SERUM BONE SPECIFIC ALKALINE PHOSPHATASES/TOTAL ALKALINE PHOSPHATASES RATIO AND MORTALITY IN MHD PATIENTS

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Aim： Bone-specific alkaline phosphatases (BAP) is a bone formation marker used in the assessment of bone metabolic status. The aim of our study was to explore its relationship with cardiovascular calcification and outcomes of maintenance hemodialysis (MHD) patients.

Methods： A cohort study. Uremia patients received hemodialysis treatment in Ruijin Hospital in July 1, 2012. All clinical data, biochemical data (including serum BAP), medication and the presence of cardiovascular calcification were collected at baseline. Followed these patients for 4 years until July 1, 2016, and recorded the date of outcome (death, kidney transplantation, or transfer to other dialysis center).

Results： Two hundreds and nineteen MHD patients were involved in this study. Sex, β-blocker, and serum PTH level were independently correlated with BAP. Serum BAP level was significantly higher in patients with mitral valve calcification, BAP/ALP ratio was significantly lower in patients with abdominal aortic calcification. After 4 years follow-up, a total of 60(26.67%) patients died, of whom 28 patients died of cardiovascular causes. Patients in the first tertile had a 2.57 times risk for all-cause mortality and 2.93 times for cardiovascular mortality comparing with patients in the third BAP tertile. After adjustment for various factors, BAP/ALP ratio was no longer the independent risk factor for all-cause or cardiovascular mortality.

Conclusion： MHD patients who were female, with treatment of β-blocker and higher PTH level may have a higher serum BAP levels. Serum BAP level was associated with mitral valve calcification, BAP/ALP ratio was associated with abdominal aortic calcification. BAP/ALP ratio can predict all-cause and cardiovascular mortality in MHD patients rather than single BAP or ALP level.

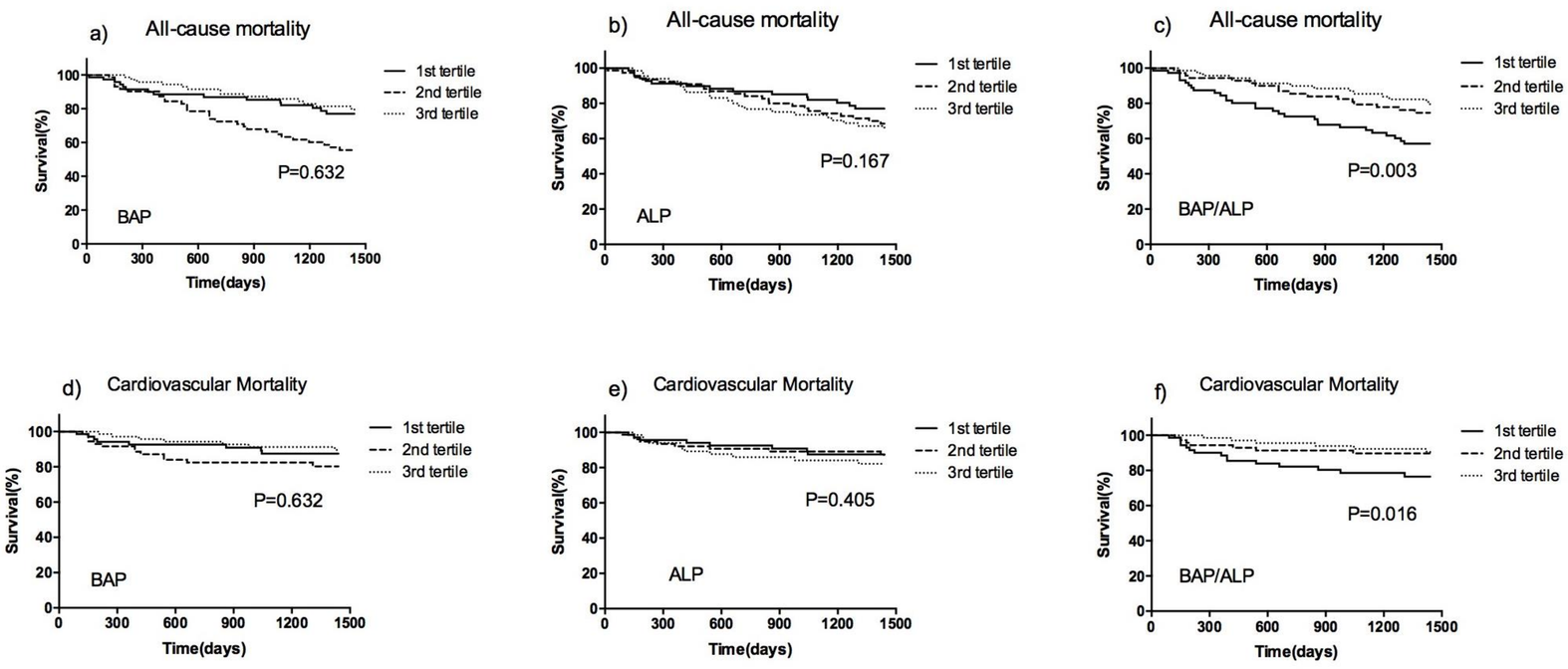

Figure 1. Kaplan–Meier survival curve for all-cause and cardiovascular mortality in the cohort, stratified by the tertile of BAP, ALP or BAP/ALP.

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