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Trabecular bone score predicts osteoporotic fracture in chronic kidney disease patients.

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Objectives:

Chronic kidney disease and mineral bone disease (CKD-MBD) is a common complication of CKD and this is associated with higher risk of fracture, morbidity and mortality. Current guidelines recommend measurement of bone mineral density (BMD) in CKD patients. However, the focus is only on bone turnover and bone density, and there is no guideline for trabecular bone score (TBS) for trabecular bone microarchitecture in CKD patients. We aim to evaluate the role of TBS in predicting osteoporotic fracture in CKD patients

Methods: We retrospectively enrolled 125 patients with CKD between 2016 and March 2019. Lumbar spine TBS was extracted from dual-energy X-ray absorptiometry, and we categorized the TBS into three groups as lowest (≥ 1.31), moderate (1.31-1.23), and highest risk group (≤ 1.23). The logistic regression analysis was used to assess osteoporotic fracture risk.

Results: Of 125 patients, mean age was 65.9 ± 14.2 years, 49.6% were on dialysis, 11.2% was highest risk group by TBS. Patients with highest risk group by TBS were significantly older, had lower height, weight, serum 25-OH vitamin D, serum sodium level, BMD *T*-score (lumbar spine, femur neck and total hip) than lower risk group. TBS significantly correlated with BMD *T*-score (lumbar spine, femur neck and total hip), height, weight and serum creatinine level (P <0.001). Osteoporotic fracture was identified in 20 (16.0%) patients. In univariate analyses, old age, women, lower weight, TBS tertile group, lower potassium level were significantly associated with osteoporotic fracture. In multivariate analyses, only highest risk group by TBS was significantly associated with increased osteoporotic fracture risk after adjustment for demographic, comorbid, medication use, and previous fracture.

Conclusions: Lumbar spine TBS significantly correlated with BMD *T*-score and predicts osteoporotic fractures in patients with CKD.