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Independent predictors of all osteoporosis-related fractures among healthy Saudi postmenopausal women: The CEOR Study.

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Source

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Abstract

This study was designed to identify independent predictors of all osteoporosis-related fractures (ORFs) among healthy Saudi postmenopausal women. We prospectively followed a cohort of 707 healthy postmenopausal women (mean age, 61.3±7.2years) for 5.2±1.3years. Data were collected on demographic characteristics, medical history, personal and family history of fractures, lifestyle factors, daily calcium intake, vitamin D supplementation, and physical activity score. Anthropometric parameters, total fractures (30.01 per 1000women/year), special physical performance tests, bone turnover markers, hormone levels, and bone mineral density (BMD) measurements were performed. The final model consisted of seven independent predictors of ORFs: [lowest quartile (Q(1)) vs highest quartile (Q(4))] physical activity score (Q(1) vs Q(4): ≤12.61 vs ≥15.38); relative risk estimate [RR], 2.87; (95% confidence interval [CI]: 1.88-4.38); age≥60years vs age<60years (RR=2.43; 95% CI: 1.49-3.95); hand grip strength (Q(1) vs Q(4): ≤13.88 vs ≥17.28kg) (RR=1.88; 95% CI: 1.15-3.05); BMD total hip (Q(1) vs Q(4): ≤0.784 vs 0.973g/cm(2)) (RR=1.86; 95% CI: 1.26-2.75); dietary calcium intake (Q(1) vs Q(4): ≤391 vs ≥648mg/day) (RR=1.66; 95% CI: 1.08-2.53); serum 25(OH)D (Q(1) vs Q(4): ≤17.9 vs ≥45.1nmol/L) (RR=1.63; 95% CI: 1.06-2.51); and past year history of falls (RR=1.61; 95% CI: 1.06-2.48). Compared with having none (41.9% of women), having three or more clinical risk factors (4.8% of women) increased fracture risk by more than 4-fold, independent of BMD. Having three or more risk factors and being in the lowest tertile of T-score of [total hip/lumbar spine (L1-L4)] was associated with a 14.2-fold greater risk than having no risk factors and being in the highest T-score tertile. Several clinical risk factors were independently associated with all ORFs in healthy Saudi postmenopausal women. The combination of multiple clinical risk factors and low BMD is a very powerful indicator of fracture risk