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## **Sex differences in the association between bone mineral density and mortality in peritoneal dialysis patients**

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**Objectives:** In dialysis patients, decreased bone mineral density (BMD) are higher than those in the general population. Previous studies have shown negative effects of BMD on quality of life, and high fracture risk in general population or early CKD patients. However, there are few data regarding the association between BMD and mortality in peritoneal dialysis (PD) patients.

**Methods:** This retrospective cohort study included 705 PD patients. Total BMD were measured using a dual-energy X-ray absorptiometry apparatus at 1 month after the PD initiation. Patients were divided into three groups by tertiles of initial total BMD for both sexes.

**Results:** In males, age in the low, middle, high tertiles was  $56.9 \pm 12.9$ ,  $54.6 \pm 12.4$ , and  $52.8 \pm 13.9$  years, respectively ( $P = 0.041$ ). The numbers of participants with diabetes in low tertile was higher than those in the other tertile. In females, age in the low, middle, high tertiles was  $63.5 \pm 10.2$ ,  $51.5 \pm 14.4$ , and  $47.5 \pm 10.9$  years, respectively ( $P < 0.001$ ). There was no significant difference in proportion of diabetes among the tertiles. Difference in age among the tertile was greater in women than in men. In men, the cumulative 5-year survival rates were 58.4%, 47.9%, and 74.3% in the low, middle, and high tertile, respectively ( $P < 0.001$ ). In women, those were 49.4%, 77.9%, and 76.3% in the low, middle, and high tertile, respectively ( $P < 0.001$ ). However, multivariate analysis adjusted for age, body mass index, and diabetes showed an positive association between BMD tertiles and mortality in men alone.

**Conclusions:** Total BMD is associated with mortality in PD patients in men alone. Our study shows stronger correlation between age and BMD in women than in men, which result in sex difference in the association between BMD and mortality in PD patients.