OSTEOPOROSIS FROM ETIOPATHOGENESIS TO REHABILITATION

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Osteoporosis is a silent disease until it is complicated by fractures that can occur following minimal trauma.[1] The diagnosis of osteoporosis is established by measurement of BMD. According to the WHO diagnostic classification, osteoporosis is defined by BMD at the hip or spine that is less than or equal to 2.5 standard deviations below the young normal mean reference population[2].

The detoriation of trabecular microarchitecture induced by elevated bone turnover plays an important role in the pathogenesis of osteoporotic fractures[3].

When bone resorption equals bone formation, bone mass remains stable. When resorption exceeds formation, bone mass is reduced-a process that leads to osteopenia or osteoporosis[4].

During a lifetime, a woman will typically lose 50% of her trabecular bone and 35% of her cortical bone.[5] Osteoporotic fractures mainly affect the spine (vertebral crush fractures), leading to loss of height, kyphosis, and chronic back pain; the distal radius (Colles' fracture); and the most serious clinically, the proximal femur ("hip fractures")[6]. Disuse and inactivity can cause bone loss, whereas exercises may maintain or improve bone mineral density. There is a significant correlation between muscle strength and bone mineral density. There is evidence that strengthening exercises may lead to an increase in the mineral density of the bones to which the muscles are attached[7]. Suppression of biochemical markers of bone turnover after 3-6 months of specific antiresorptive osteoporosis therapies, and biochemical marker increases after 1-3 months of specific anabolic therapies, have been predictive of greater BMD responses in studies evaluating large groups of patients[8]. Pharmacologic options for the prevention and/or treatment of postmenopausal osteoporosis include: bisphosphonates, estrogen agonist/antagonist (raloxifene), parathyroid hormone (PTH(1-34), teriparatide) and human monoclonal antibody to the RANKL (denosumab)[9]. It is important to ask patients whether they are taking their medications and to encourage continued and appropriate compliance with their osteoporosis therapies to reduce fracture risk.

Physical medicine and rehabilitation can reduce disability, improve physical function and lower the risk of subsequent falls in patients with osteoporosis[10].

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