What is the optimal interval for osteoporosis screening in postmenopausal women before fracture occurrence and before osteoporosis treatment initiation?

It varies, depending on baseline T score. According to a long-term prospective study involving 4,957 women aged 67 years or older, the adjusted interval between baseline testing and the development of osteoporosis in 10% of study participants was 16.8 years for women with normal bone density (T score above –1.00), 17.3 years for women with osteopenia (T score of –1.00 to –1.49), 4.7 years for women with moderate osteopenia (T score of –1.50 to –1.99), and 1.1 years for women with advanced osteopenia (T score of –2.00 to –2.49).

FAST TRACK

Perhaps it is better to think of screening as a way to initially triage patients for decisions relative to follow-up

Gourlay ML, Fine JP, Preisser JS, et al; Study of Osteoporotic Fractures Research Group. Bone-density testing interval and transition to osteoporosis in older women. N Engl J Med. 2012;366(3):225–233.

EXPERT COMMENTARY
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The optimal screening interval for bone density assessment in menopausal women is an extremely complicated but important issue because osteoporosis and fragility fracture are a major health concern. There are nearly 2 million osteoporotic fractures each year, accounting for 432,000 hospital admissions, 25 million office visits, and an increased risk of disability and death, all at a cost of up to $18 billion.[1]

There is no question that determination of bone mass (achieved through bone mineral density [BMD] testing by dual energy x-ray absorptiometry [DXA] and reported as T scores) will diagnose osteopenia and osteoporosis, correlate with fracture risk (the lower the bone mass, the higher the incidence of fracture), and monitor changes in bone mass over time.

Medicare allows for BMD testing every 23 months, and that has become standard for many clinicians.

CONTINUED ON PAGE 55

WHAT THIS EVIDENCE MEANS FOR PRACTICE

In older healthy women, BMD follow-up arbitrarily at 23 months makes little sense. The interval before reassessment can substantially lengthen for some women with excellent initial T scores, while more frequent assessments should be performed for women with worse initial T scores. Furthermore, strict reliance solely on T scores is not the best method for predicting fracture risk or when to start pharmacologic intervention. Yearly assessment using a tool like FRAX should become the standard.

›› STEVEN R. GOLDSTEIN, MD

CONTINUED FROM PAGE 56

Details of the trial

Gourlay and colleagues studied nearly 5,000 basically healthy women, the youngest of whom was 67 years of age. Women who had osteoporosis and who were taking medication for fracture reduction were excluded, as were women who had a history of pre-existing fracture.

The researchers concluded that the better the initial bone-density score at age 67, the longer it would take for a woman to develop osteoporosis. For instance, if a woman older than 67 years had a T score of –1.00 or better, it would take her 16.8 years (95% confidence interval [CI], 11.5 to 24.6) to reach osteoporosis. In contrast, a woman with a T score of –2.00 would reach osteoporosis in only 1.1 years. Current estrogen use was found to be significantly associated with higher BMD and a longer testing interval, although the authors did not recommend modifying the screening interval on the basis of estrogen use.

These findings certainly call into question the notion that all patients should be screened for osteoporosis every 23 months. Perhaps it is better to think of screening as a way to initially triage patients for decisions relative to follow-up.

Limitations and considerations

Some extremely important observations must be made:

1. The article by Gourlay and colleagues created tremendous media attention, most of which implied that there is too much screening with DXA scans. Nothing can be further from the truth. Only 13% of women older than age 65 are actually getting a baseline DXA scan.[2]
2. The data in this report apply only to white women older than 67 years who have no pre-existing fracture and are not taking any medications for osteoporosis. Extrapolation to younger women or other groups is not valid.
3. We should not be interested in the development of an arbitrary T score for bone mass but rather the determination of whether a particular patient has a level of fracture risk that warrants pharmacologic intervention.

What is FRAX?

The Fracture Risk Assessment (FRAX®) Tool[1] has been developed by the World Health Organization (WHO). It is based on individual patient models that integrate the risks associated with clinical factors as well as bone mineral density at the femoral neck. FRAX models have been developed from studying population-based cohorts from Europe, North America, Asia, and Australia.

FRAX algorithms give the 10-year probability of hip fracture and of a major osteoporotic fracture (clinical spine, forearm, hip, or shoulder fracture).

WHO offers sophisticated computer-driven models or simplified, printable versions of FRAX for office use—available at http://www.who-frax.org/.

Reference

1. Welcome to FRAX. FRAX: WHO Fracture Risk Assessment Tool Web site. http://www.shef.ac.uk/FRAX/. Accessed July 7, 2012.

These observations support use of a model like FRAX (see "What is FRAX?"), which can be used annually even without an updated DXA of the hip. FRAX is much more appropriate than DXA testing every 23 months and should become the clinical standard of care.

Remember, there are more fragility fractures in nonosteoporotic women than in osteoporotic women. The risk (incidence per 10,000 women) is greater in osteoporotic women, but the absolute number in the population is greater in women who have not yet reached that threshold.

References

1. Lewiecki EM, Laster AJ, Miller PD, Bilezikian JP. More bone density testing is needed, not less. J Bone Miner Res. 2012;27(4):739–742.
2. American Society for Bone and Mineral Research. The American Society for Bone and Mineral Research response to media coverage of New England Journal of Medicine study: "Bone Density Testing Interval and Transition to osteoporosis in older women." http://www.asbmr.org/about/pressreleases/detail.aspx?cid=3801baff-0df3-47c0-874f-08a185d67001. Published February 1, 2012. Accessed April 9, 2012.

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