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## **The prognostic significance of vascular calcification and alkaline phosphatase in patients with end-stage kidney disease**

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**Objectives:** Vascular calcification is a well-known prognostic marker in patients with end-stage kidney disease (ESKD), while there are conflicting results on the role of serum alkaline phosphatase (ALP) on cardiovascular event (CVE) and mortality. This study investigated whether there was a combined effect of vascular calcification and ALP on prognosis in patients with ESKD starting dialysis.

**Methods:** This was a retrospective cohort study including 589 incident ESKD patients from a single center. The aortic calcification index (ACI), an estimated of abdominal aortic calcification, was calculated by abdominal computed tomography as a measure of VC. Patients were stratified into four groups according to the ACI and serum ALP value. CVE and death were assessed as study outcomes. The association of VC and ALP on composite of end-point was analyzed. The modification effect between VC and ALP on composite of end-point was determined using an interaction product term.

**Results:** During a median follow-up duration of 3.1 (0.02 – 12.3) years, 140 patients (23.8%) developed CVE and 130 deaths (22.1%) occurred. In the stratified analysis, patients with combined higher ACI and ALP had the greatest risk of CVE and death compared to patients with combined lower ACI and ALP group (adjusted hazard ratio, 2.70; 95% confidence interval, 1.71 – 4.26;  $P < 0.001$ ). Patients with higher ACI and lower ALP was also associated with CVE and death (adjusted hazard ratio, 2.27; 95% confidence interval, 1.38 – 3.73;  $P < 0.001$ ). The interaction between ACI and ALP on CVE and mortality was statistically significant ( $P < 0.05$ ).

**Conclusions:** In conclusion, the vascular calcification and serum ALP at dialysis initiation predicted CVE and mortality in ESKD patients. Vascular calcification and ALP may serve as dual prognostic markers in ESKD patients