

Recent advances in drug therapy of osteoporosis

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There has been substantial progress in the management of patients with osteoporosis and the prevention of osteoporotic fractures. Currently available strong anti-resorptive agents are bisphosphonates and an anti-receptor activator of nuclear factor-kappa B ligand (RANKL) antibody, denosumab. Although bisphosphonates and denosumab both inhibit bone resorption and prevent vertebral and non-vertebral fractures, their mechanisms of action are different. There are differences in the mechanism of action of these two drugs. Bisphosphonates accumulate on the mineralized bone surface and are released by the acid environment under osteoclastic bone resorption, whereas denosumab is not accumulated on the bone but directly binds RANKL and inhibits its binding to the receptor RANK. As anabolic agents, only teriparatide has been available for a long time, but abaloparatide, a synthetic analog of PTHrP(1-34), is currently under development. Because of the difference in the preferential binding conformations of PTH1 receptor between teriparatide and abaloparatide, the latter shows anabolic effects with fewer bone resorptive effects. Romosozumab, an anti-sclerostin antibody, inhibits the action of sclerostin. Romosozumab robustly increases vertebral and proximal femoral bone mineral density within 12 months and inhibits vertebral and clinical fractures in patients with osteoporosis by enhancing bone formation and inhibiting bone resorption. In my talk, I shall summarize the recent advances in therapeutic agents for the treatment of osteoporosis and discuss future prospects with their use.

Biography

Suzan A Darwish has completed her BPharm, MSc from the faculty of Pharmacy, Alexandria University, Egypt; PhD in Pharmacology from Strathclyde University, UK. Acted as Professor of Pharmacology in Faculty of Medicine, University of Alexandria, Egypt, from 1988 until 2003, then acted as head of the same department until 2005. She is now Emeritus Professor in Pharmacology, Faculty of Medicine, Alexandria University, since 2005. Published 35 papers in reputed journals and supervised 14 MSc/PhD thesis, elected as President of the Egyptian Association of the Advancement of Basic Medical Sciences (EAMBS) from 2003 up till now.

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