

4 EFFECT OF PROBIOTIC-PREBIOTIC SUPPLEMENTATION WITH DIET COUNSELING IN CHRONIC KIDNEY DISEASE

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Chronic kidney disease (CKD) is a progressive disease leading to requirement of renal replacement therapy (RRT) over a period of time. Limited availability and high cost of RRT in many countries necessitates the researchers to focus on either prevention or slowing the progression of CKD. High dose probiotics have been hypothesized to metabolize the nitrogenous waste products, thus delaying the requirement of dialysis. The purpose of this short term intervention study was to study the effect of probiotic-prebiotic therapy and diet counseling on nutrition, renal progression, and overall health of CKD patients. Thirty predialysis CKD patients (21 males, 9 females) were included in the study. The diet charts were designed according to the underlying nutritional status and blood parameters. Calorie intake was 30–40 kcal/kg; proteins 0.6–0.8 g/kg (with at least 50% high biological value); potassium 1.5–2 gm./day; and phosphorus < 1 gm./day. All patients were prescribed enteric coated gelatin capsules containing lyophilized *Streptococcus Thermophilus*, *Lactobacillus Acidophilus*, and *Bifidobacterium Longum*, in a dose of 15 billion colony forming units along with 100 mg Lactitol monohydrate as prebiotic. Each patient received two capsules three times a day with each meal. The mean age was 45 years (range 18–68). The statistical analysis was done using 'RGui' software version 2.13.0 and the outcomes were tested using paired t-test at 5% level of significance. The mean calorie intake increased from 1479 kcal/day to 1869 kcal/day ($p < 0.0005$), with significant reduction in protein, phosphorus and potassium intake. There was significant improvement in body mass index ($p = 0.002$) and serum albumin levels ($p = 0.005$). All but four patients showed improvement or stabilisation of glomerular filtration rate (GFR), and the mean GFR improved from 24.72 ml/min to 27.73 ml/min ($p = 0.03$). There was also significant improvement in triglyceride and LDL cholesterol levels. Twenty five patients showed improvement in five point quality of life visual analogue score, while no patient reported any significant adverse event. In conclusion, this short term study of diet counselling with probiotic supplementation showed significant improvement in various parameters of CKD necessitating a longer term study.

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203 FOSRENOL FOR ENHANCING DIETARY PROTEIN INTAKE IN HYPOALBUMINEMIC DIALYSIS PATIENTS (FREDI) STUDY

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Protein-energy wasting (PEW), reflected by serum albumin < 4.0 g/dL, is common in maintenance hemodialysis (MHD) patients (pts) and is associated with poor outcomes.

Hyperphosphatemia (phosphorus > 5.5 mg/dL) is also common and is associated with high death risk. The traditional dietary approach to control hyperphosphatemia by limiting protein foods may cause or worsen PEW. We hypothesized that provision of a high protein diet including during HD treatment results in favorable outcomes if a potent phosphorus binder such as lanthanum carbonate (Fosrenol™) can control phosphorus simultaneously and conducted a pilot/feasibility randomized controlled trial in 110 hypoalbuminemic (< 4.0 mg/dL) MHD patients in several dialysis clinics. After a washout period and upon 1:1 randomization, we provided the INTERVENTION group with 8 weeks of high protein meals as prepared meal boxes (50 g protein, 850 Cal, phosphorus to protein ratio < 10 mg/gm) during each HD treatment, along with 0.5 to 1.5 g Fosrenol (titrated as needed) plus dietary counseling to maintain a high dietary protein intake at home. The CONTROL group received meal boxes containing low calorie (< 50 Cal) and almost no protein (< 1 g, such as salads) during each HD treatment and continued non-Fosrenol binders. We examined combined change in serum albumin with remaining in target phosphorus range of 3.5–< 5.5 mg/dL over the 8 weeks of intervention. Among the 51 intervention and 55 control subjects who qualified for the intention-to-treat analyses, the combined rise in albumin ≥ 0.2 g/dL while maintaining phosphorus in 3.5–< 5.5 mg/dL range was achieved in 25.5% and 9.8%, respectively (χ^2 p-value 0.036). No serious adverse events were reported, and patients reported satisfaction with high protein

meals during HD. Hence, provision of high protein meals combined with Fosrenol™ during HD is safe and may improve albumin while controlling serum phosphorus. ClinicalTrials.gov # NCT0111694

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204 HAND GRIP STRENGTH AS A NUTRITIONAL MARKER IN PD AND HEMODIALYSIS PATIENTS

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This is a prospective study evaluating hand grip strength as a nutritional marker in maintenance dialysis patients. Thirty CAPD and 50 MHD patients were assessed for hand grip strength (in the non-fistula arm) and demographic variables. In the MHD, 60% diabetic and in PD 66.7% were diabetic. In the MHD patients, Mean Age - 53.62 ± 12.45 , 78% Males and 22% Females, Hb- 9.7 ± 1.1 g/dL and 3.86 ± 2.83 years on dialysis and in PD patients, mean age - 58.6 ± 11.52 , 63.3% males and 26.7% females, Hb - 10.5 ± 1.4 g/dL and 3.33 ± 2.6 mean years on dialysis. Hand Grip Strength was 11.58 ± 3.7 kg pre-dialysis and 9.2 ± 3.6 kg post dialysis in MHD and 10.8 ± 2.9 kg in PD patients. We found that malnutrition was present in 90% of MHD (10% severe, 24% moderate, 56% mild) and 100% (6.7% severe, 40% moderate, 53.3% mild) of PD patients via hand grip comparison. In conclusion, hand grip strength is a simple tool to measure the muscle mass as a measure of malnutrition in dialysis patients.

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205 RETROSPECTIVE ANALYSIS OF PATIENT SURVIVAL BASED ON NUTRITIONAL STATUS IN A COHORT OF HEMODIALYSIS PATIENTS FROM TWO LARGE CENTERS IN A METROPOLITAN CITY IN A DEVELOPING COUNTRY

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This is a retrospective analysis of 858 patients from 2 medical centers on maintenance hemodialysis from January 1998 - January 2010 (Males-599, females 259) (364 diabetics [42.5%]) (Mean Age - 48.5 ± 22.74 , > 60 - 76.5% and < 60 - 23.5%) (Vegetarians - 18.25%, Non-Vegetarians-81.75%). Patients were followed up for 3 years. Demographic, nutritional and renal parameters were documented. Mean albumin - 3.47 ± 0.67 g/dL, mean Hb - 8.56 ± 5.75 g/L, Serum calcium (corrected) - 8.6 ± 0.9 mg/dL, serum phosphorus - 5.32 ± 1.85 mg/dL, mean $\text{Ca}^* \text{Po}_4$ product - 43.27 ± 17.62 mg^2/dL^2 , mean iPTH - 260.3 ± 295.3 pg/mL, 25-OH D_3 - 23.3 ± 20.2 mg/dL. Overall, 191 patients died (22%) with an 86% and 78% patient survival at 1 year and 3 years.

Age	Hb (g/L)	Cor Ca. (mg/dL)	Albumin (g/L)	$\text{Ca}^* \text{PO}_4$ (mg/dL)	25-OH D_3 (mg/dL)
≥ 60	9.0 ± 7.9	8.6 ± 0.9	3.5 ± 0.6	42.6 ± 16.7	22.9 ± 18.7
< 60	8.4 ± 4.7	8.4 ± 1.1	3.6 ± 0.5	45.3 ± 20	24.5 ± 24.8
p value	.550	.2660	.396	.235	.687

There is no statistically significant association between age, albumin levels, vegetarianism with mortality.

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206 NUTRITIONAL ASSESSMENT OF CAPD PATIENTS

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Appearance and progressive development of malnutrition significantly influence the efficacy and treatment outcome in chronic renal failure (CRF) patients receiving continuous ambulatory peritoneal dialysis (CAPD) therapy.