Twenty years of enamel matrix derivative: the past, the present and the future.

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Abstract

BACGROUND:

On June 5th, 2015 at Europerio 8, a group of leading experts were gathered to discuss what has now been 20 years of documented evidence supporting the clinical use of enamel matrix derivative (EMD). Original experiments led by Lars Hammarström demonstrated that enamel matrix proteins could serve as key regenerative proteins capable of promoting periodontal regeneration including new cementum, with functionally oriented inserting new periodontal ligament fibres, and new alveolar bone formation. This pioneering work and vision by Lars Hammarström has paved the way to an enormous amount of publications related to its biological basis and clinical use. Twenty years later, it is clear that all these studies have greatly contributed to our understanding of how biologics can act as mediators for periodontal regeneration and have provided additional clinical means to support tissue regeneration of the periodontium.

AIMS:

This review article aims to: (1) provide the biological background necessary to understand the rational for the use of EMD for periodontal regeneration, (2) present animal and human histological evidence of periodontal regeneration following EMD application, (3) provide clinically relevant indications for the use of EMD and (4) discuss future avenues of research including key early findings leading to the development of Osteogain, a new carrier system for EMD specifically developed with better protein adsorption to bone grafting materials.

KEYWORDS:

EMD; Emdogain; Osteogain; enamel matrix derivative; enamel matrix proteins; intrabony defect; periodontal regeneration

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