

Macronutrients Management of CKD Patients and Effect on Biochemical Parameters and the Clinical Outcome

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Macro nutrients are the Carbohydrate, protein and lipid which are essential for the energy production and metabolism. The requirement of these macronutrients varied according to the CKD stage and the other comorbid conditions such as diabetes, hypertension, dyslipidemia, and obesity etc. Chronic Kidney Disease (CKD) is defined as glomerular filtration rate (GFR) $< 60\text{mL}/\text{min}/1.73\text{ m}^2$ for 3 months or more. If the condition prevails untreated, CKD patients reach End–Stage Renal Disease (ESRD) and majority succumb to death before require renal replacement therapy (RRT) due to cardiovascular morbidity. Dyslipidemia is directly associated with this condition. Thus it is essential to maintain the nutrition balance in diet of a renal impaired person. Therefore, dietitians' role is necessary to address the underlying cause of CKD patient and develop an individualized, evidence –based nutrition plan to improve patients' quality of life.

This study was conducted at Sri Lanka Police Hospital. Ethical approval was obtained from the Colombo South Teaching Hospital, Kalubovila. Sample size was 98. This was a retrospective descriptive study. Both male (n=54) and female (n=44) pre –dialysis CKD patients who were in stage I –V were included. Patients who were undergoing dialysis and over 80 years were excluded. All the patients were under the pharmacological therapy. The CKD patients were given dietary and life -style modifications and reviewed and monitored at regular intervals by registered dietitian nutritionist based on evidence –based nutrition and approved guidelines. Biochemical data was recorded in a monitoring chart at every visit. Calculated amounts of macro nutrients were given as a portion size. Carbohydrate amount and type were given according to the blood sugar level (45-55% of daily energy intake). Dietary proteins were restricted up to 0.6- 0.9g/kg/body weight based on CKD stage, GFR, and Serum creatinine level. Physically refined coconut oil used as a source of fat (25%- 35% of energy) based on previous research. Data were retrieved from monitoring chart for analysis. Serum creatinine eGFR and lipid profile of CKD patients were analyzed after 1 year of interval.

There was a significant decrease in serum creatinine level in 85% ($p < 0.05$) of the sample and significant increase in e GFR level in 90% ($p < 0.05$) of the sample with compared to the initial levels. Following the intervention 90 % ($p < 0.05$) of the sample had total cholesterol and triglyceride (TG) within the normal range. The HDL level of 60% ($p < 0.05$) and of sample was also within the normal range. Improvement of other parameters of lipid profile (LDL) was not significant ($p > 0.05$).

Providing a balance diet of with calculated amounts of macronutrients through dietitian nutritionist was effective in management of biochemical parameters of CKD patients. There is no adverse effect of consumption of physically refined coconut oil in appropriate amounts, on the lipid profile of subjects.

Keywords: Balance Diet, Chronic Kidney Diseases, Macro Nutrients

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