

OSTEOSCOOP

News on current events in osteoporosis and rheumatology

QFractureScores for predicting risk of osteoporotic fracture

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The objective of this study [1] was to develop and validate two new fracture risk algorithms (QFractureScores) for estimating the individual risk of osteoporotic fracture or hip fracture over 10 years. For this purpose, the authors used a prospective open cohort study with routinely collected data from 357 general practices to develop the scores and from 178 practices to validate the scores, in England and Wales. Participants were 1 183 663 women and 1 174 232 men aged 30 to 85 in the derivation cohort, who contributed 7 898 208 and 8 049 306 person years of observation, respectively. There were 24 350 incident diagnoses of osteoporotic fracture in women and 7934 in men, and 9302 incident diagnoses of hip fracture in women and 5424 in men. The main outcome measures were first (incident) diagnosis of osteoporotic fracture (vertebral, distal radius, or hip) and incident hip fracture recorded in general practice records.

Use of hormone replacement therapy (HRT), age, body mass index (BMI), smoking status, recorded alcohol use, parental history of osteoporosis, rheumatoid arthritis, cardiovascular disease, type 2 diabetes, asthma, tricyclic antidepressants, corticosteroids, history of falls, menopausal symptoms, chronic liver disease, gastrointestinal malabsorption, and other endocrine disorders were significantly and independently associated with risk of osteoporotic fracture in women. Some variables were significantly associated with risk of osteoporotic fracture but not with risk of hip fracture. The predictors for men for osteoporotic and hip fracture were age, BMI, smoking status, recorded alcohol use, rheumatoid arthritis, cardiovascular disease, type 2 diabetes, asthma, tricyclic antidepressants, corticosteroids, history of falls, and liver disease. The hip fracture algorithm had the best performance among men and women. It explained 63.94% of the variation in women and 63.19% of the variation in men. The ROC (Receiver Operating Characteristics) statistics for hip fracture were also high: 0.89 in women and 0.86 for men versus 0.79 and 0.69, respectively, for the osteoporotic fracture outcome. The algorithms were well calibrated with predicted risks closely matching observed risks. The QFractureScore for hip fracture also had good performance for discrimination and calibration compared with the FRAX (fracture risk assessment) algorithm.

These new algorithms can predict risk of fracture in primary care populations in the UK without laboratory measurements and are therefore suitable for use in both clinical settings and for self assessment (www.qfracture.org). QFractureScores could be used to identify patients at high risk of fracture who might benefit from interventions to reduce their risk.

1. Hippisley-Cox J et al. *BMJ*. 2009;339:b4229 doi:10.1136/bmj.b4229.

QFractureScores for predicting risk of osteoporotic fracture

Estimation of the individual risk for osteoporotic fracture is an important issue in general practice. A new algorithm has been developed from a prospective cohort in the UK to estimate that risk from a medical questionnaire and clinical examination. This algorithm has been validated and has a good predictive value.

QFractureScores could be used to identify patients at high risk of fracture who might benefit from interventions to reduce their risk.

