Online Tool Aims to Help Estimate Fracture Risk

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SAN FRANCISCO — New guidelines for preventing and treating osteoporosis and a new online tool to quantify the risk of future fracture should help providers target therapy to patients who are most likely to benefit from it.

"Quantitative fracture risk assessment has finally arrived," Dr. Marjorie M. Luckey said at the annual meeting of the International Society for Clinical Densitometry.

In February 2008, the National Osteoporosis Foundation (NOF) updated the "Clinician's Guide to Prevention and Treatment of Osteoporosis," first published in 1999 and last revised in 2003 with only minor changes. The guidelines are available at www.nof.org along with a link to the beta version of the World Health Organization's fracture risk assessment tool, FRAX, at www.shef.ac.uk/FRAX.

Previous NOF guidelines applied only to postmenopausal white women and based intervention recommendations entirely on a patient's T score, with some modification of the level of intervention based on clinical risk factors, said Dr. Luckey, medical director of the osteoporosis and metabolic bone disease center at St. Barnabas Ambulatory Care Center, Livingston, N.Y.

The new guidelines also include recommendations for men over age 50 years and postmenopausal women of races/ethnicities other than white and base the thresholds for intervention largely on a patient's estimated 10-year fracture risk. The new document also updates the economic modeling that informs treatment recommendations.

"The 2008 NOF guidelines are a hybrid, rather than going entirely to fracture risk–based guidelines. There are some patients who will get treated based on their T score, and others who will get treated based on their fracture risk," said Dr. Luckey, also of Mount Sinai School of Medicine, New York. This should have the effect of shifting some treatment from younger patients who have modestly reduced bone density levels (T scores of –2.0 or better) to treat an older population, "which most of us think is an appropriate move to treat patients who are at high risk for fracture."

'Quantitative fracture risk assessment has finally arrived' but keep your clinical thinking cap on.

DR. LUCKEY

As in the previous guidelines, the benefits of a healthy lifestyle and adequate calcium and vitamin D levels are emphasized. Patients should be assessed clinically to determine if they are at risk for osteoporosis, and bone density testing should be done if appropriate. Treatment is recommended for patients with a previous hip or vertebral fracture, regardless of bone density, for patients with T scores of –2.5 or lower, and for osteopenic patients with T scores between –1.0 and –2.5 if they have secondary causes of osteoporosis that can affect fracture risk, such as being totally immobilized or on glucocorticoids.

A new recommendation in the 2008 guidelines is to consider treating osteopenic patients if their 10-year probability of hip fracture is 3% or greater or their 10-year risk of a major fracture is 20% or greater, using the FRAX model.

The guidelines have not changed recommendations for the 10 million U.S. residents with osteoporosis but only for those among the 34 million U.S. residents with osteopenia who have no history of fracture and are not immobilized or on steroids. "Their level of risk should be assessed using the 10-year fracture rate model," she said.

The quantitative risk assessment adds a tool for providers but clinical judgment to individualize treatment decisions is just as important. "These fracture risk estimates should be used to facilitate the discussion you have with a patient about whether or not to go on pharmacotherapy," Dr. Luckey emphasized.

The online FRAX tool allows users to choose models for different countries, with separate models in the United States for white, black, Hispanic, or Asian patients. The user answers questions about the patient's age, sex, weight, and height.

Questions about clinical risk factors include entries for current smoking, parental hip fracture, and patient history of fracture.

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A question about glucocorticoid use does not specify past or current use, but the model "is most accurately used if the patient has been on 3 months or more of 5 mg of prednisone equivalent per day currently or in the recent past," Dr. Luckey said.

The only secondary cause of osteoporosis specifically mentioned is rheumatoid arthritis. Although another question generically asks if the patient has another secondary cause of osteoporosis, "it's a dummy variable" in the model that does not contribute to the online calculation of fracture risk, she noted.

A question about "alcohol 3 more units per day" is a typo that should read, "alcohol 3 or more units per day," she added. A unit of alcohol is a standard glass of beer, an ounce of hard liquor, or a 4-ounce glass of weak wine. A 6-ounce glass of wine with 13%-14% alcohol content provides 2 units of alcohol.

Bone density can be entered as a T score or Z score. The model assumes that a T score was calculated using a white female reference database, so if you're not sure what reference database was used to get a T score for nonwhite women, enter a Z score, she advised. Male T scores are based on a male database, so enter a Z score in the FRAX model, which will convert a Z score to a T score.

Then click on the "calculate" button to get the estimated 10-year risk for hip fracture and all major fractures. The tool should not be used for premenopausal women, men under 50 years old, or patients who have started pharmacotherapy for bone health. It will underestimate risk in some patients because it does not include all risk factors and all secondary causes of osteoporosis. Keep your clinical thinking cap on, she advised.

Dr. Luckey is associated with multiple companies that make osteoporosis medications. She is a consultant and speaker for Eli Lilly & Co. and Merck & Co., and she is a consultant and received grants from Amgen Inc. Dr. Luckey is a speaker and received grant funds from Proctor & Gamble Corp. She also is a speaker for Sanofi Aventis and Novartis Corp. and received grants from Roche/GlaxoSmithKline. ■

Yoga Does Not Improve Bone Mineral Density

SAN FRANCISCO — Three years of yoga practice did not change bone mineral density in 31 postmenopausal women, compared with bone densities in 31 inactive women.

Proponents of yoga have wondered whether it might produce bone benefits similar to those seen with weight-bearing exercises. Previous data have shown skeletal tissue responds to site-specific stresses.

Yoga consists of movements and poses using body weight as a form of resistance, and contorts the joints with torque and strain. Results of the current cross-sectional study suggest yoga doesn't provide enough of a stimulus to increase bone mineral densities to levels significantly above those in inactive women, Millie Sweesy-Barger and associates said in a poster presentation at the annual meeting of the International Society for Clinical Densitometry.

Women in the yoga group had a 3-year history of practicing yoga at least twice a week in sessions of 60 minutes or longer. Those in the inactive group reported less than 2 hours of physical activity a week over the past 3 years. Participants underwent dual-energy x-ray absorptiometry (DXA) scans of the lumbar spine, left and right femurs, nondominant distal radius, and whole body. The mean age of the women was 60 years in the inactive group and 58 years in the yoga group. The cohort included 59 whites and 3 Asian Americans.

No significant differences between groups were seen in bone mineral densities at any sites. Higher mean bone mineral density in the distal radius in the inactive group, compared with the yoga group, became statistically insignificant after controlling for the effects of age, height, body mass, body mass index (BMI), percent body fat, fat mass, lean body mass, and calcium intake, said Ms. Sweesy-Barger, a student in the department of kinesiology and physical therapy at California State University, Long Beach. The yoga group had significantly lower mean measurements of body mass, percent body fat, fat mass, and BMI, compared with the inactive group, she added.

There is substantial evidence showing significant physical and psychological benefits of exercise programs for older adults, 55% of whom in the United States either have osteoporosis or are at risk of developing the disease, Ms. Sweesy-Barger noted. "To the aging, nonathletic postmenopausal woman, the question becomes, which activities are most effective for mitigating the loss of bone?"

Understanding how bone adapts to various forms of physical activity will help inform public health strategies to prevent and manage osteoporosis, she said.

—Sherry Boschert