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Magnesium level and vascular calcification in peritoneal dialysis patients

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Objectives: Magnesium imbalance was observed in end-stage renal disease patients. However, there is a lack of evidence on the effects of low and high serum magnesium (Mg) levels on vascular calcification in peritoneal dialysis (PD) patients. The aim of this study is to investigate the association between Mg and vascular calcification progression in PD.

Methods: 167 patients with PD were included from Seoul National University Hospital. We investigated the relationship between level of serum Mg and vascular calcification progression. Patients were divided according to the tertile of the serum Mg. Vascular calcification progression assessed by abdominal aortic calcification (AAC) score with lateral lumbosacral X-ray. The study end point was vascular calcification progression, defined as the change in AAC score per year >0.

Results: During the median follow-up period of 4.8 years [interquartile range 2.9-6.2 years; maximum 12.4 years], 45 (45.0%) patients developed vascular calcification progression. In a multivariable logistic regression model, the lowest and highest tertile groups were associated with higher risk of vascular calcification progression (T1, serum Mg ≤ 2.1 mg/dL, OR 7.42 [1.37–40.28]; *P*=0.020, T3, serum Mg ≥2.6 mg/dL, OR 9.84 [1.54–62.99]; *P*=0.016, T2, serum Mg 2.1≤ <2.6 mg/dL, reference group). All-cause mortality was not associated with serum Mg level in a multivariable hazard model (T1, serum Mg ≤ 2.1 mg/dL, HR 1.78 [0.41–7.66]; *P*=0.444, T3, serum Mg ≥2.6 mg/dL, HR 1.67 [0.35–7.96]; *P*=0.519, T2, serum Mg 2.1≤ <2.6 mg/dL, reference group).

Conclusions: Low and high Mg level is associated with vascular calcification progression in PD patients.