

DOES ALKALINE PHOSPHATASE CORRELATE WITH CARDIOVASCULAR CALCIFICATION IN PERITONEAL DIALYSIS PATIENTS?

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- **Background:** Cardiovascular (CV) calcification is associated with increased cardiovascular morbidity and mortality. Alkaline phosphatase hydrolyzes pyrophosphate, which is a potent inhibitor of vascular calcification. The aim of this study was to evaluate the relationship of alkaline phosphatase parameter with aortic and mitral valve calcification, and abdominal aortic calcification in peritoneal dialysis (PD) patients.
- **Methods:** We performed a cross-sectional study in 41 stable patients treated with PD for more than 3 months. Patients were 55.5 ± 14.5 years of age, 52.4 % males, 24.4 % diabetics and the mean dialysis vintage was 28.7 ± 20.0 months. Demographic and biochemical data were examined. None of the patients included in the study was positive for hepatitis C antibody. Plain X-ray images of lateral lumbar spine from all subjects with abdomen empty from dialysis fluid were studied for calculation of semiquantitative vascular calcification scores as described by Kauppila. The severity of the anterior and posterior aortic wall calcification were graded individually on a 0-3 scale for each lumbar segment and the results were summarized to develop a score (range 0-24). Echocardiograms were examined for absence or presence of calcifications of the mitral and aortic valve.
- **Results:** Mean alkaline phosphatase value of study population was 132.5 ± 127.3 . Twenty patients (49.8 %) were identified with aortic abdominal calcification, and the mean Kauppila score was 3.41 ± 3.79 . Nineteen patients (46.3 %) had at least one valve calcified, while eight patients (19.5 %) had both valves calcified. The dialysis duration of those with cardiovascular calcification was significantly longer than those without vascular calcification ($p < 0.05$). In a Cox multivariate regression analysis with adjustment for confounding variables, alkaline phosphatase as a categorical variable [>120 U/L and ≤ 120 U/L] was associated with a odds ratio for CV calcification of 1.22 (95% CI 1.17 – 1.28; $p = 0.008$) and association of CV calcification remained significant with alkaline phosphatase as a continuous variable OR 1.17 (95% CI 1.10 – 1.26; $p = 0.03$)
- **Conclusions:** In patients undergoing peritoneal dialysis we can use serum alkaline phosphatase measurements as an indicator in searching for cardiovascular calcification.

