

Teriparatide and Bone Regeneration in the Jaw

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Periodontitis affects a large part of the general population in both Europe and the US, is an important cause of teeth loss and is often associated with systemic disorders, such as diabetes mellitus, low birth weight and cardiovascular disease. An anabolic agent capable of inducing bone regeneration at the level of the oral cavity would be very useful in medical practice. Teriparatide, which consists of the first 34 aminoacids of the parathyroid hormone is an anabolic agent approved in the US for the treatment of osteoporosis.

The presented study, conducted in the US, evaluated the effect of daily teriparatide administration, in association with oral surgery, on periodontal regeneration in severe periodontal disease.

The study included 40 patients (aged 30 to 75) with severe chronic periodontitis, who were randomized to receive daily, for 6 weeks after dental surgery, injections with teriparatide (20 µg) or placebo, in conjunction with calcium orally (1000 mg) and vitamin D (800 UI). Pa-

tients were followed for 1 year, with clinical, radiographic and biological assessments every 3 months. The primary objective was the radiographic linear measurement of alveolar bone level. Secondary objectives included clinical variables, bone turnover markers in serum and oral fluid, systemic bone density and quality of life.

The radiographic resolution was significantly higher after teriparatide than after placebo, starting already at 6 months, with a median growth at 1 year of 29% vs. 3% ($p < 0.001$). The clinical improvement was more important in the teriparatide group, with a reduction in periodontal depth of 2.42 vs. 1.32 mm and a growth in bone level of 1.58 vs. 0.42 mm in target lesions at 1 year ($p = 0.02$ in both cases). The investigators didn't report any severe adverse effects. Regarding the other investigated variables, no significant differences between the 2 study groups were noticed.

The conclusion of the study is that teriparatide may offer a therapeutic potential for oral bone lesions in periodontitis.

Comment on a paper:

J.D. Bashutski, R.M. Eber, J.S. Kinney, et al. – Teriparatide and Osseous Regeneration in the Oral Cavity; published online on October 16, 2010, at NEJM.org. *N Engl J Med* 2010.