Comparative Analysis of the Radiolographs of Osteoporotic Vertebral Fractures in Men and Women

SCIENCE

Abstracts

Key Take-Away:

Osteoporotic vertebral fracture (VF) is considered a fracture of one or more vertebrae and related to the high rates of mortality and morbidity as well. This raises the importance of diagnosis as soon as possible. The study reflects the different method's efficacy and anticipates modified algorithm-based qualitative (mABQ) approach as a leading approach for vertebral fracture (VF) management.

Two methods for osteoporotic VF assessment on lateral spine radiographs, the Genant semiquantitative (GSQ) technique and a modified algorithm-based qualitative (mABQ) approach were compared.

ABSTRACT:
Background:

Two methods for osteoporotic VF assessment on lateral spine radiographs, the Genant semiquantitative (GSQ) technique and a modified algorithm-based qualitative (mABQ) approach were compared.

Methods:

1771 men and 4465 women aged ≥50 years from the Canadian Multicentre Osteoporosis Study with available X-ray images at baseline were evaluated. Observer agreement was lowest for grade 1 VFs determined by GSQ.

Among physician readers, agreement was greater for VFs diagnosed by mABQ (ranging from 0.62 [95% confidence interval (CI) 0.00-1.00] to 0.88 [0.76-1.00]) than by GSQ (ranging from 0.38 [0.17-0.60] to 0.69 [0.54-0.85]). GSQ VF prevalence (16.4% [95% CI 15.4-17.4]) and incidence (10.2/1000 person-years [9.2; 11.2]) were higher than with the mABQ method (prevalence 6.7% [6.1-7.4] and incidence 6.3/1000 person-years [5.5-7.1]).

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Results:

Women had more prevalent and incident VFs compared to men as defined by mABQ but not as defined by GSQ. Prevalent GSQ VFs were predominantly found in the mid-thoracic spine, whereas prevalent mABQ and incident VFs by both methods co-localized to the junction of the thoracic and lumbar spine.

Prevalent mABQ VFs compared with GSQ VFs were more highly associated with reduced adjusted L1 to L4 bone mineral density (BMD) (-0.065 g/cm2 [-0.087 to -0.042]), femoral neck BMD (-0.051 g/cm2 [-0.065 to -0.036]), and total hip BMD (-0.059 g/cm2 [-0.076 to -0.041]). Prevalent mABQ VFs compared with prevalent GSQ were also more highly associated with incident VF by GSQ (odds ratio [OR] = 3.3 [2.2-5.0]), incident VF by mABQ (9.0 [5.3-15.3]), and incident non-vertebral major osteoporotic fractures (1.9 [1.2-3.0]). Grade 1 mABQ VFs, but not grade 1 GSQ VFs, were associated with incident non-vertebral major osteoporotic fractures (OR = 3.0 [1.4-6.5]).

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Conclusion:

The study concluded that defining VF by mABQ is preferred to the use of GSQ for clinical assessments.

Source:	J Bone Miner Res. 2017 Jul 19.
Link to the source:	https://www.ncbi.nlm.nih.gov/pubmed/28722766
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Authors:	Lentle BC; et al.

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Diagnostic, Osteoporotic Vertebral Fractures, Vertebrae, Cross-Sectional and Longitudinal Observations, GSQ, mABQ