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Comparison Between Patients On a Restricted Diet and Those Taking Phosphate Binders to Maintain Normal Phosphate Levels

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Objectives : It is important to manage phosphorus levels appropriately in chronic kidney disease. In the hospital where this study was conducted, there was a group of patients who maintained normal phosphorus levels through dietary restriction without administering phosphate binders, and a group of patients who maintained normal phosphorus levels with high compliance even with phosphate binders. This study aims to determine which method is more beneficial in maintaining normal phosphorus levels: dietary restriction or phosphate binders.
Methods : This is a retrospective study conducted for 3 months from November 2024 to January 2025 on patients with stage 5 chronic kidney disease receiving dialysis at Hanbit Hospital and maintaining a phosphate level of 4.5 to 5.5. The only phosphate binder being administered was sevelamer, and no other phosphate binders were used. The age, underlying disease, test values, ultrafiltration, calcification prevalence, and intradialytic hypotension prevalence were compared between the patient group controlling phosphorus levels while taking phosphate binders and the patient group controlling phosphorus levels through dietary restrictions.
Results : The characteristics of the patients who participated in the study are summarized in Table 1. There were significant differences between the two groups in serum hemoglobin and serum calcium, and the effective interval was P value<0.05.
Conclusions : In the above study, a significant difference in serum calcium was confirmed between the group that maintained normal levels through dietary restrictions and the group that was controlled by administering phosphate binders. This study was conducted based on the results of tests conducted over the past three months, but it is thought that long-term studies are necessary to confirm the difference in the prevalence of complications in the future.

Table 1.png

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Characteristics	Group not receiving phosphate binder medication (n=10)	Group receiving phosphate binder medication (n=12)	P-value
Age (year)	68.70	61.50	0.19
Cardiovascular disease (CVD) (History of CVD = 1, No history of CVD = 0)	1	0.75	0.43
Diabetes mellitus (DM) (History of DM= 1, No history of DM = 0)	0.30	0.5	0.41
Systolic blood pressure (mmHg)	150.20	144.17	0.39
Diastolic blood pressure (mmHg)	70.20	72.58	0.42
Cerebrovascular disease (CVA) (History of CVA= 1, No history of CVA = 0)	0.30	0.17	0.25
Lab values			
Serum hemoglobin (g/dL)	10.94	10.68	**0.0005**
Serum creatinine (mg/dL)	6.10	8.99	0.08
Serum blood urea nitrogen (mg/dL)	50.61	56.12	0.12
Serum sodium (mmol/L)	135.32	136.74	0.34
Serum phosphate (mg/dL)	3.46	5.12	0.44
Serum parathyroid hormone (pg/mL_	160.08	160.53	0.08
Serum calcium (mg/dL)	8.72	8.85	**0.04**
Serum potassium (mmol/L)	4.21	4.49	0.21
Ultrafiltration (kg)	1.63	2.24	0.28
Calcification (History of calcification = 1, No history of calcification = 0)	0.40	0.25	0.33
Phosphate binder medication dose/day	0	4.25	0
Hypotension during hemodialysis (History of hypotension = 1, No history of hypotension = 0)	0.40	0.33	0.43

Table 1. Statistical results of Group not receiving phosphate binder medication and Group receiving phosphate binder medication.