BONE

Fracture prediction in osteoporosis

Pre-fracture changes in vertebral height can successfully predict future first incident lumbar spine fracture, according to a case–control study published in *Osteoporosis International*.

Work to improve the efficacy of osteoporosis drugs, whilst striving to reduce the associated adverse effects, remains a problem that if solved could help millions of people suffering from osteoporosis worldwide. Part of the issue is in reducing clinical trial sample size, without sacrificing the statistical significance of the findings. In this article, Martin Lillholm and his research team set out to assess the accuracy of a quantitative vertebral fracture risk (VFR) score that uses changes in vertebral height to identify fracture-prone osteoporosis sufferers, which in turn may improve identification of suitable participants for clinical trials.

The VFR score was assessed in 126 postmenopausal women, 25 of whom had sustained at least one lumbar spine fracture during the previous 6.3 years (case group), whereas the remaining 101 women maintained skeletal integrity during the same timeframe (control group). Use of the VFR score successfully identified and separated individuals at risk of fracture from healthy controls. All participants were matched for BMD, BMI, age and other osteoporosis risk factors; therefore, the pre-fracture VFR score developed by the researchers could provide predictive power beyond that of standard osteoporosis risk factors.

Lillholm states that as these preliminary results were derived from a matched case–control series, they must be validated by extending the VFR methodology into independent clinical trial populations. Additionally, vertebral-height changes were assessed on lumbar vertebrae only; future studies will also assess thoracic vertebrae.

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