Title: Prevalence and Risk Factors of Vascular Calcification in Peritoneal Dialysis Patients

Objectives: Cardiovascular disease is a major cause of death in chronic dialysis patients, resulting from their mineral abnormalities. Vascular calcification (VC) is associated with many cardiac events, currently used as an index of cardiac mortality. This study aimed to determine the prevalence and risk factors of VC in continuous ambulatory peritoneal dialysis (CAPD) patients.

Methods: The multicenter cross-sectional study of CAPD patients from 10 hospitals was conducted during January-December 2011. Plain radiographs of lumbar spine and pelvis were performed to detect the calcification of abdominal aorta, iliac and femoral arteries, read by a single radiologist. VC score was assessed by diagnostic criteria of Bellasi and NKF.

Results: Total 633 CAPD patients were enrolled, female in 48.65% and DM in 34.43%. Mean age was 52.5±13.40 years. Average of CaxP level and dialysis vintage were 36.44±14.55 mg/dL and 21.05±12.55 months. There were 162 patients (25.60%) had aortic calcification, male in 45.67%, and DM in 33.95%. Regarding the VC group, average age was 53±14.18 years, mean VC score>0 was 6.43±5.47, rate of iliac and femoral VC were 14.58% and 18.75% respectively. Mean CaxP, PTH and calcium-based phosphate binder dosage were 36.93±15.02 mg/dL, 251.32±362.48ng/ml and 1,476.23±582.77 mg/day, respectively. CaxP > 55 was seen in 28.81% of VC group. Mean dialysis vintage was 21.90±13.04 months. By multivariate logistic regression with log likelihood analysis, only dialysis vintage more than 24 months (PR=1.03, 95%CI [0.78-1.36]) and hypercalcemia of serum calcium more than 10.2 mg/dL (PR=1.14, 95%CI [0.67-1.91]) are at high risk for VC.

Conclusions: Prevalence of VC in CAPD patients of our series is quite low compared to hemodialysis, may be due to malnutrition and shorter in dialysis vintage. Dialysis vintage more than 24 months and hypercalcemia of serum calcium more than 10.2 mg/dL are at high risk for VC, so every patient who has one of them needs to be monitored for VC and treated properly to prevent cardiac mortality.