ABSTRACTS

First Day

Tuesday, November 22

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The Survey of Diastolic Function Changes in ESRD Patients Before, 3, and 6 Months After Kidney Transplantation in Razi Hospital, Rasht, Since 2008 to 2009

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Introduction. Left ventricular diastolic dysfunction is prevalent in end-stage renal disease and predicts morbidity and mortality in affected patients. The aim of this study was to evaluate the diastolic function changes in end stage renal disease patients before, 3 and 6 months after kidney transplantation. **Methods.** In a longitudinal study from November 2008 to November 2009, all consecutive patients received kidney transplantation presenting to the transplantation ward of Razi hospital were enrolled in the study. Systolic and diastolic blood pressure and echocardiograghic parameters such as ejection fraction, left ventricular mass, and diastolic function were measured before, three and six months after transplantion for all patients. Data were analyzed by repeated measure ANOVA and friedman test using SPSS version 18. **Results.** Among 27 patients, mean age was 39.47 ± 12.27 years and 55.6% of cases were male. Mean of systolic blood pressure and diastolic blood pressure and left ventricular mass decreased significantly 3 months after transplantation (125.44 ± 11.35, 78.51 ± 6.32, 141.94 ± 3.32, respectively) and 6 months after transplantation (121.48 ± 10.63, 72.96 ± 4.21, 138.25 ± 3.12, respectively) compared to before transplantation (136.77 ± 14.09, 81.92 ± 9.01, 158.30 ± 3.58, respectively, $P < .05$). Left ventricular ejection fraction increased significantly 3 months (63.00 ± 6.49) and 6 months (66.11 ± 5.87) after transplantation compared to before transplantation (62.48 ± 5.74); $P < .05$. Step mean of diastolic function also decreased significantly 3 (1.94) and 6 (1.81) months after transplantation compared to before transplantation (2.24), $P < .05$. **Conclusions.** According to our findings, transplantation can correct ejection fraction, systolic, and diastolic blood pressure that lead to left ventricular hypertrophy regression. Diastolic function would be improved after transplantation. It is recommended to perform further studies with larger sample size and control group for obtaining reliable results.

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Strong Association of Phenylalanine and Tryptophan Metabolites With Activated Cytomegalovirus Infection in Kidney Transplant Recipients

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Introduction. Infection-induced inflammation triggers catabolism of proteins and amino acids. Phenylalanine and tryptophan are 2 amino acids related to infections that regulate immune responses. Polyomavirus BK (BKV) and Cytomegalovirus (CMV) are important pathogens after kidney transplantation. **Methods.** We investigated the clinical relevance of phenylalanine, tryptophan, and tryptophan metabolites (kynurenine, quinolinic acid) plasma levels in kidney transplant recipients with active CMV [CMV(+)/BKV(-), n=12] or BK virus infection [BKV(+)/CMV(-), n=37]. Recipients without active viral infections [CMV(-)/BKV(-), n=28) and CMV(-)/BKV(-) healthy individuals (HCs, n=50) served as controls. **Results.** In contrast to BKV infection, activated CMV infection is tightly linked to increased phenylalanine and tryptophan metabolite plasma levels ($P = .002$). The association of phenylalanine (cut off, 50 µmol/L) with CMV infection shows very high sensitivity (100%) and specificity (94%). On the other hand, kynurenine ($P = .03$) and quinolinic acid ($P = .003$) values reflect the severity of CMV infection.

Conclusions. Our findings indicate that activated CMV is strongly associated with increased phenylalanine as well as kynurenine and quinolinic acid plasma levels. Tryptophan metabolites are also an indicator of the disease's severity.

O103

Predictive Value of Neutrophil Gelatinase-Associated Lipocalin (NGAL) in Early Prognostic of Contrast-Induced Nephropathy After Angioplasty-Angiography

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Introduction. While the early diagnosis of Acute Kidney Injury (AKI) is critical in management of the patients with this type of disease, few markers help diagnosis of AKI before raising the serum creatinine. Neutrophil Gelatinase-Associated Lipocalin (NGAL) is a biomarker that its value has been shown in some critical situations like patients undergoing coronary bypass surgery and in patients admitted in intensive care units. There are few study that shows it may be useful in early diagnosis of Contrast Induced Nephropathy (CIN).In this randomized open lable study, we hypothesized that neutrophil NGAL is an early predictive biomarker of CIN.

Methods. In this process evaluation study, we enrolled 122 patients who were undergoing elective angiography-angioplasty with contrast administration. Serial urine samples at times 0, 12, and 24 hours post procedure were analyzed in a double blind fashion by NGAL Enzyme-Linked Immunosorbent Assay (ELISA). All patients followed for five days and serum creatinine measured at second and fifth day after contrast administration. CIN is defined as a 25% increase in serum creatinine from baseline.

Results. In this study, CIN was found in 37 subjects (30.3%). Significant elevation of NGAL concentrations in urine (90.62 ± 105.63 versus 27.6 ± 45.8 ng/mL without CIN, $P = .0001$), (79.78 ± 117.7 versus 30.92 ± 52.84 ng/mL without CIN, $P = .002$) were noted within 12 and 24 hours after the procedure, respectively. Serum creatinine rose significantly at fifth day after procedure ($P = .0001$). We found, using a cut-off value of 8 ng/mL, sensitivity, specificity, negative predictive value and area under the Receiver-Operating Characteristic (ROC) curve for prediction of CIN were good for the 12-hour urine NGAL (94%, 25%, 91%, and 0.75, respectively) and 24-hour urine NGAL (97%, 24%, 95%, and 0.70) with cut-off value of 5.5 ng/mL.

Conclusions. Urine NGAL may represent a sensitive early biomarker of acute renal failure after angiography-angioplasty.

O104

Effects of Kidney Transplantation on Early and Late Post Transplant Prostate Specific Antigen and Testosterone Levels

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Introduction. This study was performed to evaluate the effect of kidney transplantation on serum Prostate Specific Antigen (PSA) and testosterone levels and to determine whether or not serum testosterone levels have any influence on serum PSA in patients undergoing kidney transplantation.

Methods. Thirty patients who were on pereitoneal or haemodialysis underwent renal transplantation at our department. The Immunosuppressive protocol was uniform during the study period. The PSA (free and total) and testosterone levels were measured immediately before renal transplantation and on post transplant days 1, 7, 90, and 180. Measurements of free PSA and total PSA were performed immunofluorometric assays. The paired t test was used to assess the statistical significance of differences in all analyses and relationships between variables were analyzed by Pearson correlation analysis.

Results. The mean age was 48 ± 8.35 years old. Out of the 30 renal transplant recipients, DGF was observed in 6 (20%) patients. There was a significant

decrease in serum free PSA and testosterone levels on post transplant days 1, 7, 90, and 180 ($P < .05$) and in total PSA on post transplant days 1 and 7. There were no significant changes of total PSA on post transplant days 90 and 180. There was a significant inverse correlation between testosterone and total PSA, 6th month after transplantation (r =- 0.635, $P = .049$), however there was no significant correlation between testosterone and total PSA on post transplant days 1 and 7, and between testosterone and free PSA in early and late post transplant period.

Conclusions. In agreement with previous evidence, our renal transplant recipients are characterized by a significant decrease in serum PSA levels in post transplant period compared with pre-transplant period. However, it is not in agreement with previous evidence indicating that a significant decrease in serum testosterone levels at various post transplant periods and a significant inverse correlation between testosterone and total PSA, in 6th month after transplantation exists. Moreover, high frequency of DGF (20%) in our study population may contribute to the differences in the reported findings. Hence, further studies are required to confirm our results.

O105

Comparison Between the Effects of Calcitriol and Cholecalciferol on Bone Mineral Density of Renal transplant Patients

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Introduction. According to cost difference between active form of vitamin D3 (Calcitriol) and vitamin D3 (Cholecalciferol), we decided to compare between the effects of treatment with vitamin D-calcium and calcitriol plus calcium carbonate on bone mineral density of kidney transplant patients.

Methods. This study is randomized controlled clinical trial and was done between 2005 to 2010. Forty-eight kidney transplant patients who had inclusion criteria and did not have exclusion criteria entered the study. We randomly divided the patients into two treatment groups, vitamin

D-calcium and calcitriol plus calcium carbonate. Bone mineral density (BMD) measurement was done just before transplantation and one year after that. In addition, we checked serum Parathyroid Hormone (PTH) and alkaline phosphatase every six months and 24 hours urine calcium and computation of GFR was done every 3 months. Descriptive and analytical (paired t-test, independent t-test, wilcoxon) analyses were done by SPSS version 15.

Results. At the end of study, the number of patients was 24 in calcitriol group and 13 in vitamin D group. In vitamin D group, the increase of T score and Z score in lumbar spine was 0.39 ± 0.7 and 0.64 ± 0.8, respectively ($P = .03$) and in hip bone was 0.28 ± 1.2 and 0.2 ± 0.6, respectively. In calcitriol group, T score and Z score in hip bone increased (0.11 ± 0.8 and 0.13 ± 1.3, respectively) and in lumbar spine decreased (0.1 ± 1 and 0.11 ± 1, respectively). In between group comparison, the difference between Z score increase in vitamin D group and decrease in calcitriol group was significant ($P = .03$).

Conclusions. Because of similar and even better effect of vitamin D in improving BMD and lower cost of treatment with this drug, we recommend the use of vitamin D in place of calcitriol in kidney transplant patients.

O201

Clinico-Patholgical Findings in Iranian Elderly Kidney Patients, a Case Series Study

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Introduction. Most of renal abnormalities in elderly are considered because of aging but it seems recently there is an increase in renal biopsy among elderly patients. Data have shown some differences in pathology and clinical presentations in this group. We planned a study to investigate the cause of renal biopsy and clinico-pathologic presentations of elderly patients in our center.

Methods. Data from 2270 patients (56% male, mean age = 37.8 ± 16 years) who had undergone a renal biopsy in our center between 1997 and 2011 were collected in questionnaires including demographic data, renal syndrome at presentation, and laboratory findings. All kidney specimens were studied with light and immunofluorescent microscopies. Of these, 182 patients were > 65 years old.

Results. Among 2268 patients with a definite pathologic diagnosis, the most frequent types of biopsy-proven renal diseases were MG (576 patients, 25.3%), FSGS (267 patients, 11.7%), IgAN (252 patients, 11.1%), lupus nephritis (225 patients, 9.9%), and minimal change disease (186 patients, 8.2%). In group under 65 years of age, there was the same distribution of renal biopsy findings; however, in the elderly group after MG and FSGS, amyloidosis, IgAN, diffuse crescentic GN, diabetic nephropathy, and multiple myeloma were the most frequent diagnoses. There were higher prevalence of male patients ($P < .004$), hypertension ($P < .001$), and azotemia defined as serum creatinine > 1.4 mg/dL ($P < .001$) in the elderly group. Nephrotic syndrome was the most common renal syndrome in this group, as in the patients under 65 years of age. Secondary glomerular disease was seen in 26.9% of elderly with a lower risk of lupus nephritis and higher risk of amyloidosis, multiple myeloma, light chain deposition disease, and hypertensive nephrosclerosis compared to patients less than 65 years of age. In patients presented with nephrotic syndrome, MG was the most common diagnosis found followed by amyloidosis, FSGS, and membranoproliferative glomerulonephritis (MPGN).

Conclusions. Our study showed higher rate of renal biopsy done for older men (65.9%) and nephrotic syndrome was the most common reason for performing renal biopsy in elderly patients (57.6%) that was similar to the patients less than 65 years old (57.4%). MG was the most frequent pathology in the elderly followed by FSGS and amyloidosis. Other studies have shown vasculitis, crescentic GN, and pauci-immune GN as the most common pathology findings in the elderly. In our study, 8% of all renal biopsy cases are from elderly that is less than similar studies. This could be due to limitations on performing renal biopsy in this group. Although our study and others showed, most of these diseases are treatable and biopsy indications of elderly patients need to be expanded in our center.

O202

Relation Between Serum Homocysteine Level and Amount of Albuminuria in Type-2 Diabetes Mellitus

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Introduction. Diabetic nephropathy is associated with increased risk of cardiovascular disease. Risk factor such as age, male sex, hyperglycemia, hypertension, and hyperlipidemia cause progression of diabetic nephropathy. Homocysteine is an amino acid that plays role in production of cysteine and methionine. Vitamin B12 and folic acid have essential role in homocysteine metabolism. Hyperhomocysteinemia leads to increase cardiovascular diseases, and atherosclerotic and thrombotic accidents. Studies on animal models have shown that elevations of homocysteine lead to increased albumin excretion via injury to podocyte and conversion of associated proteins, and some case reports on human population have shown direct and significant relation between homocysteine and albuminuria.

Methods. In this cross-sectional study, 56 patients with type-2 diabetes were selected through easy protocol and were divided into two groups of normal (normoalbuminuria) and albuminuria. Exclusion criteria include history of thyroid disease, using of drugs affecting homocysteine level during 3 months prior to study, and Cr > 1.1 mg/dL. After physical examination, age, sex, weight, history of hypertension, and thyroid condition were documented in questionnaire. Blood sample for FBS, 2hpp, HbA1C, homocysteine, and Cr was taken. Data were analysed by nonparametric test (mann whitney).

Results. The mean homocysteine in albuminuria group was higher than normoalbuminuria, but difference was not significant ($P > .05$). Differences were statistically significant and inverse between albuminuria and FBS and HbA1c ($P = .01$ and $.22$, respectively). Twelve patients had hyperhomocystenemia (Hcy > 15 mmol/L) and 44 patient had normohomocysteinemia (Hcy < 15 mmol/L). Patients with hyperhomocystenemia had older age ($P = .009$, r = 0.3600), higher Cr ($P = .008$,

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r = 0.3620) and lower HbA1C (P = .021, r = 0.347). **Conclusions.** In this study, there was not significant difference between homocysteine and albuminuria and need to conduct larger prospective study.

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Anti-Apoptotic Effect of Atorvastatin in Experimental Nephropathy Induced by Isoproterenol in Rats

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Introduction. Nephropathy remains one of the leading causes of death in all industrialized nations. This study was conducted to investigate Atorvastatin effects on renal cells apoptosis following Isoproterenol-induced nephropathy.
Methods. Fifty male Wistar rats were randomly assigned into 5 groups of 10 animals each, including: 1- healthy control, 2- diseased (nephropathy) control, 3- treated with low dose of Atorvastatin, 4- treated with average dose of Atorvastatin, and 5-treated with high dose of Atorvastatin. For creation of nephropathy, Isoproterenol was injected subcutaneously at a dose of 0.5 mg/kg/d for 10 days. Groups 1 and 2 received only normal saline (10 mL/kg). Groups 3 to 5 received Atorvastatin at 5, 10, and 15 mg/kg. All treatments were administered orally dissolving in 10 mL/kg normal saline daily that started 3 weeks before Isoproterenol injection and continued until the end of experiment. After the last treatment, the rats were euthanized and histological sections from renal tissue were prepared through TUNEL staining method. Apoptotic cells were counted with under light microscope. The data obtained were statistically analyzed using ANOVA. Differences were considered statistically significant at $P < .05$.
Results. Isoproterenol caused significant increase in the number of apoptotic cells in group 2 versus healthy control ($P < .001$). In groups 3, 4, and 5, Atorvastatin (5, 10, and 15 mg/kg) caused significant decrease in the number of apoptotic cells in comparison with group 2.
Conclusions. Results indicated that Atorvastatin inhibits apoptotic cell death of renal cells induced by Isoproternol in dose dependent manner in rats.

O204

Human Genomic Alterations Impacting the Prognosis of Renal Cell Carcinoma

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Introduction. Renal cell carcinoma (RCC) accounts for approximately 86% of all renal cancers in human adults. RCC is the tenth leading cause of cancer in USA. These tumors arise from tubular epithelial cells. Different risk factors (smoking, obesity, hypertension, unopposed estrogen treatment, asbestos, and benzene) contribute to the formation of RCC tumors. Its clinical presentations include palpable mass, back pain, fever, and hematuria. Three major classifications of RCC include: 1) non-papillary carcinoma (80%); 2) papillary carcinoma (15%), and 3) chromophobe renal carcinoma (5%). About 95% and 5% of RCC are sporadic and familial, respectively. Here, we have analyzed the genomic over-expression of two tumor suppressor genes (p53, bcl-2) in RCC tumors.
Methods. A cohort study of 49 RCC patients were performed in Tehran university of Medical sciences between 2000 and 2009. The average age of the patients was 45 years old. In addition, 34 patients were male and 15 were females. We examined the following variables: age, gender, tumor grade, and the expression of two tumor suppressor genes (p53, bcl-2). These data were analyzed by SPSS software, spearman, chi-square and ANOVA statistical testing.
Results. The molecular analysis of p53 and bcl-2 were positive in 12 (25.5%) and 15 (31.9%) patients with RCC, respectively. The mean expression of p53 and bcl-2 in RCC tumors were 20 and 40 times higher than normal tissues, respectively. In spite of uncovered genetic alterations in some RCC tumors, no consistent correlation was observed between the grading status of different tumors and tumor suppressor genomic over-expression.
Conclusions. Our data showed that genomic alterations of p53 and bcl-2 tumor suppressor genes in RCC led to different prognostic manifestations in different population.