

# OSTEOSCOOP

News on current events in osteoporosis and rheumatology

## Strong association between femoral neck BMD and vertebral fracture incidence during treatment with strontium ranelate

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Bone mineral density (BMD) measurements are used to diagnose osteoporosis and to follow the patients under antiosteoporotic treatment. Several randomized, controlled trials have demonstrated that pharmacological agents increase BMD and reduce the risk of fracture. However the value of this increase in BMD differs widely while reductions in vertebral fracture risks are comparable. For antiresorptive agents, the predictive value of BMD changes for fracture risk reduction is highly controversial, relationship between changes in BMD and fracture risk being very low.

Strontium ranelate, the first dual-acting treatment in postmenopausal osteoporosis, simultaneously increasing bone formation and decreasing bone resorption, was demonstrated to significantly reduce risk of vertebral, nonvertebral, and hip fractures. Moreover, significant increases in lumbar spine, femoral neck, and total hip BMD have been consistently reported in all populations exposed to strontium ranelate. Although strontium has a higher atomic number than calcium, thus influencing BMD measurement, correlation between the increase in BMD and the reduction in fracture rates with strontium ranelate appears to be of utmost interest for monitoring strontium ranelate-treated patients in daily practice.

The objective of a recent study [1] was to analyze the association between changes (1-year and 3-year) in BMD and fracture risk over 3 years of treatment with strontium ranelate. Women from the strontium ranelate arm of the Spinal Osteoporosis Therapeutic Intervention study (SOTI) and the TRreatment Of Peripheral OSteoporosis study (TROPOS) were studied.

After 3 years of strontium ranelate treatment, each percentage point increase in femoral neck BMD was associated with a 3% reduction in risk of a new vertebral fracture. The 3-year changes in femoral neck BMD explained 76% of the reduction in vertebral fractures observed during the treatment. The results were similar when considering only clinical vertebral fractures, with 5% decrease in risk for each 1% increase in femoral neck BMD. Clinical efficacy can also be predicted with strontium ranelate after 1 year. An increase in femoral neck BMD after 1 year was significantly associated with a 3% reduction in risk of new clinical vertebral fractures observed after 3 years.

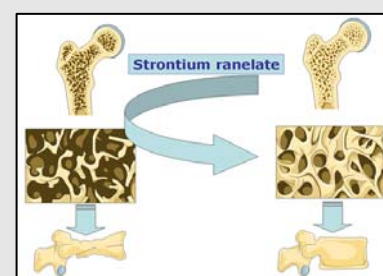
In conclusion, the increase in femoral neck BMD observed after 1 year and 3 years was associated with the reduction in vertebral fracture incidence during 3 years of treatment with strontium ranelate. Moreover, the increase in femoral neck BMD in strontium ranelate-treated patients appeared as a marker of efficacy and an appropriate monitoring tool. In practice, this study showed that the more the patients increased their BMD with strontium ranelate, the more they were protected against fractures.

1. Bruyere O et al. *J Clin Endocrinol Metab.* 2007;92:3076-3081.

### Increase in femoral neck BMD is associated with reduced incidence of vertebral fracture under treatment with strontium ranelate

After 3 years of strontium ranelate treatment, each percentage point increase in femoral neck BMD was respectively associated with a 3% reduction in risk of a new vertebral fracture.

Clinical efficacy can be also predicted with strontium ranelate after 1 year. For each increase of 1% in femoral neck BMD after 1 year, the risk of new clinical vertebral fracture after 3 years decreased by 3%.



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