplant recipients (with at least one year of duration) were selected. In the beginning of the study and after matching, BMD in lumbar region (L3, L4) and in neck of femur were measured. Then, both groups received alendronate (70 mg, weekly), calciteriol (0.25 mg, daily), and calcium carbonate (1500 mg, daily) for one year. Again, at the end of the year, BMD was measured in the same regions and compared.

Results. In long term hemodialysis patients, average increase in BMD in neck of femur was 3.5% and in the lumbar bone (L3,L4) was 4.2%; however, in kidney transplant recipients, these rates were 6.5% and 9.8%, respectively (for neck of femur, $P = 0.02$; Odds ratio = 4; for lumbar bone, $P = 0.01$, Odds ratio = 4).

Conclusion. Maintenance and increase in BMD in response to alendronate is better in kidney transplant recipients than long term hemodialysiant patients.

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Subcutaneous and Intraperitoneal Growth Hormone Administration and

Growth Velocity in Short Children on Continuous Cycling Peritoneal Dialysis

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Introduction. Intraperitoneal (IP) and subcutaneous (SC) recombinant human growth hormone (GH) are commonly used to treat growth failure in children with end-stage renal disease (ESRD). This study compares the efficacy of SC versus IP GH administrations on improving growth velocity (GV) in pediatric peritoneal dialysis patients.

Methods. Forty-nine children older than 2 years of age undergoing continuous cycling peritoneal dialysis (CCPD) were randomly assigned to receive SC or IP GH at a dose of 0.05 mg/kg/day. The IP dose of GH was diluted in 50 ml of dialysate and instilled into a dry peritoneal cavity through the Tenckhoff catheter at the end of overnight CCPD session. Baseline and follow-up height standard deviation scores (SDS) and growth velocity (GV) were used for comparison.

Results. Thirty-three children, aged 6.3 ± 2.2 years, with height less than the third percentile, (18 in IP group and 15 in SQ group), completed 24 months of GH therapy. Baseline mean age, gender, weight and height percentiles, dialysis duration, and incidence of peritonitis did not differ between the groups. In the IP group, mean GV increased from a baseline of 4.4 cm/year to 8.1 cm/year in the year 1 ($P = 0.01$) and 5.9 cm/year in year 2 ($P = 0.02$). Mean height SDS was -3.2 at baseline, -2.4 at 1 year ($P = 0.05$), and -2.1 at 2 years ($P = 0.04$). In the SC group, mean GV increased from a baseline of 4.6 cm/year to 8.1 cm/year in year 1 ($P = 0.02$) and 6.1 cm/year in year 2 ($P = 0.04$). Mean height SDS was -3.1 at baseline, -2.5 at 1 year ($P = 0.02$), and -2.2 at 2 years ($P = 0.05$). Throughout the treatment period, there were no significant differences between the two groups in the mean GV or height SDS.

Conclusion. These data indicate that SC and IP administrations of GH are equally effective in the treatment of short children undergoing CCPD. The IP administrations alleviate pain associated with SC injections.