

## Osteoporosis Treatment and Effects on Bone Mass

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### EDITORIAL NOTE

Osteoporosis is a major skeletal disease that will generally occur to women at older age. In this disease bones become weak and brittle and will fracture to mild stresses. Most common osteoporosis fractures occur to the bones of hip, spine and wrist. A common symptom in osteoporosis is bone fractures. Here the treatment for osteoporosis is widely expanded over last decade to increase the bone mass and anti-fracture efficiency. And a technique that follows is to break the continuity of denosumab and romosozumab medication results in large and rapid increase in bone turnover with loss of bone mineral density and then therefore further follow-up treatment is needed to maintain anti-fracture efficient and bone mineral density gains.

Due to the specifications of monoclonal antibodies denosumab and romosozumab and its treatment sequence and duration of treatment are become more important to consider and because of incorporate on bone matrix and lost the effect of bone density increase [1]. The use of drug denosumab is will rebound the bone loss but it may increase the risk of vertebral fractures of spine. After 12 months of use of romosozumab the drug effect is reduced. Bisphosphonates is drug that used to reduce bone loss, the use of this drug from many years. Currently available antibody therapies for osteoporosis are anti-nuclear factor kappa-B ligand, the anti-sclerostin antibody Romosozumab and antibody Denosumab. Antiresorptive agents reduce the rate of bone resorption, this is followed by a decrease in bone formation due to the coupling of bone resorption and formation [2]. These changes are associated with moderate increases in bone mineral density, improvement of material and structural properties of bone and a significant reduction in the risk of fractures [3].

When the bone is undergoing a process of resorption, then the integrated bisphosphonates are released from bone. Those integrated bisphosphonates are taken up by osteoclasts. The drug denosumab is developed from an inspiration of Osteoprotegerin (OPG), which has bone protection properties, it will act as an inhibitor of osteoclast formation [4]. The drug denosumab was evaluated in different experimental animal models including monkey and mice. The clinical studies without using denosumab

drug results increase in bone turnover with rapid bone loss in the majority and in some patients multiple vertebral fractures. The coupling of bone formation and resorption is done with using anabolic drugs results in increase in formation and increase in bone resorption. Sclerosteosis and van Buchem's disease are rare, the sclerostin role is revealed in bone metabolism [5,6].

Since last decades, there are several osteoporosis drugs have become available in use. Which of those drugs two are have very high potent antibody based treatment and results in patient's high BMD gains and fracture risk reduction. Discontinues use of these drugs leads to a direct loss of effect and reversal of the BMD gains, and in the case of denosumab, the results may even lead to an increased vertebral fracture risk [7].

Other therapies for osteoporosis are hormone related therapies are available they are, estrogen hormone is started in women after their menopause, estrogen will help in to maintain bone density. But, in the treatment of osteoporosis, estrogen therapy can increase the risk of blood clots and breast cancer. So, estrogen therapy is used in women whose menopausal symptoms are suitable for treatment or on younger women. In the postmenopausal women raloxifene mimics estrogen will give benefits to their bone health. But, the side effects are more in this therapy process they are it may causes to breast cancer, hot flashes, and it may causes to blood clots [8]. In men, testosterone levels are decreased with the age, so testosterone improvement will help in osteoporosis treatment process. Some of bone building medications for osteoporosis treatment currently following are teriparatide or also known as bonsity, forteo is also work as parathyroid hormone and it will stimulates new bone growth. It's given to patient as daily injection under the skin for up to two years. And another drug is abalopratide or tymlos is also like parathyroid hormone, this is also taken by two years. The newest bone building medication to treat osteoporosis is romosozumab, it will be limited use for one year and gives directly to patient as injection once in a month [9,10].

As all we know prevention is better than cure, so live a health life to prevent this type of life ling diseases. Try to quit smoking,

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because it will increase the rate of bone loss and the chance of fracture. Alcohol drinking will reduce the bone formation, and over drinking leads to risk of falling. And wear low heel shoes with nonslip soles.

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