

Osteoporosis

Osteoporosis is a common and costly problem that could become even more widespread. According to *The 2004 Surgeon General's Report on Bone Health and Osteoporosis*, by 2020, half of all men and women ≥ 50 years of age will have osteoporosis if they do not change their diet and lifestyle.⁴⁰⁵ Some 10 million individuals are estimated to already have the disease and almost 34 million more are estimated to have low bone mass (osteopenia) which places them at risk of osteoporosis. Women are four times more likely than men to develop the disease, 8 million women compared to 2 million men. This is partially related to sex differences in the manner in which bone ages (www.internalmedicineneeds.com 1/1/06 p 23). In Kansas City a telephone survey found 10% of 1,229 households had at least one person afflicted with osteoporosis and that 82% of these individuals were female.⁴⁰⁶

Osteoporosis is a disease in which bones become fragile and more likely to break. If not prevented or if left untreated, osteoporosis can progress painlessly until a bone breaks. The disease is responsible for >1.5 million fractures annually and these occur typically in the hip (>300,000), spine (700,000), and wrist (250,000); ~300,000 fractures occur in other bones. The National Osteoporosis Foundation (www.nof.org) estimates that by 2010, more than 1 million Missourians will have osteoporosis or osteopenia.

Fractures

Any bone can be affected, but of special concern are fractures of the hip and spine. A hip fracture almost always requires hospitalization and major surgery. It can impair a person's ability to walk unassisted and may cause prolonged or permanent disability or even death. In 2003, the age-adjusted rates of fatal falls or hospitalizations for hip fractures among persons ≥ 65 years of age in the United States were 583.6 for men and 886.2 for women.⁴⁰⁷

Spinal or vertebral fractures also have serious consequences, including loss of height, severe back pain, and deformity. Each year in the US osteoporotic fractures lead to >500,000 hospitalizations, >800,000 emergency department encounters, >2,600,000 physician office visits, and the placement of nearly 180,000 individuals into nursing homes. Nationally, in 2002, osteoporotic hip fractures direct expenditures (hospitals and nursing homes) were \$18 billion.

In 2006, the Missouri Department of Health and Senior Services reported 7,021 Missourians were hospitalized due to a hip fracture and that hospital costs related to those fractures exceeded \$225 million. For Kansas City, there were 649 hospitalizations for fractures among residents ≥ 65 years of age. Hip

⁴⁰⁵ US Department of Health and Human Services. *Bone Health and Osteoporosis: A Report of the Surgeon General*. Atlanta, GA. Department of HHS, CDC, NCCDPHP, Office of the Surgeon General. 2004.

⁴⁰⁶ Kansas City Health Department. *2006 Health Planning and Assessment Survey*. www.kcmo.org.

⁴⁰⁷ Stevens JA et al. Fatalities and injuries from falls among older adults – United States, 1993-2003 and 2001-2005. *MMWR Morb Mortal Wkly Rep* 2006;55:1221-1224.

fractures accounted for 42.7% of the hospitalizations, with 83.0% of the hip fractures being among persons ≥ 75 years old. Overall, direct costs for fractures among those >65 years of age totaled \$20,497,734 for hospitalizations with hip fractures accounting for \$10,660,224 or 52.0% of the hospitalization costs. The average length of hospitalization for a hip fracture was 3.5 days.

Risk

Significant risk has been reported in people of all ethnic backgrounds. A non-Hispanic white woman over the age of 50 has a $>40\%$ chance of suffering a fracture sometime during the rest of her life. While the lifetime risk for men and non-white women is less across all types of fractures, it is nonetheless substantial and may be rising in some groups such as Hispanic women. Twenty percent of non-Hispanic white women and Asian women ≥ 50 years of age are estimated to have osteoporosis and 52% are estimated to have osteopenia. For Hispanic women the estimates are 10% and 49%, respectively, while for non-Hispanic black women the estimates are 5% and 35%, respectively. It is believed that that osteoporosis is both under-recognized and under-treated in both non-Hispanic white and non-Hispanic black women.

Among men the estimates for both osteoporosis and low bone mass are lower than for women,⁴⁰⁸ although the incidence and costs of fractures in men is rising (currently estimated at 30% of total costs for treating fragility fractures). For non-Hispanic white and Asian men ≥ 50 years of age, an estimated 7% have osteoporosis and 35% have osteopenia ≥ 45 . For Hispanic men the estimates are 3% and 23% respectively, while for non-Hispanic black men they are 4% and 19%, respectively.

Consequences

Fractures can have devastating consequences for both the individuals who suffer them and family members. Hip fractures are associated with an increased risk of mortality that is 2.8-4 times greater among hip fracture patients during the first 3 months after the fracture, as compared to the comparable risk among individuals of similar age who live in the community and do not suffer a fracture. Those persons in poor health or living in a nursing home at the time of fracture are particularly vulnerable. For those that do survive, these fractures often precipitate a downward spiral in physical and mental health that dramatically impairs quality of life. Nearly 20% of hip fracture patients end up in a nursing home.

Prevention

Osteoporosis is not a natural part of the aging process and can be prevented or detected early and effectively treated. Left unchecked, the bone health status is only going to get worse, due primarily to the aging of the population. Therefore, a major message of the Surgeon General's report was that the

⁴⁰⁸ Melton LJ et al. Bone density and fracture risk in men. *J Bone Mineral Res* 1998;13:1915-1923.



bone health status of Americans can be improved, but much of what could be done to reduce this burden is not being done today. Physical activity and adequate calcium and vitamin D intake are known to be major contributors to bone health for individuals of all ages. Even though bone disease often strikes late in life, the importance of beginning prevention at a very young age and continuing it throughout life is well understood. Improvements in assessment tools have made it possible to detect bone disease early and to identify those at highest risk of fracture. And, therapeutic advances in bone disease have equaled if not surpassed advances in the areas of prevention and diagnosis. The tremendous potential offered by these developments in bone health, unfortunately, has yet to become a reality.