

Vertebral fracture status and the WHO risk factors for predicting osteoporotic fracture risk

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Vertebral fractures are the most common osteoporotic fracture, and patients with prevalent vertebral fractures have a greater risk of future fractures. However, radiographically determined vertebral fractures are not identified as a distinct risk factor in the World Health Organization (WHO) fracture risk assessment tool. The objective of this study [1] was to evaluate and compare potential risk factors including morphometric spine fracture status and the WHO risk factors for predicting 5-y fracture risk. It was hypothesized that spine fracture status provides prognostic information in addition to consideration of the WHO risk factors alone. A randomly selected, population-based community cohort of 2761 noninstitutionalized men and women > 50 y of age living within 50 km of one of nine regional centers was enrolled in the Canadian Multicentre Osteoporosis Study (CaMOS), a prospective and longitudinal cohort study following subjects for 5 y. Prevalent and incident spine fractures were identified from lateral spine radiographs. Incident nonvertebral fragility fractures were determined by an annual, mailed fracture questionnaire with validation, and nonvertebral fragility fracture was defined by investigators as a fracture with minimal trauma.

A model considering the WHO risk factors plus spine fracture status provided greater prognostic information regarding future fracture risk than a model considering the WHO risk factors alone. In univariate analyses, age, BMD, and spine fracture status had the highest gradient of risk. A model considering these three risk factors captured almost all of the predictive information provided by a model considering spine fracture status plus the WHO risk factors and provided greater predictive information than a model considering the WHO risk factors alone.

The use of spine fracture status along with age and BMD predicted future fracture risk with greater simplicity and higher prognostic accuracy than consideration of the risk factors included in the WHO tool.

1. Chen P et al. *J Bone Miner Res.* 2009; 24: 495–502.

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The objective of this study was to evaluate and compare potential risk factors including morphometric spine fracture status and the WHO risk factors for predicting 5-y fracture risk. The WHO fracture risk assessment tool considers clinical risk factors for future fracture, including age, prior clinical fracture, current smoking, alcohol use, parental history of hip fracture, glucocorticoid use, rheumatoid arthritis, and BMD. Comparing this tool with a model considering age, BMD and spine fracture status revealed that this model predicted future fracture risk with greater simplicity and higher prognostic accuracy than consideration of the risk factors included in the WHO tool.

