

randomly assigned to a low-protein diet supplemented with  $\alpha$ -keto acid group(keto acid group,31 patients),low-protein diet group(LPD group,26 patients)and routine protein diet group(RPD group,21 patients)were investigated and followed up for one year. The nutritional parameters were measured, and examinations of residual renal function (RRF), Kt/v, clearance of creatinine (Ccr) and levels of serum amino acids, mean arterial pressure (MAP), peritoneal ultrafiltration(UF),residual urine volume(RUV) and the status of water-sodium retentio were performed. Compared to LPD group, serum levels of prealbumin(PA), transferrin (TRF) retinal binding protein (RBP) had a significant increment both in keto acid group and LPD group( $P < 0.01$ ),but there was no significance between these two groups( $p > 0.05$ )□ Compared to RPD group, There was an incremental tendency in albumin(Alb), total cholesterol(TC), triglyceride (TG), Triceps skinfolds (TSF),midarm muscle circumference(MAMC),body mass index(BMI) in keto acid group, but no significance( $p > 0.05$ )□ The serum concentrations of Valine(Val),Leucine(Leu), Isoleucine (Ile) were significantly increased in keto acid group( $p < 0.01$ ),compared to the other groups. Levels of RRF, Kt/V, Ccr, RUV were significantly higher both in keto acid group and LPD group than in RPD group( $p < 0.01$ )□ There were no significant differences in MAP, UF and peritoneal dialysate albumin loss between these groups, However, the trend of peritoneal dialysate albumin loss in keto acid group and LPD group was descendent□ Proteinuria decreased most significantly in keto acid group ( $P < 0.01$ ).In conclusion, Low-protein diet supplemented with  $\alpha$ -keto acids therapy has a tendency of protecting RRF in CAPD patients while relieving malnutritional status and improving the 1 levels of branched chain amino acids.

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## 267 EXPERIMENT ON EFFECTS OF LOE-PROTEIN DIET SUPPLEMENTED WITH $\alpha$ -KETOACIDS ON HYPERTROPHY OF DIABETIC GLOMERULUS AND ITS RELATIONSHIP WITH THE LEVEL OF CYCLIN KINASE INHIBITOR P27

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Low-protein diet supplemented with  $\alpha$ -keto acids was reported to have renoprotective roles in diabetic nephropathy via inhibiting glomerular hypertrophy, however, the mechanism has not yet been fully clarified. the cyclin kinase inhibitor p27 play an important role in hypertrophy of diabetic glomerulus. The objective of the present study was to investigate the relationship between the cyclin kinase inhibitor p27 and the effect of low-protein diet supplemented with  $\alpha$ -keto acids on hypertrophy of diabetic glomerulus in rats. STZ-induced diabetic rats were given low-protein diet(5□ protein in fodder, LPD group)or low-protein diet supplemented with  $\alpha$ -keto acids(5□ protein in fodder including 1□ protein supplied by  $\alpha$ -keto acids, LPD +  $\alpha$ -KA group)or normal-protein diet(10□ protein in fodder, NPD group)for 8 weeks□ The p27 protein of glomerular lysate was detected with Western Blot. The extracellular matrix (ECM)protein(type IV collagen and fibronectin) of glomerular lysate and 24 h urine albumin were examined with ELISA□ Image analysis system was used to detect the diameter of each glomerulus. Glomerular p27 protein increased in diabetic rats no matter what kinds of diet were given, meanwhile,the 24h urine albumin, glomerular ECM,glomerular diameter elevated as well as the ratio of kidney weight over body weight in diabetic rats□ Both low-protein diet and low-protein diet supplemented with  $\alpha$ -keto acids could attenuate changes occurred in diabetic rats with normal-protein diet□ Glomerular p27 level( $8.6 \pm 2.3$  vs  $11.1 \pm 3.6$ , $P < 0.01$ ),24 h urine albumin( $13.21 \pm 2.49$ ) $\mu\text{g}$ □ 24 h vs ( $18.13 \pm 3.23$ ) $\mu\text{g}$ □ 24 h, $P < 0.01$ ,glomerular diameter( $652 \pm 73$ ) $\mu\text{m}^2$  vs ( $721 \pm 75$ ) $\mu\text{m}^2$ , $P < 0.05$ ,and the ratio of kidney weight over body weight( $11.02 \pm 1.72$  vs  $12.03 \pm 1.85$ , $P < 0.05$ )were lower in LPD +  $\alpha$ -KA group than LPD group. Solely glomerular p27 level was linearly related with the ratio of kidney weight over body weight in diabetic rats□ The blood glucose and serum albumin remained constant in diabetic rats no matter what kinds of diet were given. In conclusion, Low-protein diet supplemented with  $\alpha$ -keto acids can further inhibit glomerular hypertrophy,and may protect diabetic glomerulus through decrease of glomerular p27 level.

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## 268 CRP AND ATHEROSCLEROSIS IN HEMODIALYSIS PATIENTS, A NESTED CROSS-SECTIONAL STUDY

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CRP is a recognized marker of systemic inflammation. The degree to which CRP is associated with carotid and/or femoral intima media thickness (IMT), markers of atherosclerosis, may quantify the degree to which inflammation explains cardiovascular disease in patients with end stage renal disease. The purpose of this study was to estimate the association between CRP and both carotid and femoral IMT in hemodialysis (HD) patients. The present cross-sectional study is nested in the Sevelamer hydrochloride and ultrasound-measured femoral and carotid intima media thickness progression in end stage renal disease (SUMMER) clinical trial. Carotid (common, internal and bifurcation) and femoral arteries were visualized in B-mode ultrasonography. CRP was measured in serum. The study cohort included 177 HD patients (39.5% female, mean age  $67.8 \pm 11.5$  years). All measures of both carotid and femoral IMT were significantly, positively associated with CRP. Compared to subjects without, subjects with PVD, coronary revascularization and hypertension had significantly higher CRP levels. Conversely, subjects treated with sevelamer hydrochloride had significantly lower CRP levels than those not exposed to this medication. CRP was significantly, positively associated with serum phosphorus, calcium and PTH, and significantly inversely associated with HDL. In conclusion, CRP is significantly, positively associated with both femoral and carotid IMT and suggests an association between inflammation and atherosclerosis in HD patients.

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## 269 CONTRIBUTION OF COGNITIVE INTERFERENCE TO DECREMENTS IN WALKING PERFORMANCE IN HEMODIALYSIS PATIENTS

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Patients with advanced CKD have impaired walking function that predisposes them to falls and disability. Deficits in walking function are traditionally ascribed to declines in physical function. However, walking impairment in certain clinical populations may also result from a phenomenon known as cognitive-motor interference. This is characterized by reductions in motor task performance (e.g., walking speed) when simultaneously performing a cognitive task, and is termed a dual task cost (DTC). The purpose of this study was to compare the contribution of cognitive interference to decrements in walking performance in hemodialysis patients and healthy controls.

14 hemodialysis patients (10M,4F, age= $48.5 \pm 11.8$ ) and 14 age-matched healthy controls (9M, 5F, age= $48.5 \pm 10.1$ ) participated. Each completed a walking task in a control and dual task condition. The walking task involved walking at a comfortable pace 4 times across a 26'GAITRite™ mat. The first 2 trials were completed with no cognitive task and the last 2 trials with a simultaneous task that consisted of generating a modified word list. Walking performance was quantified with normalized gait speed, step length, base of support, and step time. DTC was determined for each variable as the % difference in performance between the single task and dual task.

Major metrics of walking function under standard conditions were impaired by 20–40% in hemodialysis patients vs controls ( $p < 0.05$  for each.). In addition, CKD patients had a greater DTC for velocity, cadence, step time and double support, than the control group ( $p < 0.05$ ), and trends for greater DTC for step length and width ( $p = 0.07$ ).

These data indicate that walking impairments in hemodialysis patients are not due exclusively to declines in physical function, but that cognitive-motor interference also plays a significant role. This has significant clinical importance, as therapies designed to improve walking performance and physical function, such as nutritional and exercise interventions, may need to be augmented with cognitive training in order to have maximum benefits.

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## 270 PHOSPHORUS IN THE DIET AND PRAGMATIC ISSUES FROM THE FOOD INDUSTRY

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The food industry over the last decade has undergone a major transformation in the way they manufacture food, often to the detriment of nutritional paradigms. Two key components are pivotal to many of these changes: salt and phosphate food additives. Traditional databases of food composition, especially for processed foods, are no longer relevant. Phosphorus