



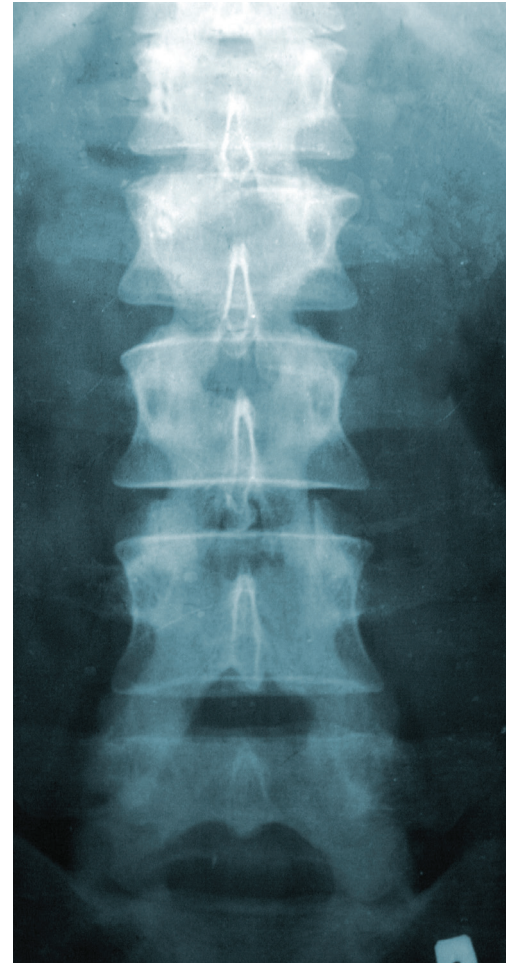
Osteoporosis Risk Reduction and Bone Health

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Osteoporosis is often referred to as “the silent disease,” because the disease itself may not produce symptoms. The term may also refer to people who have vertebral compression fractures that may go unnoticed (National Osteoporosis Foundation [NOF], 2011). Unfortunately, those who experience low trauma or fragility fractures may have the fracture addressed, but not the underlying cause, which may actually be related to osteoporosis.

Scope of the Problem

The U.S. Surgeon General (Office of the Surgeon General, 2004) has described osteoporosis as a major public health concern that is both underdiagnosed and undertreated. It has been estimated that one in five women over the age of 50 has a vertebral fracture (NOF, 2011). Gelbach et al. (2000) reported that among 934 hospitalized women ages 60 and older, radiologists determined from chest X-rays that 132 of them (14.1 percent) had moderate or severe vertebral fractures. However, fewer than 2 percent had



a discharge diagnosis of vertebral fracture. Of the women with fractures, only 17 percent had the fracture noted in the medical record or discharge summary. Only 18 percent of the medical records indicated that fracture patients had been prescribed calcium, vitamin D, estrogen replacement or an antiresorptive agent.

Abstract The Office of the U.S. Surgeon General has described osteoporosis as a major public health concern that is both underdiagnosed and undertreated. Educating women about modifiable risk factors and encouraging them to alter and maintain lifestyle choices that improve bone density is essential for their bone health. Evaluating those at risk using laboratory measures and dual X-ray absorptiometry (DXA), and appropriate therapeutic intervention followed by monitoring for compliance and treatment effectiveness should result in risk reduction and improved bone health. DOI: 10.1111/1751-486X.12039

Keywords bone health | fracture | FRAX® | osteoporosis



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In a similar fashion, Majumdar et al. (2005) reported the results of a retrospective randomized study involving a review of chest X-rays and medical history of patients seen in the emergency department. The study concluded that one in six elderly patients who underwent chest radiography in the emergency department had evidence of moderate-to-severe vertebral fractures, but only one-fourth of them were treated for osteoporosis.

Fragility Fractures

A fragility fracture is a type of pathologic fracture that can occur as a result of a minor fall or, in serious cases, from a simple action such as a sneeze or bumping into furniture (NOF, 2011). Fragility fractures are defined as fractures resulting from a fall from a standing height or less, or presenting in the absence of obvious trauma. There are three fracture sites said to be typical of fragility fractures—vertebral fractures,

fractures of the femoral neck and Colles fracture of the wrist (National Institute for Health and Clinical Science, 2012).

It's a common assumption that osteoporotic fractures occur generally in four anatomic regions: hip, spine, wrist and proximal humerus; however, according to a recent epidemiologic study by Court-Brown and Caesar (2006), of almost 6,000 adult fractures, a total of 14 fracture types could be regarded as predominantly osteoporotic.

Women are most at risk of developing osteoporosis. Of the 10 million Americans estimated to have osteoporosis, 8 million are women (NOF, 2011). Furthermore, the NOF suggests that the rate of hip fractures is two to three times higher in women than men; however, the 1-year mortality following a hip fracture is nearly twice as high for men as for women.

Risk Factors

In addition to a history of fragility fracture, conditions that cause or contribute to osteoporosis and or fractures are considered either modifiable or nonmodifiable risk factors. While age and ethnicity, such being an Asian woman or a postmenopausal white woman, are typical risk factors, there are many other factors to be

Box 1.

Categories of Risk Factors for Osteoporosis

Lifestyle Low calcium intake, vitamin D deficiency, alcohol intake (three or more units per day), sedentary lifestyle, smoking (active or passive), falling and low body mass index (<21)

Environmental Lack of assistive devices, loose throw rugs and pets, which increase risk for tripping and falling

Medical Poor vision, poor balance, orthostatic hypotension and depression

Genetic Parental hip fracture, osteogenesis imperfecta and glycogen storage diseases

Hypogonadal states Premature ovarian failure, androgen deprivation therapy and anorexia nervosa

Endocrine disorders Adrenal insufficiency, hyperparathyroidism and thyrotoxicosis

Gastrointestinal disorders Celiac disease, gastric bypass and inflammatory bowel disease

Hematologic disorders Multiple myeloma, leukemia and lymphomas

Miscellaneous conditions and diseases Rheumatoid arthritis, end-stage renal disease, epilepsy and posttransplant

Medications Anticonvulsants, corticosteroids and anticoagulants

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