BONE

Quantitative ultrasound is not inferior to DEXA to predict fracture risk

Models that use quantitative ultrasonographic measurements perform similarly in the prediction of fractures to those that are based on dual-energy X-ray absorptiometry (DEXA). “This study suggests that quantitative ultrasound, a low-cost and simple test for bone health measurement, is comparable to DEXA for prediction of long-term fracture risk,” says Alireza Moayyeri (University of Cambridge, UK).

DEXA is the most widely used modality for assessment of bone health. This method, which measures BMD only, is sensitive, but not specific, to prediction of fractures in individuals. Quantitative ultrasonographic measurements, which reflect the density, microarchitecture and elasticity of the bone, also predict osteoporotic fractures, but few studies compare the performance of this method with that of DEXA directly.

Such comparisons were made by Moayyeri and colleagues, who used each modality for the estimation of 10-year absolute fracture risk, which is the WHO-recommended method for osteoporosis assessment at the primary-care level.

DEXA measurements at the hip and quantitative ultrasonographic measurements at the heel were performed in 1,455 elderly people (mean age 69.5 years), 79 of whom had a fracture over the following 10 years. The investigators estimated 10-year probabilities of fracture for all participants using a proportional-hazards model that included multiple risk factors and either DEXA or ultrasonographic measurements, and found that the two models had similar statistical performances. Different results were obtained when the models were used to categorize patients to different risk bands,

but both models could reliably distinguish individuals who were at high and low risks for fractures.

These results, and the fact that ultrasonographic examination is cheaper and more feasible to perform in primary care than DEXA measurement is, suggest that this modality is a suitable alternative to DEXA for prediction of long-term fracture risk. “The osteoporosis research community needs to pay more attention to quantitative ultrasound as a useful clinical tool for prevention of fractures,” summarizes Moayyeri.

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