

# Falls in Older Adults Common, Preventable

*Arthritis doubles the risk, a gait deficit triples it, and muscle weakness quadruples the risk of a fall.*

BY SHERRY BOSCHERT

EXPERT ANALYSIS FROM A MEETING ON OSTEOPOROSIS SPONSORED BY THE UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

SAN FRANCISCO – Falls are the main cause of hip fractures, and proven prevention strategies should be in every clinician’s toolbox.

Physicians should ask patients aged 75 years or older if they’ve had any falls in the prior year or if they have balance or gait difficulties and observe them walking and getting into and out of a chair, said Dr. Edgar Pierluissi, medical director of the Acute Care for Elders Unit at San Francisco General Hospital.

A fall in the previous year increases the risk for a future fall three- to fourfold.

Studies suggest that approximately 30% of U.S. adults over 65 years of age who are living in the community and half of adults over age 80 years will fall in the next year. Falls in adults aged 65 years or older cause injury in approximately 31%. Among those injured, 56% go to an emergency department and 38% visit a medical clinic, he said at the meeting.

An exercise program with balance and strength training might be appropriate for older patients who’ve had only one or no falls and who don’t have balance or

gait difficulties, various guidelines suggest. If a patient reports two or more falls or has balance or gait difficulties, do a “falls evaluation,” an assessment of predisposing or precipitating factors that can point to appropriate preventive interventions, he said.

“We can perhaps make a difference” in many of the most common risk factors for falls that have been identified in 16 studies, Dr. Pierluissi said.

Muscle weakness quadruples the risk for a fall. A gait deficit, balance deficit, or use of an assistive device nearly triples the risk for falling. A visual deficit, arthritis, depression, or impaired activities of daily living more than double the risk for a fall. Cognitive impairment, use of some types of medications, or age older than 80 years each nearly doubles the risk for falling.

To conduct a falls evaluation, get a good history of the patient’s falls and their circumstances. Do a cardiovascular examination, medication review, neurological examination, and assessment for cognitive impairment. Assess gait, balance and mobility, muscle weakness, visual impairment, home hazards that might precipitate a fall, and the patient’s perceived functional ability and fear related to falling (because many people who fear falling restrict their activity,

which can lead to deconditioning and increased risk of falling).

A Cochrane Review of 111 randomized, controlled trials with 55,303 participants identified effective interventions to reduce the risk of falling (Cochrane Database Syst. Rev. 2009 [doi:10.1002/14651858.CD007146.pub2]).

A number of forms of exercise reduced both the number of people who fell and the number of falls. Group tai chi exercise or individually prescribed exercise programs at home were effective. Multiple component group exercise was effective if it targeted at least two of the following: strength, balance, flexibility, and endurance.

Conducting a multifactorial falls evaluation reduces the number of falls. In patients with visual impairment and a high risk of falling, assessing and modifying home hazards was effective.

Withdrawing psychotropic medications and educating primary care physicians about the risk of falls associated with drug therapy reduced the number of falls but not the number who fell. In patients with cardioinhibitory carotid sinus hypersensitivity, cardiac pacing reduced the number of falls.

Vitamin D supplementation may re-

duce falls in people with low vitamin D levels, but it’s unclear whether this helps people with adequate vitamin D levels. Other preventive strategies of unknown effectiveness include correction of visual deficiency, hormone replacement therapy, or modifying home hazards for people who have not fallen.

The Cochrane Review suggested that wearing hip protectors may provide some marginally significant benefit to frail, older adults in institutional care but not for older people who remain ambulant in the community, Dr. Pierluissi said.

One randomized, controlled trial of 1,042 residents in 37 nursing homes found a high rate of adherence to wearing hip protectors (74%) but these did not reduce the risk for hip fracture during the 20-month study.

Residents served as their own controls by wearing hip protectors with padding on one hip but not the other. Investigators stopped the study early due to lack of efficacy, with hip fractures on 3.1% of the protected hips and 2.5% of unprotected hips, a statistically nonsignificant difference (JAMA 2007;298:413-22).

Dr. Pierluissi said he has no relevant disclosures. ■

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## Rule Out Correctable Cases of Secondary Osteoporosis

BY SHERRY BOSCHERT

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SAN FRANCISCO – Before initiating osteoporosis therapy on the basis of a T score, investigate any correctable cases of secondary osteoporosis, urged Dr. Steven T. Harris of the University of California, San Francisco.

Screening for secondary causes of low bone mineral density (BMD) that starts with a careful history and examination, plus laboratory tests, identifies roughly 90% of new diagnoses of secondary osteoporosis at modest cost, he said at the meeting.

The differential diagnosis of low BMD includes a “hopelessly bewildering” list of problems that can cause secondary osteoporosis in adults, but these can be narrowed down to relatively common causes, including vitamin D deficiency, hypercalciuria, hypogonadism, malabsorption, chronic obstructive pulmonary disease, rheumatoid arthritis, and myeloma. Drug-

induced causes – including secondary osteoporosis related to taking steroid therapy, antiepileptics, GnRH agonists, Depo-Provera, aromatase inhibitors, and excess thyroxine – also make the short list.

Neither age nor disease identifies patients who are most like-



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DR. HARRIS

ly to have an occult disorder that’s causing osteoporosis. “All patients deserve at least a limited laboratory evaluation prior to [initiating] treatment,” he said. Persistent, additional testing is warranted if BMD decreases significantly in patients who are on therapy for primary osteoporosis.

Patients with low z scores (indicating that they have BMD that is lower than expected for their age) require extra scrutiny

because they’re more likely to have an occult disease as the cause, and thus deserve closer attention and laboratory testing for secondary causes. “There is no research evidence to support that, but it’s my clinical bias,” Dr. Harris added.

For lab tests, he orders a complete blood count to look for myeloma or malabsorption of iron, vitamin B<sup>12</sup>, and folate. He advises checking the serum 25-hydroxy vitamin D level for vitamin D deficiency. He gets a 24-hour urine calcium and creatinine screen to check for hypercalciuria or malabsorption.

In a serum chemistry panel, the albumin level may point to malabsorption or malnutrition. Globulin results screen for myeloma. Alkaline phosphatase results help identify malignancy, cirrhosis, or vitamin D deficiency. Calcium levels may suggest hyperparathyroidism or malabsorption. Phosphate results can suggest malnutrition or osteomalacia. Creatinine or BUN results may point to renal

disease. He orders thyroid function testing if the patient is on thyroid replacement therapy or if symptoms warrant it.

Other tests to consider (based on symptoms and results of the laboratory tests) include parathyroid hormone levels if the urine or serum calcium level is abnormally high or low. He orders serum protein electrophoresis if the CBC is abnormal, and he tests for celiac disease if the patient has low 24-hour urine calcium or anemia.

Getting a 24-hour urine calcium level is particularly important because it effectively identifies hypercalciuria or malabsorption, two disorders that are associated with higher rates of bone loss. Without a 24-hour urine calcium test, 38% of new diagnoses of hypercalciuria or malabsorption would be missed, data suggest. “Spot urine calcium does not detect malabsorption,” he said.

Secondary causes of low BMD are common, multiple studies show. In one study of 664 consecutive postmenopausal women with a T score of –2.5 or below,

54% had known secondary causes of osteoporosis. Laboratory evaluations in 173 women without known secondary causes or prior laboratory abnormalities showed that 32% (55) had a previously unknown secondary cause of low BMD (J. Clin. Endocrinol. Metab. 2002;87:4431-7). A reanalysis of the data suggested that 44% of the 173 had secondary causes of low BMD, most commonly low vitamin D levels, Dr. Harris said.

The prevalence of occult secondary osteoporosis has been estimated at 37%-63% in women and men at various ages, at 60%-80% in patients after hip fracture, and at 50% or more in patients on pharmacologic therapy. The estimates are based on studies with varying criteria for inclusion, the extent of testing, and the definition of vitamin D deficiency. There have been no large, population-based studies of the prevalence of occult disorders causing osteoporosis, he said.

Dr. Harris disclosed financial ties with Amgen, Eli Lilly, Genentech, Gilead Sciences, Merck, Novartis, Roche, Sanofi-Aventis, and Warner Chilcott. ■