tolerated.Thus,this regimen may ramarkable increase nutritional status and clinical outcome of dialysed patients.

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EFFECT OF KETO AMINO ACIDS ON ASYMMETRIC DIMETHYL ARGININE, MUSCLE AND FAT TISSUE IN CHRONIC KIDNEY DISEASE

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Levels of endogenous nitric oxide synthase inhibitor asymmetric dimethylarginine (ADMA) are elevated in chronic kidney disease (CKD) and may contribute to vascular complications. In this study we tested the hypothesis that elevated ADMA can be reduced in CKD patients by long-term administration of low-protein diet (LPD) supplemented with keto amino acids (KA). In a long-term prospective double blind placebo controlled randomized trial, we evaluated a total of 120 CKD patients (62/58F) aged 22-76 yrs with creatinine clearance 22-40mL/min/1.73m^2 for a period of 36 months. All patients were on low-protein diet containing 0.6 protein/kg/IBW/day and 120-125/kJ/kg/IBW/day. LPD was randomly supplemented with KA at dosage of 100 mg/kg/IBW/day (61 patients, Group I) while 59 patients (Group II) received placebo. During the study period, glomerular filtration rate (GFR) slightly decreased (C_{cr} from 34.2 ± 11.6 to 29.9 ± 9.2 mL/min and 33.5 ± 11.6 to 22.2 ± 10.4 mL/min in Group I and II, respectively); this however was more marked in Group II ($p < 0.01$). Fat in muscle measured by MR spectroscopy (MRS, m.tibialis anterior) significantly decreased in Group I and was linked to reduced volume of visceral fat measured by MRI ($p < 0.01$). Reduction of fat in Group II was not significant. In Group I, there was a significant decrease in the plasma level of ADMA (from 2.4 ± 0.4 to 1.2 ± 0.3 μmol/L, $p < 0.01$), but ADMA remained unchanged in Group II. A further remarkable finding was reduction in the plasma concentration of pentosidine (from 486 ± 168 to 325 ± 127 μg/L, $p < 0.01$) and decrease of proteinuria (from 3.7 ± 2.20 to 1.6 ± 1.2 g/24hrs, $p < 0.01$) in Group I. Plasma adiponectin (ADPN) in Group I rose ($p < 0.01$). Analysis of lipid spectrum revealed a mild yet significant decrease in total cholesterol and LPD-cholesterol ($p < 0.01$), more pronounced in Group I. In Group I, there was a decrease in plasma triglycerides (from 3.8 ± 1.5 down to 2.3 ± 0.5 mmol/L, $p < 0.01$), whereas glycated hemoglobin (HbAc1) decreased from 7.0 ± 1.3 to 4.1 ± 0.9 %, ($p < 0.01$) nIn conclusion,comparing to placebo group long term co-administration of LPD and KA in CKD patients led to decrease of ADMA,fat in muscle and visceral body fat, and proteinuria. Concomitant decreases of glycated haemoglobin, LDL-c and pentosidine may also contribute to the delay in progression of renal failure and decrease of cardiovascular risk factors..The study was supported by Research Project MZO 00023001 awarded by Ministry of Health of the Czech Republic

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PIOGLITAZONE IMPROVES INSULIN SENSITIVITY, REDUCES VISCERAL FAT AND STIMULATES LIPOLYSIS IN NON DIABETIC DIALYZED PATIENTS

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Insulin resistance is common in dialyzed patients and is associated with increased mortality and protein-energy wasting. The aim of this study was to investigate the effect of pioglitazone (PIO), a powerful insulin sensitizer, on insulin sensitivity, body composition and adipose tissue metabolism, in dialyzed patients. A double blind randomized cross-over study was performed in non diabetic dialysis patients. Each patient followed 2 treatment phases of 16 weeks, starting either with oral PIO 45 mg/d or placebo (PL), and then switched to the other phase. At the end of each phase, patients underwent hyperinsulinemic euglycemic clamps, dual energy X-ray absorptiometry, an abdominal CT, and extensive plasma biochemical analysis. Twelve patients including 8 HD (59.6 ± 4.4 y) and 4 PD patients (43.5 ± 3.6 y) were recruited. Nine patients completed both phases and 3 patients dropped out (renal transplantation/2 HD and peritonitis/1 PD). PIO was safe and well tolerated. Under PIO, insulin sensitivity improved, as assessed by increased total glucose disposal rate (1.98 ± 0.24 for PIO versus 1.58 ± 0.12 umol/kg/min for PL, $p < 0.05$), and reduced glucose endogenous hepatic production. PIO did not affect post-dialysis body weight, total fat and lean body mass, but significantly reduced visceral adipose tissue (VAT) area and the VAT/SAT (subcutaneous adipose tissue) ratio. HDL-cholesterol significantly increased. PIO decreased CRP (3.96 ± 1.44 mg/l vs 7.88 ± 2.56, $p < 0.05$), plasma leptin, and dramatically reduced leptin/adiponectin ratio. Glycerol turnover, circulating glycerol and non esterified fatty acids were paradoxically increased. In conclusion, the improvement in insulin sensitivity by PIO, in non diabetic dialyzed patients, was associated with favorable metabolic effects, reduction in inflammation and body fat redistribution. The stimulation of systemic lipolysis was a surprising finding which may reflect adipose tissue remodeling and/or a paradoxical lypolitic effect of PIO in this population.

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QUANTIFICATION OF THE DIFFERENCE BETWEEN PRE-DIALYSIS AND POST-DIALYSIS SERUM ALBUMIN MEASUREMENT AND ITS RELATIONSHIP TO INTRA-DIALYTIC WEIGHT GAIN

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Haemodialysis patients may have low albumin levels due to a cascade of factors, including inflammation and reduced dietary intake. Albumin is commonly used in clinical settings by dieticians as part of a comprehensive nutritional assessment. Presently many dietetic practitioners use interchangeably pre-dialysis and post-dialysis biochemical measurements for albumin. The aim of this study was to quantify the difference between pre-dialysis and post-dialysis serum albumin measurement and its relationship to intra-dialytic weight gain. Fourty-six stable (21 Australian indigenous, 25 non-indigenous) haemodialysis patients were enrolled in a three month cross-sectional study. During the study patients underwent routine haemodialysis treatment and biochemical tests. Weight and biochemical measurements were collected pre and post dialysis on the first Tuesday or Wednesday of each month. A patient generated subjective global assessment (PG-SGA) was conducted in the third month of the study. The incidence of low albumin levels (< 35g/L) was 56% (n=26) when serum albumin was measured pre-dialysis, this was reduced to 30% (n=14) when measured post-dialysis. Analysis of serum albumin found a 2.6g/L (CI 1.7-3.5) difference in concentration between pre and post dialysis measurements (p=0.000), with serum albumin less concentrated in pre-dialysis blood samples. Intra-dialytic weight gain (2.0kg, CI 1.7-2.3) correlated with the change in serum albumin (r= 0.464, p=0.001). Intra-dialytic weight gain and the difference between pre and post dialysis serum albumin was greater in Australian indigenous patients than in non-indigenous patients. PG-SGA score was more strongly correlated with post-dialysis than pre-dialysis serum albumin (r=0.430, p=0.003; r=0.389, p=0.008 respectively).This study indicates that measurement of serum albumin should be undertaken post-dialysis when using the measurement as part of a nutritional assessment. Pre-dialysis serum albumin measurement may falsely indicate poor nutritional status, and should be followed with a post-dialysis measurement to confirm finding.

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DIFFERENCES BETWEEN AUSTRALIAN INDIGENOUS AND NON-INDIGENOUS MAINTENANCE HEMODIALYSIS PATIENTS

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Indigenous Australians have an increased incidence of kidney disease and decreased survival on hemodialysis. The aim of this study was to investigate whether differences in nutritional status exist between indigenous and non-indigenous patients undergoing maintenance hemodialysis in South Australia.

Seventy-two (22 Australian indigenous, 50 non-indigenous) stable hemodialysis patients were enrolled in a three month cross-sectional study. During the study patients underwent routine hemodialysis treatment and biochemical tests. Weight and biochemical measurements were collected pre and post dialysis on the first Tuesday or Wednesday of each month. A patient generated subjective global assessment (PG-SGA)