



Patient Care for Osteoporosis: A Systemic Skeletal Disease, its Etiology and Management

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DESCRIPTION

Low bone mass, bone fragility, and an elevated risk of fracture are all characteristics of osteoporosis, a systemic skeletal disease. It is the most frequent reason for fractured bones in older people. The vertebrae in the spine, forearm bones, and hip bones are among the most often shattered bones. In most cases, there are no symptoms until a bone is fractured. Bones can degenerate to the point that they spontaneously or with modest force shatter. After the fractured bone heals, the person may continue to feel uncomfortable and have difficulty doing daily tasks. Osteoporosis can occur as a result of lower-than-normal maximal bone mass and greater-than-normal bone loss. Bone loss rises after menopause due to decreasing oestrogen levels, and during Andropause due to lower Testosterone levels. Osteoporosis can also be caused by a variety of conditions or therapies, including as alcoholism, anorexia, hyperthyroidism, kidney disease, and surgical ovarian removal. Some antiseizure drugs, chemotherapy, proton pump inhibitors, selective serotonin reuptake inhibitors, and glucocorticoids can accelerate the rate of bone loss.

Etiology

Primary osteoporosis is associated with age and declining sex hormone levels. The microarchitecture of the bones is deteriorating, which results in a loss of bone mineral density and an elevated risk of fracture. Anti-epileptic medicines and glucocorticoids are two examples of pharmaceuticals that might result in secondary osteoporosis. Although they haven't been thoroughly explored, other drugs such proton pump inhibitors, thiazolidines, and chemotherapeutic medicines are thought to play a role in osteoporosis. Hyperparathyroidism, anorexia, malabsorption, hyperthyroidism or overtreatment of hypothyroidism, chronic renal failure, Cushing syndrome, and any condition that can result in prolonged immobility are diseases that can cause osteoporosis.

Epidemiology

A significant risk factor for fragility fracture is decreased bone density. Use of oral or systemic glucocorticoids, age, sex, previous fractures, and a family history of osteoporosis are other variables that may influence the risk of fragility fracture. Due to growing bone loss in women after menopause and age-related bone loss in both men and women, the prevalence of osteoporosis climbs significantly with age, from 2% at age 50 to more than 25% at age 80 in women.

Management

Recommend all patients to make lifestyle adjustments. Exercises like yoga and tai chi that increase balance as well as weight-bearing exercise should be promoted. Treatment should be made available to assist with quitting drinking and smoking. All patients should be given calcium and vitamin D3, and those who are vitamin D deficient should receive treatment to bring their levels back to normal. Patients with a negative t-score of 2.5 or below should be treated. Additionally, it is recommended for those with osteopenia who have a hip fracture risk of at least 3%. Patients who have experienced a fragility fracture in the past can be treated without further investigation. Numerous pharmaceutical therapies are available. These substances either have anabolic or antiresorptive effects. To lower the risk of fracture in women with known osteoporosis, it is advised to begin treatment with risedronate, alendronate, zoledronic acid, or denosumab. Both vertebral and non-vertebral fractures are decreased by these treatments. The FDA has approved bazedoxifene, a selective oestrogen receptor modulator combined with conjugated estrogen, for osteoporosis prevention but not for treatment. As a first-line treatment, bisphosphonates should be made available to men. Patients can try other drugs, such as teriparatide, if they are unable to tolerate current ones. Patients who are unable to handle any of the above treatments should only take drugs like raloxifene and ibandronate, which have only

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been proved to reduce vertebral fractures. Any secondary cause should be addressed in both groups. In individuals with severe osteoporosis and hip and vertebral fractures, combined therapy using teriparatide and a bisphosphonate or teriparatide plus denosumab is a viable option. Nurses' roles in caring for patients with osteoporosis or at risk for osteoporosis, regardless of setting, include increasing patients' knowledge about the disease and promoting behaviour change. Specific nursing actions include: providing patient education about bone health and the prevention of osteoporosis and fractures across the lifespan, including discussing strategies to ensure bone health in

adolescents, young adults, and older patients; evaluating patients' risk for low bone density or osteoporosis; educating patients with or at risk of osteoporosis and their families on pharmacologic and nonpharmacologic treatment options; educating patients and their family caregivers about the risk of falling and home fall prevention strategies; assessing fall risk factors and implementing strategies to reduce the risk of falls and fracture in those with or at risk of osteoporosis during a patient's hospitalisation; providing nursing care for patients at risk for osteoporosis complications; and promoting adherence to medication and lifestyle changes.