Anita Saxena et al., J Nephrol Ther 2017, 7:3(Suppl)
DOI: 10.4172/2161-0959-C1-040

12TH GLOBAL NEPHROLOGISTS ANNUAL MEETING

June 26-28, 2017 London, UK

Effect of dietary habits on dietary phosphorous intake in chronic kidney disease patients from different religious communities on their first visit to nephrologists

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Introduction: Hyperphosphatemia is a major concern in chronic kidney disease patients (CKD). Phosphorus intake is restricted in order to prevent hyperphosphatemia in these patients. Animal protein has higher organic phosphorus, 80% of which is absorbed compared to inorganic phosphates of vegetable origin, absorption of which is 50-60% only.

Aim: The aim of the study was to evaluate if dietary habits based on religion influence phosphorous intake of CKD patients.

Methodology: This is an ongoing prospective study on hyperphosphatemia which was approved by ethics committee of the institute. A total of 97 patients were screened from Outpatient Department of Nephrology, among which 85 were Hindus and 13 were Muslims. 5 patients were in stage 1, 18 in stage 2, 27 in stage 3, 26 in stage 4 and 31 in stage 5 CKD. Patients in CKD stages 4 and 5 were on phosphate binders. Three days dietary recall of the patients was taken to evaluate energy, protein, calcium and phosphorous intake with the help of standard nutrition tables of National Institute of Nutrition (NIN) published by ICMR. Patient's anthropometric measurements (weight, height and BMI) and biochemical parameters (hemoglobin, serum creatinine, serum potassium, sodium, calcium and phosphorus) were tested. GFR was calculated with the help of CCG's formula.

Result: The mean age of Muslims and Hindus were 41.73±15.30 and 44.31±16.037 years respectively. Weight was 61.63±12.425 and 61.75±15.545 kg respectively; height was 163.13±7.210/162.71±9.681 cms; BMI was 23.29±3.630/23.03±4.706; hemoglobin 8.84±2.27/9.92±2.503; serum creatinine 3.32±2.655/3.31±2.602 mg/dL; systolic blood pressure was 143.56±23.304/133.64±23.440 mm/Hg; diastolic blood pressure was 88±12.7 and 86.66±.15.7 mm/Hg. GFR among Muslim patients was 40.22±44.57968/36.6073±31.04 ml/min/1.73 m2. There was no significant difference among these parameters. The mean dietary energy intake was 665.88 ±377.4 and 821±393.3 kcal/kg/d; protein intake was 22.44±16.0 and 27.08±14.0 gm/d; calcium intake was 237.13±199.6/364.46±301.5 mg/d; phosphorous intake was 572.56±397.59 and 695.18±369.029 mg/day for Muslims and Hindus respectively. In both the groups, energy, protein, calcium intake was less than that recommended for CKD patients (35 kcal/kg/d of energy; 0.6 g/kg/d of protein and 1000-1500 mg of calcium respectively). Phosphorus intake was within recommended range (800-1000 mg/d) for CKD patient. There was significant difference in dietary phosphorous (0.040), calcium (0.038), serum creatinine (0.017) based on religion but no significant difference was seen in the protein intake of the patients. For comparing dietary intake based on CKD stages, parameters were analyzed using ANOVA analysis. On comparing parameters, significant difference was observed between groups in hemoglobin (p=0.000) and serum creatinine (p=0.000) and dietary intake of energy (p=0.000), protein (0.000), calcium (p=0.000) and phosphorus (p=0.002). Correlation analysis showed significant association between serum creatinine and dietary energy, protein, phosphorus and serum phosphorus. Dietary energy was significant associated with serum albumin (p=0.002), dietary protein calcium and phosphorus (p=0.000) and GFR (p=0.000). Dietary protein as associated with dietary calcium (p=0.000), phosphorus (p=0.000), serum albumin (p=0.003) and GFR (p=0.000) Dietary phosphorus was significantly associated with serum phosphorus and calcium was associated with phosphorus (p=0.023).

Conclusion: High phosphorous intake was observed in Muslim community due to their predominantly meat based dietary habits. Hence, in CKD patients to control hyperphosphatemia, vegetarian diets should be recommended.

Biography

Anita Saxena is currently working as an Additional Professor in the Department of Nephrology in Sanjay Gandhi Post Graduate institute of Medical Sciences, Lucknow. Her qualifications include MD and PhD. She completed her Post-Doctoral fellowships during 1995-96, Addenbrook's Hospital, Cambridge University, England. She is a member of American Society of Nephrology (ASN), International Society of Nephrology (ISN), International Society of Renal Nutrition and Metabolism (ISRNM), Asia Pacific Society of Nephrology (APSN), Indian Society of Nephrology (ISN), Peritonial dialysis Society of India, Indian Society of Organ Transplantation (ISOT), Indian Association of Nephrology (IAN), Member Research Board of Advisors American Biographical Institute, USA, Advisory Council, International Biographical Centre, Cambridge, England and Philosophical Society, Cambridge, England. She has more than 60 published papers.

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