

OSTEOSCOOP

News on current events in osteoporosis and rheumatology

Improvement of bone microarchitecture by strontium ranelate in postmenopausal osteoporotic women

N°61 – January 2009

Strontium ranelate is a new therapeutic approach to osteoporosis. Strontium ranelate's mode of action involving dissociation of bone formation and resorption was shown in preclinical studies, explaining its benefits in postmenopausal women treated with strontium ranelate. One hundred forty-one transiliac bone biopsies were obtained from 133 postmenopausal osteoporotic women: 49 biopsies after 1–5 yr of 2 g/d strontium ranelate and 92 biopsies at baseline or after 1–5 yr of placebo.

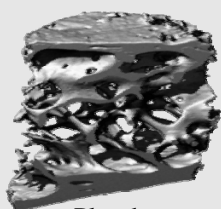
3D analysis of biopsies after 3-yr of treatment (20 biopsies) and placebo (21 biopsies) using μ CT showed significant changes in microarchitecture with, in the strontium ranelate group, higher cortical thickness and trabecular number, and lower structure model index and trabecular separation, with no change in cortical porosity.

The changes in 3D microarchitecture enhance bone biomechanical competence and explain the decreased fracture rate at vertebral, nonvertebral and hip levels with strontium ranelate.

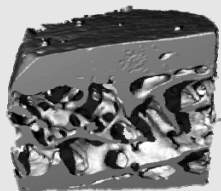
1. Arlot ME et al. J Bone Miner Res. 2008;23:215-222

Key words: clinical trial, bone, osteoporosis, bone histomorphometry, strontium

Improvement of bone microarchitecture by strontium ranelate in postmenopausal osteoporotic women



Placebo
36 Mo



Strontium ranelate
36 Mo

The analysis of transiliac bone biopsy samples from phase 2 and 3 clinical trials of strontium ranelate has provided further evidence of the good bone safety of strontium ranelate in the treatment of postmenopausal osteoporosis.

Strontium ranelate improves both trabecular and cortical bone. At the trabecular level, strontium ranelate significantly increases trabecular number by 14% and decreases trabecular separation by 16%, shifting trabeculae from rod-like structures to plate-like patterns. At the cortical level, strontium ranelate enlarges cortical bone dimensions by increasing cortical thickness by 18%. Strontium ranelate is the first oral treatment to improve both trabecular and cortical bone in postmenopausal osteoporotic women. The change in 3D trabecular and cortical microarchitecture may improve bone biomechanical competence and explain the decreased fracture rate after strontium ranelate treatment.

PROTELOS®

Treatment of postmenopausal osteoporosis to reduce the risk of hip and vertebral fractures



PROTELOS is also registered under the trade names: OSSEOR®, PROTOS®, PROTAXOS®, BIVALOS®, OSSUM®