EC Dental Science Editor's Column - 2016

Teriparatide: A Potent Perioceutic for Full Periodontium Regeneration?

"It is early to consider Teriparatide in our day-to-day armamentarium and practise"

Prof. Dr. Ziyad S Haidar
Universidad de Los Andes
Chile

Ziyad S Haidar*

[1]BioMAT'X, Facultad de Odontología, Universidad de Los Andes, Santiago de Chile
[2]Plan de Mejoramiento Institucional (PMI) en Innovación I+D+i, Universidad de Los Andes, Santiago de Chile
[3]Programa de Doctorado en BioMedicina, Facultad de Medicina, Universidad de Los Andes, Santiago de Chile
[4]Centro de Investigación Biomédica, Facultad de Medicina, Universidad de Los Andes, Santiago de Chile

COLUMN ARTICLE

Loss of the periodontium andsurrounding structures is multi-factorial driven. If left un-treated, the risk for extensive bone defects increases and this mayeventually compromise the ability of maintaining the dentitionor even the overall bony structure essential for prosthetic rehabilitation. Hence, in such clinical scenarios, periodontal therapy aims to restore the lost structures as well. This often includes the regeneration of alveolar bone, cementum and periodontal ligament, so, re-establishing theoriginal form, shape, properties, and function of the periodontium remains a clinical challenge. This is especially true in light of the gap in fully understanding the cellular and biological mechanisms underlying periodontal tissue regeneration. Yet, it is well-established today that for the promotion of predictable and sufficient (qualitatively and quantitatively) regeneratedtissue, the combined application of grafting materials or barrier membranes, alongside biologic agents are necessary. For a proper regenerative outcome, guided- and scaffold-/material-assisted periodontal bio-regeneration, therefore, should (a) constrain the invasion of certain undesired cells to the defect area; and (b) promote adequate healing conduction and induction, unlimited to bone tissue only yet also extending to reconstruct other periodontium constituents. In recent years, a wide variety of biomolecules, compounds, and purifiedrecombinant agents have been proposed for co-application in the prevention, diagnosis, or treatment of disease. The utilization of such bio-materials should "ideally" lead to faster healing and improved regenerative outcomes.

Full Periodontal Regeneration: treatment of Miller Class I and II Gingival Recessions Using Coronally-Advanced Flaps

Teriparatide is a recombinant form of parathyroid hormone (PTH) consisting of its first 34 amino acids and currently FDA-approved for osteoporosis therapy. Hence, it has been suggested for application in cranio-oro-maxillo-facial tissue regeneration. Indeed, pre-clinical studies evaluating the osseo-regenerative potential of Teriparatide PTH in periodontics (clinical attachment level gain post-treatment of periodontal intra-bony defects), oral surgery (enhanced extraction socket preservation) and implant dentistry (higher bone-implant interface/contact) are emerging. To date, it can be safely stated that while Teriparatide PTH injections yielded some positive short-term effect, larger

Citation: Ziyad S Haidar."Teriparatide: A Potent Perioceutic for Full Periodontium Regeneration?". EC Dental Science ECO.01 (2016): 19-20.

and longer-term prospective studies are compulsory. Furthermore, given that the common delivery route is associated with low patient compliance rates, current efforts are focused on developing localized delivery systems, in order to maximize benefits and to minimize systemic adverse effects. This has proven to be more challenging that first anticipated. Hence, it is early to consider Teriparatide in our day-to-day armamentarium and practise.

Keywords: Ridge Preservation; Tissue Engineering; Regeneration; Growth Factors; Dentistry; Oral Surgery; Periodontology; Osteogenesis; Grafts; Teriparatide; Perioceutics