BIOMARKERS

Osteopontin to determine response to parathyroid hormone therapy?

Plasma levels of osteopontin may be used as a biomarker for early treatment response in women receiving intermittent parathyroid hormone (PTH) therapy for postmenopausal osteoporosis, according to researchers from Chung Shan Medical University in Taichung, Taiwan.

Osteopontin deficiency in a transgenic mouse model of high bone mass (owing to osteoblast-specific expression of a constitutively active form of the PTH receptor) further increases bone formation, and intermittent treatment with PTH rescues ovariectomy-induced bone loss in mice. Chiang *et al.* hypothesized that the anabolic effect of intermittent PTH treatment in postmenopausal women may result from the downregulation of osteopontin expression, which in turn increases bone formation and inhibits bone resorption.

The investigators enrolled 31 women, aged >45 years, with severe postmenopausal osteoporosis who were treated with 20 μg $PTH_{1–34}$ per day. Plasma osteopontin and BMD at the lumbar spine and hip were measured at baseline and after 3, 6 and 9 months.

Plasma osteopontin levels decreased significantly and consecutively over the 9-month treatment course, concomitant with a sequential improvement in BMD that was significant in the lumbar spine but not in the hip area. These findings suggest that osteopontin could potentially be used as an indicator for the response of PTH therapy in women with postmenopausal osteoporosis, although further studies are needed to elucidate the underlying changes in bone remodeling.

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Original article Chiang, T. I. *et al.* Osteopontin regulates anabolic effect in human menopausal osteoporosis with intermittent parathyroid hormone treatment. *Osteoporos. Int.* doi:10.1007/s00198-010-1327-x