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Dialysis

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CLINICAL AND NUTRITIONAL CHARACTERISTICS OF POOR PHOSPHATE CONTROLLED HEMODIALYSIS POPULATION

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Background: Hyperphosphatemia is one of the principal risk factors for cardiovascular mortality and mineral bone disorder. The clinical emphasis have been focused on the phosphate binder prescription, whereas clinical and nutritional characteristics of hyperphosphatemic patients were rarely investigated.

Methods: We prospectively investigated clinical and nutritional status of 70 maintenance hemodialysis patients. Poor phosphate controlled group was defined who showed serum phosphate level above 5.5 mg/dL within 6 months before study initiation. Experienced dietitian assessed nutritional status by using 3 day recall methods and Patient-Generated Subjective Global Assessment (PG-SGA). Drug compliance was assessed by Morisky Medication Adherence Scales-4 (MMAS-4) and bioequivalent dosage of prescribed phosphate binder. Bioimpedance profile was assessed by using Inbody S10 (Inbody, Korea).

Results: Twenty-three (32.8%) patients were classified as poor phosphate control group. Mean age of poor control group was much younger than good control group (48.6 ± 16.0 yr vs 64.0 ± 13.3 yr, P<0.001). There was no difference of cause of end stage renal disease or gender distribution. Poor control group had less comorbidity assessed by modified Charlson Comorbidity Score (3.0 ± 1.7 vs. 4.2 ± 2.2, P=0.018). There was no difference of dialysis vintage. However, residual renal function assessed by daily urine volume was lower in the poor control group (116.5 ± 177.7 ml vs. 210.7 ± 227.7 ml, P=0.089).

Poor phosphate control group had more fat free mass (48.6 ± 10.6 kg vs. 42.9 ± 7.6 kg, P=0.018), thicker midarm circumference (27.9 ± 3.8 cm vs. 25.9 ± 2.7 cm, P=0.011), better quality of nutrition by PG-SGA (4.1 ± 3.5 vs. 7.1 ± 4.5), and better bioimpedance marker by phase angle (5.4 ± 1.3 vs. 4.7 ± 1.2, P=0.039). Ironically, less protein or phosphate intake were reported.

Poor phosphate control group showed similar MMAS-8 (6.4 ± 1.7 vs. 6.6 ± 1.4, P=0.508), and reported they have better knowledge of phosphate binder (by self assessment) (87.0% vs. 66.0%, P=0.047). However, when proper knowledge of phosphate binder intake timing was questioned as an objective assessment, poor phosphate control group showed similar right answer rate to good control group (73.9% vs. 70.2%, P=0.748).

Conclusion: Poor phosphate control group were younger and reported better nutritional status. Concurrent good nutritional status and less comorbidity burden might be associated to the negligence of those population, which should be avoided.

Keywords: Hemodilaysis, Hyperphosphatemia