May is Osteoporosis Prevention Month

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A Major Public Health Concern
According to the Surgeon General [March 2012], lack of calcium has been singled out as a major public health concern because it is critically important to bone health. Furthermore, the average American consumes far less than the recommended amount.

Bones are Living Tissue
Our bones are living tissue in a constant state of regeneration. From the moment of birth until young adulthood, our bones are developing and strengthening. As we age, some of our bone cells begin to dissolve bone matrix (bone resorption), while new bone cells deposit osteoid (bone formation). This process is known as bone remodeling.

Peak bone mass occurs in our early 20s, when bones are most dense. At the age of 30 years, it is common to begin to gradually lose more bone than can be replaced. The result is that bones become thinner and weaker in structure.

Osteoporosis
Osteoporosis literally means “porous bone”. It is a disease where the density and quality of bone is compromised. For people with osteoporosis, bone loss occurs faster than the growth of new bone. The loss of bone occurs silently and progressively.

Bone Fractures
Often, no symptoms are present until the first fracture occurs. As we age, the risk of fracture is greatly increased due to porous and brittle bones for both men and women. Women can also undergo accelerated bone loss related to estrogen decline after menopause.

In the United States, 4 in 10 women and 1 in 10 men are at risk of an osteoporotic fracture for those over 50 years of age. The most common fractures occur at the hip, spine, and wrist. The likelihood of a fracture increases exponentially with age.

A vertebral (spinal) fracture may result in serious conditions, including disability, intense back pain, deformity (sometimes called “Dowager’s Hump”), and loss of height. A hip fracture often requires surgery and may cause death or disability. Chronic long-term pain may also result.

Who is at Risk?
Risk increases with the following factors: age, low body weight, a close relative with osteoporosis, a history of fractures, smoking, excess alcohol consumption, lack of exercise, insufficient calcium intake, and more. In addition, osteoporosis can be caused by chronic diseases such as: hyperthyroidism, chronic liver disease, chronic renal insufficiency, hyperparathyroidism, Cushing’s syndrome, multiple myeloma, and many others. Nutritional causes include alcoholism, calcium and/or vitamin D deficiencies, gastric and bowel resections, and malabsorption syndromes. Certain medications can also place a person at risk for developing osteoporosis.

Diagnosis
The gold standard for diagnosing osteoporosis is a radiology test that measures bone mineral density. The test is abbreviated “DEXA” (or “DXA”) which stands for “Dual Energy X-ray absorptiometry”, and a “T score ≤ -2.5” indicates osteoporosis. Another measurement is the fracture risk assessment (FRAX) score, which predicts the 10-year probability of a major bone fracture.

Laboratory testing for causes of bone loss may include serum calcium, phosphorus, Vitamin D (25-Hydroxy), alkaline phosphatase, liver and renal function tests, 24-hour urine calcium, intact PTH, testosterone or estradiol, thyroid tests, CBC, protein electrophoresis, tests for celiac disease, and many other tests. Biochemical markers may be used to monitor treatment.

Treatment
There are many drugs available for patients with a high probability for a bone fracture. Factors such as cost, side effects, fracture risk, and other medical conditions help determine which anti-fracture medication to use.

Prevention
Keeping your bones healthy throughout your life is helped by adequate amounts of calcium, vitamin D, and exercise – particularly weight-bearing exercise. Regarding calcium, teenagers (ages 9-18 years) need 1,300 mg/day; adults 19-50 years need 1,000 mg/day; men 51-70 years need 1,000 mg/day; women 51-70 years need 1,200 mg/day, and adults >70 years need 1,200 mg/day. [National Institute of Health] Also, don’t smoke, limit alcohol, and reduce hazards in your home that could increase your risk of falling.

As Metropolitan Medical Laboratory celebrates our 100th year in 2014, your good health continues to be our passion. If you are concerned about your risk factors for osteoporosis, see your doctor.

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