Osteoporosis and bone health

Osteoporosis is a disease characterized by low bone mass and deterioration of bone structure that increases the risk of fracture. Osteoporosis is often called the “silent disease,” progressing without symptoms until a low-energy fall or minor activity fractures a bone. Osteoporosis can occur without a known cause or be attributed to another secondary condition, such as hyperthyroidism or celiac disease, or to medication, such as steroids.

The epidemiology of osteoporosis has only been fully described in Caucasian women, making estimates of the total number of persons with osteoporosis difficult to determine. In fact, we now know that osteoporosis affects men and women, and all ethnicities. The National Osteoporosis Foundation estimated there were 29.5 million women and 11.7 million men in the U.S. with osteoporosis or low bone mass in 2002. On average in the 1999 to 2004 National Health and Nutrition Examination Survey, nearly 10.5 million men and women aged 65 and older reported they had osteoporosis, a rate of 26 in 100 women and 4 in 100 men. These rates of osteoporosis are dramatically higher than those found a decade earlier, likely due to increased testing of bone mass and extensive educational and awareness efforts. It is believed that osteoporosis is significantly underdiagnosed. In 2004, only 16 percent of persons admitted to the hospital with a low-energy fracture were diagnosed with osteoporosis.

Falls are the leading cause of injury among persons aged 65 and older in the United States. Fractures are the primary cause of hospitalization or death following a fall. Osteoporosis is a leading underlying cause of low-energy fractures after a fall. One in two women and one in four men older than age 50 will have an osteoporosis-related fracture in her or his remaining lifetime.

The cost of osteoporosis

In 2004, the estimated cost of treating patients hospitalized with a diagnosis of osteoporosis was $19.1 billion, although it is unlikely that osteoporosis was the primary, or first, diagnosis of these patients. The estimated cost of treating patients with a low-energy fracture in 2004 was $24.2 billion. Among persons aged 45 and older, 6.2 million visits to a doctor or other healthcare center were for osteoporosis, and an additional 5.7 million visits were attributed to a low-energy fracture in 2004. While most were treated in a doctor’s office, 704,300 persons were hospitalized for a low-energy fracture, primarily of the hip/pelvic area or vertebrae, and 1.23 million were treated in emergency departments, primarily for wrist fractures. Hip fractures significantly impact quality of life and are often associated with chronic pain, reduced mobility, disability, and an increasing degree of dependence. The mortality rate in the first 12 months after hip fracture is 20 percent or higher. Current estimates are that one in four hip fractures occurs in males, and recent research indicates that men will have a different course of recovery than women, with higher rates of disability as well as mortality. Fifty percent of persons experiencing a hip fracture will be unable to walk without assistance, and 25 percent will require long-term or nursing home care.

Impact of aging

Osteoporosis is more common among seniors due to the gradual loss of bone, which leads to reduced bone strength. Lifetime factors affecting the rate of bone loss include heredity, menopause, serious health conditions and their treatment, as well as lifestyle factors such as diet, lack of weight-bearing exercise, smoking, or excessive alcohol consumption.

The future

In 2002, an estimated 44 million persons older than age 50 in the United States were at risk for fracture due to osteoporosis or low bone mass. By 2020, if current trends continue and effective treatments are not found and widely implemented, it is estimated that more than 61 million persons will be at risk. Projected costs for care of osteoporosis and low-energy fractures over the next two decades are $47.4 billion. In addition to dollar cost, osteoporosis-related fractures bring a burden of pain and disability, resulting in time lost from work or the inability to perform activities of daily living.

For most people, the possibility of future low bone mass is set in the late teens and early twenties, a critical time in the building of bone density and quality. The initiation of society-wide prevention measures for bone health, greater emphasis on identifying individuals at risk for osteoporosis and identification of new strategies to improve treatment and treatment adherence in high-risk groups are needed to combat the growing burden caused by osteoporosis.