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Management of postmenopausal osteoporosis and the prevention of fractures.

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Abstract

Postmenopausal osteoporosis affects millions of women, being estrogen deficiency the key factor in the pathogenesis of involutional osteoporosis. Fracture prevention is one of the public health priorities worldwide. Different treatments for osteoporosis are available. The various options are aimed to maintain bone health and decrease the risk of fractures. The majority of these drugs are antiresorptive agents, i.e., drugs that lower bone turnover, inhibiting osteoclastic bone resorption. Dietary sources of calcium intake and vitamin D are ideal, while pharmachological supplements should be used if diet alone cannot provide the recommended daily intake. Bisphosphonates are first-line therapy for patients with established osteoporosis at high risk of fracture. Some serious, but rare, adverse events have been associated with their long-term administration. The monoclonal antibody to RANKL, named denosumab, administered as a 60-mg subcutaneous injection every 6 months, is a valuable option for the treatment of postmenopausal osteoporosis in women at increased or high risk of fractures, who are unable to take other osteoporosis treatments. Teriparatide (PTH 1-34) is the only available osteoanabolic drugs for osteoporosis treatment at present. Its use is limited to severe osteoporosis because of the high cost of the treatment. In climacteric women, in different stages of menopausal transition, and beyond, hormone replacement therapy at different doses (HRT) rapidly normalizes turnover, preventing and/or treating osteoporosis. HRT is able to preserve and even increase BMD at all skeletal sites, leading to a significant reduction in vertebral and non-vertebral fractures. Selective estrogen modulators (SERMs) as raloxifene and bazedoxifene reduce bone turnover and maintains or increases vertebral and femoral BMDs in comparison to placebo and reduces the risk of vertebral and new vertebral fractures, in high risk women. The combination of a SERM with an estrogen has been defined as tissue selective estrogen complex (TSEC). The bazedoxifene with conjugated estrogen is able to reduce climacteric symptoms, reducing bone turnover and preserving BMD. Studies investigating the actions of phytoestrogens on BMD or bone turnover are largely contradictory, making them inconclusive. At the present time, phytoestrogens cannot be recommended for postmenopausal osteoporosis. In conclusion, the use of HRT for osteoporosis prevention is based on biology, epidemiology, animal and preclinical data, observational studies and randomized, clinical trials. Osteoporosis prevention can actually be considered as a major additional effect in climacteric women who use HRT for treatment of climacteric symptoms. Bone protection is one of the major benefits of HRT. The possibility that low dose HRT or TSEC causes a decrease in fracture risk is not demonstrated but the scientific evidence is compelling. Conversely, established osteoporosis, often occurring in elderly women, can better be treated with specific treatments, such as bisphosphonates or, in more severe and selected cases, anabolic agents (teriparatide).