

146 PARTIALLY HYDROLYZED GUAR GUM INTAKE AMELIORATES CONSTIPATION, IMPROVES NUTRITIONAL STATUS AND REDUCES INDOXYLSULFURIC ACID IN DIALYSIS PATIENTS.

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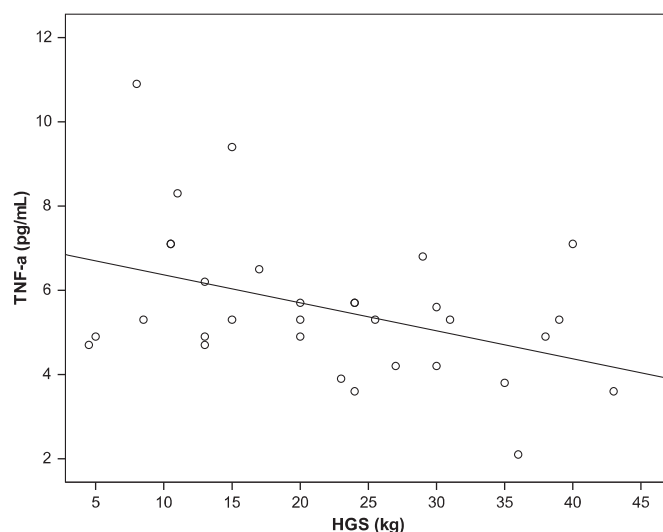
Dialysis patients often develop constipation and changes in intestinal bacterial flora. Indoxylsulfuric acid (IS) levels rise as glomerular filtration decreases, and patients with renal failure have high IS. Elevated IS is also caused by increased indole due to altered intestinal flora (Takayama et al. Am J Kidney Dis. 2003). We investigated whether administering partially hydrolyzed guar gum (PHGG) (Sunfiber: a product of Taiyokagaku Co., Ltd., Japan) ameliorates constipation and improves nutritional status in dialysis patients, while decreasing IS levels. Thirty-five patients on maintenance dialysis (mean age, 71 ± 9 ; male/female = 22/13) ingested PHGG (10 g/day) for 6 weeks. Defecation was scored before and after PHGG intake using a modified Constipation Assessment Scale-Long Term (Japanese version). Nutritional status was rated according to the Geriatric Nutritional Risk Index (GNRI) before and after PHGG intake. IS was measured in 8 patients taking PHGG orally for 24 weeks, for comparison with those in 8 patients not on PHGG. Constipation scores decreased from 7.9 to 5.0 ($p < .01$) and GNRI increased from 95.0 ± 5.0 to 95.9 ± 5.7 ($p < .05$), reflecting amelioration of constipation and improved nutritional status. The ratio of IS after to that before PHGG intake was calculated to analyze the magnitude of IS change. The ratio in patients not on PHGG was 1.2 ± 0.3 , i.e. IS rose, while that in patients taking PHGG was significantly reduced (0.8 ± 0.3 , $p < .05$). Our results indicate PHGG consumption to ameliorate constipation and improve nutritional status, and that continued intake reduces IS, in dialysis patients.

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147 ASSOCIATION BETWEEN HANDGRIP STRENGTH AND INFLAMMATION IN HEMODIALYSIS PATIENTS

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The inflammation is a common feature in HD patients and may contribute to muscle wasting. Handgrip strength (HGS) has been recognized as a useful tool in assessing muscle function in hemodialysis (HD) patients. The aim of this study was to evaluate the association between inflammation and muscle function in HD patients. Twenty-three HD patients (19 men, 54.3 ± 12.4 years of age, BMI, $24.5 \pm 4.6 \text{ kg/m}^2$) were studied. HGS was measured 3x with a mechanical dynamometer after the HD sessions. HGS values less than the 10th percentile of an age-, gender- and regional specific reference were considered as muscle function loss. Tumoral necrosis factor- α (TNF- α) and interleukin-6 (IL-6) levels were determined by a multiplex assay kit through the device Luminex method. C-reactive protein (CRP) was measured with the immunoturbidimetric method. HGS values were significantly greater in males ($28.8 \pm 9.7 \text{ kg}$) than females ($13.9 \pm 6.5 \text{ kg}$) ($p < 0.0001$) and, 57.6% of the HD patients presented muscle function loss. TNF- α , IL-6 and CRP levels were $5.6 \pm 1.7 \text{ pg/mL}$, $3.5 (1.75) \text{ pg/mL}$ and $0.17 (0.50) \text{ mg/dL}$, respectively. According to the CRP levels, 42.4% of the HD patients presented inflammation (CRP $> 0.3 \text{ mg/dL}$). CRP and IL-6 were not correlated with HGS, but TNF- α were inversely correlated with HGS ($r = -0.42$; $p = 0.01$). These data suggest that inflammation can play an important role on muscle function in HD patients.



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148 URIC ACID LEVELS CORRELATES WITH INFLAMMATORY MARKERS AND ADHESION MOLECULES IN HEMODIALYSIS PATIENTS

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Elevated serum uric acid has been associated to a variety of cardiovascular disease states and with systemic inflammation. The aim of this study was to analyze the association between uric acid levels and inflammatory markers in hemodialysis (HD) patients. This cross-sectional study included 50 HD patients (62% men, 54.3 ± 12.6 yrs, BMI $24.4 \pm 4 \text{ Kg/m}^2$) and 21 healthy individuals (45% men, 50.7 ± 15.7 yrs, BMI $25.5 \pm 4.0 \text{ Kg/m}^2$). Uric acid was measured using uricase-PAP method, inflammatory (TNF- α , IL-6 and CRP) and atherosclerosis markers (ICAM-1, VCAM-1, MCP-1 and PAI-1) were measured by a multiplexed particle-based flow cytometric assay. There was a positive correlation between serum uric acid and inflammatory markers, IL-6 ($r=0.30$, $p=0.01$), CRP ($r=0.37$, $p=0.003$), TNF- α ($r=0.40$, $p=0.001$) and adhesion molecules levels, ICAM-1 ($r=0.53$, $p=0.0001$), and VCAM-1 ($r=0.45$, $p=0.0001$)

Parameters	HD Patients	Healthy individuals
CRP (mg/mL)	$0.32 \pm 0.30^*$	0.11 ± 0.12
TNF- α (pg/mL)	$5.5 \pm 2.1^*$	2.4 ± 1.1
IL-6 (pg/mL)	$4.1 \pm 1.6^*$	2.7 ± 0.4
PAI-1 (ng/mL)	7.0 ± 2.7	6.2 ± 2.1
MCP-1 (pg/ml)	47.6 ± 24.2	37.3 ± 19.0
VCAM-1 (ng/mL)	$48.5 \pm 8.5^*$	23.8 ± 5.5
ICAM-1 (ng/mL)	$20.5 \pm 15.9^*$	7.2 ± 1.2

* $p < 0.05$

In conclusion, these original data suggest that uric acid may have a role in inflammation and atherosclerosis in HD patients

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149 EFFECT OF 3-YEARS ADHERENCE TO A LOW PROTEIN DIET ON THE PROGRESSION OF GLOMERULAR FILTRATION RATE IN CHRONIC KIDNEY DISEASE PATIENTS

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Low protein diet for patients with chronic kidney disease (CKD) during conservative treatment (CT) aims to reduce the progression and symptoms of the CKD. This study aimed to evaluate the glomerular filtration rate (GFR) in patients receiving low protein diet during 3 years (\approx 4 clinic visits per year). The study comprised 321 patients with CKD on CT from a *Renal Nutrition Ambulatory of a Federal Lagoa Hospital*. All patients received dietary prescription according to NKF-K/DOQI recommendations and the diet adherence was evaluated with patients being asked whether they were adhering to the treatment and through reported dietary intake (2 weekdays and 1 weekend day). Patients were divided in 4 groups: diabetes Mellitus (DM) patients who adhered (G1) and not adhered to the diet (G2), and patients without DM who adhered (G3) and not adhered to the diet (G4).

Groups	Before	After
<i>Group 1-DM (n=83)</i>		
Cr (mg/dL)	1.9 \pm 0.6	1.6 \pm 0.7*
GFR (mL/min)	37.8 \pm 14.4	46.6 \pm 17.3**
<i>Group 2-DM (n=106)</i>		
Cr (mg/dL)	1.9 \pm 0.7	2.03 \pm 0.7
GFR (mL/min)	43.8 \pm 17.3	42.6 \pm 13.3
<i>Group 3-non-DM (n=75)</i>		
Cr (mg/dL)	2.2 \pm 0.8	1.8 \pm 0.8*
GFR (mL/min)	34.3 \pm 13.1	40.9 \pm 21.7
<i>Group 4-non-DM (n=57)</i>		
Cr (mg/dL)	2.2 \pm 0.8	2.4 \pm 1.0
GFR (mL/min)	39.9 \pm 19.0	35.2 \pm 18.4

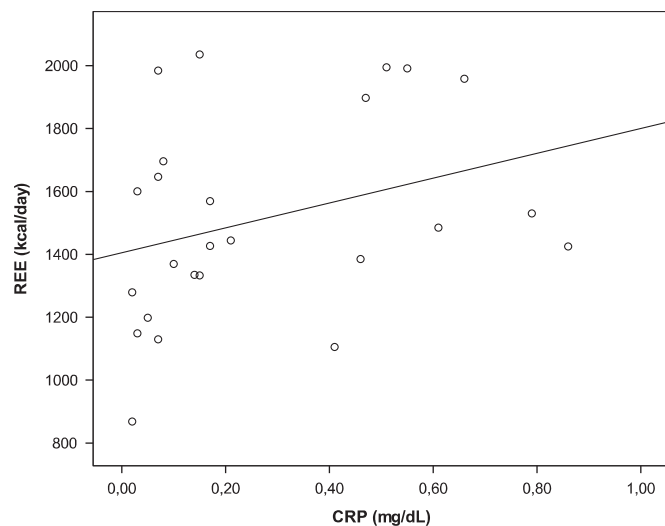
There was no difference between diabetic and non-diabetic patients who adhered to the diet. Both groups showed improvement on GFR. In conclusion, these analyses suggest that a lower protein intake retards the progression of renal disease.

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150 INFLAMMATION INCREASES THE RESTING ENERGY EXPENDITURE IN HEMODIALYSIS PATIENTS

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Resting energy expenditure (REE) is the predominant component of total daily energy expenditure (TEE). Metabolic disorders and comorbidities, such as inflammation and diabetes, can affect the REE in hemodialysis (HD) patients. The objective of this study was to evaluate the relationship between inflammation and REE estimated by TEE in HD patients. Twenty-five HD patients (54.5 \pm 11.7 years, 15 men, BMI, 24.4 \pm 4.7 kg/m², urea clearance (Kt/V_{sp}) of 1.43 \pm 0.26 and 58.2 \pm 42.7 months on HD) were studied. TEE was measured during two days (one dialysis and one



nondialysis day) by SWA (SenseWear Pro2 Armband, BodyMedia Inc, Pittsburgh, PA, USA). This monitor provides directly the TEE and the physical active energy expenditure (PAEE); the REE measurement was obtained by the subtraction of PAEE and thermic effect of food (approximately 10% of TEE) from TEE. C-reactive protein (CRP) was measured by immunoturbidimetric method. The REE was 1677.7 \pm 273.5 kcal/d for men and 1267.0 \pm 221.6 kcal/d for women ($p < 0.0001$). The CRP levels values were 0.27 \pm 0.26 mg/dL and nine patients (36%) had CRP > 0.3 mg/dL, compatible with chronic inflammation. A trend for high REE was observed in patients with inflammation (1865 \pm 216 kcal/d for men with CRP ≥ 0.3 mg/dL and 1584 \pm 257 kcal/d with CRP < 0.3 mg/dL ($p = 0.05$); 1361.4 \pm 181.5 kcal/d for women with CRP ≥ 0.3 mg/dL and 1204.1 \pm 238.2 kcal/d with CRP < 0.3 mg/dL ($p = 0.27$). CRP was positively correlated with REE ($r = 0.41$; $p = 0.04$). In conclusion, chronic mild inflammation can increase the REE in HD patients.

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151 EFFECTS OF GRAPE POWDER SUPPLEMENTATION ON INFLAMMATION IN HEMODIALYSIS PATIENTS.

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Polyphenols and antioxidants anti-inflammatory have been considered pharmacological agents to combat oxidative stress in chronic diseases due the reduction in the formation of free radicals (FR). Hemodialysis (HD) patients have an imbalance between oxidant and antioxidant activity, with increased levels of FR and consequently an increase of lipid peroxidation, thereby raising the risk for cardiovascular disease (CVD). The beneficial health effects of grape juice or red wine for these patients have been attributed to the antioxidant activity of its polyphenols. Then, this study aimed to evaluate the effects of grape powder supplementation on inflammation and glutathione peroxidase levels in hemodialysis (HD) patients. Thirty-two HD patients from CIN, RJ, Brazil were studied and randomly into two groups: placebo group- PG (16 patients, 9 men, 52.7 \pm 13.7 yrs) and experimental group EG (16 patients, 9 men, 53.0 \pm 9.8 yrs). Each patient received 12g/day of powder grape with grape jelly or only grape jelly (placebo) during 5 weeks. The lipid profile, C-reactive protein (CRP) levels and glutathione peroxidase (GPx) activity were evaluated before and after supplementation (Table). The data suggest that the consumption of grape powder was effective to increase the activity of GPx and decreasing the progression the inflammation. Thus, our results indicate that grape powder plays an important role as an antioxidant agent in HD patients.

	Placebo Group		Experimental Group	
	Before	After	Before	After
CRP (mg/mL)	2.6 \pm 0.2	2.8 \pm 0.2*	2.6 \pm 0.2	2.6 \pm 0.2
LDL-C	86.3 \pm 38.8	94.4 \pm 34.3	80.5 \pm 25.0	82.9 \pm 22.1
Total cholesterol	154.6 \pm 44.9	163.3 \pm 44.8	143.9 \pm 29.2	145.4 \pm 28.3
GPx (U/g prot)	17.5 \pm 9.8	29.1 \pm 30.7	19.7 \pm 20.3	41.0 \pm 27.7*

* $p < 0.05$

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152 SHORT-TERM EFFECTS OF DIETARY PROTEIN RESTRICTION ON THE PROGRESSION OF CHRONIC KIDNEY DISEASE IN PATIENTS UNDERGOING CONSERVATIVE TREATMENT

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In chronic kidney disease (CKD) patients undergoing conservative low-protein diets ameliorate uremic symptoms and certain CKD complications and, can slow progression of renal disease. The aim of this study was to determine the short-term effects of protein restriction on the progression of CKD. Twenty-six CKD patients from the Renal Nutrition Ambulatory, Nutrition Faculty, UFF, Niterói, Brazil (63.1 \pm 13.7 years, 13 men, and %