**Online Tool Aims to Help Estimate Fracture Risk**

**BY SHERRY BOSCHERT**

San Francisco Bureau

"Quantitative fracture risk assessment has finally arrived," Dr. Marjorie M. Luckey said at the annual meeting of the National 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 bisphosphonate fracture risk assessment tool, FRAX, at www.rxc.uk.com. 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

Dr. Luckey said, "The 2008 NOF guidelines are a hybrid rather than going entirely to fracture risk-based guidelines. There are some patients who will go on pharmacotherapy at a 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 moderately 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.”

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 there are signs of 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 osteoporotic patients with T scores between −1.9 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 osteoporotic 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 osteoarthritis 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 among the patient and the physician about whether to go on pharmacotherapy," Dr. Luckey emphasized.

The online FRAX tool allows users to choose models for different countries, with separate models for white, black, Hispanic, or Asian patients. The user answers questions about the patient’s age, sex, weight, and height. Questions include the use of oral and/or injectable steroids for cancer, use of tobacco and alcohol, and use of anticonvulsants. There are also questions about current medications, current smoking status, and history of falls. If the user answers yes to any of these questions the screen indicates whether they should be referred to a health care provider for further assessment.

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

The T score 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 using one of these databases, you will 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 on the “calculate” button to get the estimated 10-year risk for hip fracture and any major fracture. The tool should not be used for premenopausal women, men under 50 years of age, 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 Amgen Inc. Dr. Luckey is a speaker and has received grant funds from Proctor & Gamble and the National Osteoporosis Foundation. She is also a speaker for Novartis and Aventis and received grants from Roche/GlaxoSmithKline.

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**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 muscle benefits associated with yoga practice.

Yoga consists of movements and poses using body weight as a form of resistance, and controls the joints with torque and strain. Results of the current 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 at least 30 minutes of yoga exercises once 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 femur, nondominant distal radius, and whole body.

The mean age of the women was 60 years, 33% of the inactive group and 16% of the yoga group. The cohort included 59 whites and 3 Asian Americans.

No significant differences between groups were observed in bone mineral density at any site. 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 measures of body mass percent body fat, for the mass years in the inactive group and 58 years 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 mass years, which activities which are most effective for mitigating the loss of bone?”

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

—Sherry Boschert

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**Scientific American**

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