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EFFECTS OF PERITONEAL-AND HEMODIALYSIS ON LEVELS OF PLASMA PROTEIN AND LIPID OXIDATION MARKERS IN DIABETIC PATIENTS

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Background: . On renal dialysis, diabetes is an independent risk factor for CVD as higher levels of oxidative stress occurs - which is based on decreased antioxidant capacity due to loss of, low to middle molecular weight molecules including antioxidant substance via dialysis in addition to- continuous interact with the dialyze membrane.
Objectives: To evaluate the effects of dialysis procedures on oxidative stress in diabetic patients.
Methods: The study was performed on 15 nondiabetic hemodialysis (HD) patients, 30 nondiabetic perinoteal dialysis (PD) patients, 18 diabetic HD patients (DHD), 15 diabetic PD patients (DPD), and 20 healthy controls. Plasma thiobarbituric acid reactive substances (TBARS), protein carbonyl (PCO), and oxidized LDL (oxLDL) were determined as oxidative stress markers. Plasma thiol (P-SH), erythrocyte glutathione (GSH) levels, and serum paraoxonase (PON1) activities were measured as antioxidants. PCO, TBARS, PON , P-SH and GSH levels were determined using colorimetric methods, and oxLDL levels were determined by Enzyme-Linked Immun Assay.
Results: Compared to PD patient; HD patients have significantly - higher plasma oxLDL (P <0.05), TBARS (P <0.05), and PCO (P <0.05) and lower plasma P-SH levels (P <0.05) .In HD group, DP have significantly; higher PCO and PON1 activities (P <0.05 and P <0.05) and lower erythrocyte GSH levels (P <0.05) than non-diabetic patients. Plasma oxLDL levels were significantly higher (P <0.001) and plasma P-SH levels (P <0.01) were significantly lower in non -diabetic HD patients than in non-diabetic PD patients. DHD patients had significantly higher plasma PCO levels than DPD patients (P <0.05).
Conclusion: Oxidative stress is exacerbated by HD in diabetic patients. Treatment strategy with antioxidants in dialysis patients may be associated with a worsened survival.

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CREATININE, CYSTATIN C AND RENAL FUNCTION

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Background: Evaluation of renal function is based on the measurement of serum creatinine concentration. However creatinine is not an early indicator of impairment of kidney function, because it rises significantly only in case of damage of the renal function more than 50%. Cystatin C is a basic protein of 13 KDa not glycosylated, produced and released in the blood at a constant speed by all nucleated cells. It is filtered to Glomerular layer, reabsorbed and completely catabolized in the renal tubules. Gender, age, race, muscle mass, steroid therapies, inflammation, liver disease (that modify significantly creatinine serum concentrations) do not affect the concentrations of Cystatin C. We wanted to test the feasibility of using Cystatin C as a marker for early kidney damage more quickly and accurately in place of Creatinine.
Methods: We studied 180 patients (of various age including diabetes and hypertensive followed at the Day Hospital clinic compared with a sample of normal subjects going to the Laboratory Unit for a blood control. Over the blood samples were assayed. Creatinine values (measured with standardized enzymatic method by Unicel DxC 600 Beckman Analyzer) Cystatin C (measured with a FEIA-Fluorimetric Enzyme Immuno Assay - on AIA-1800 by Tosoh Bioscience Tokyo Japan) Albuminuria (IMMAGE with Nephelometric method Beckman).
Results: We found high correlation between Creatinine Cystatin C and renal function. Both markers increase with age however there was a greater increase of Cystatin C towards upwards, more linked to the renal decline age-dependent. In groups we didn't found correlation between Creatinine and Albuminuria, whereas Cystatin C and Albuminuria showed more evident relation in hypertensive patients.
Conclusions: Creatinine is the current gold standard for Renal Function (easy and cheap). Our preliminary data suggests the usefulness of Cystatin C as a marker for early kidney damage (as mirror of endothelial lesion) with greater diagnostic accuracy especially in the elderly and in the atherosclerotic patients. The wide availability of automated analytical methods will enable an effective use for the evaluation of early impairment of renal function.

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ABSTRACTS VOLUME

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