

CLINICAL, RADIOGRAPHIC AND BIOCHEMICAL EVALUATION OF A LYOPHILIZED INORGANIC BOVINE CANCELLOUS BONE XENOGRAFT AND BIORESORBABLE COLLAGEN MEMBRANE IN THE MANAGEMENT OF PERIODONTAL INTRAOSSEOUS DEFECTS

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Abstract

The present study was conducted to evaluate clinically, radiographically and biochemically two regenerative approaches used for the management of interproximal periodontal defects in chronic periodontitis (CP) patients. Twenty periodontal osseous defects of matched severity, in 10 systemically healthy CP patients, were selected for the study. They were divided into two groups of ten defects each: Group I treated with a combination of resorbable collagen membrane (Gen-Derm)[®] and lyophilized inorganic cancellous bovine bone graft (Gen-Ox)[®]; and Group II managed by using the bone graft alone (Gen-Ox)[®]. Prior to surgery, patients were placed on an oral hygiene program; scaling and root planning were performed. At baseline, and at six and nine months postoperatively, the plaque (PI) and papillary bleeding index (PBI), probing pocket depth (PPD), and clinical attachment level (CAL), as well as standardized periapical radiographs were recorded. Linear and densitometric analysis of the radiographs were done. A significant improvement was seen in all clinical parameters in the two studied groups, when compared to baseline. No significant differences were noted between the studied groups for any of the clinical variables studied. Radiographic and densitometric analysis revealed that the two modalities resulted in significant increase in alveolar bone height and decrease in radiographic optical density, with no statistical difference between the groups. Concerning the biochemical assessment, gingival crevicular fluid (GCF) samples were collected from each patient at the surgical site at baseline, 3, 6 and 9 months postoperatively. Filter papers were inserted at the surgical site, and mean levels of total sulfated glycosaminoglycans (GAGs) and of chondroitin sulfate (CS) were determined using an Alcian blue dye detection system. The mean levels of CS and total sulfated GAGs in GCF significantly decreased in both groups at 3 months, then levels began to rise throughout the study period revealing better results in the combination group.

Introduction

The number of techniques and products available to treat periodontal disease continues to expand. Clinicians must select the techniques and the products used based on the quantity and quality of studies supporting a procedure, the cost effectiveness of a technique and the desired goals and outcomes of the treatment plan. These goals could be cosmetic improvement, decrease in probing depth, gain of attachment levels or a combination of one or more of these or other goals. Certainly, the ultimate goal of periodontal therapy is regeneration of periodontal tissue lost through disease and the establishment of a functional and stable dentition.⁽¹⁾

Over recent decades, several treatment modalities including the use of bone grafting materials, root surface conditioning, and above all, guided tissue regeneration (GTR) with the use of barrier membranes, and more recently, the application of polypeptide growth factors, and even gene transfer therapies, have been proposed to promote the regeneration of the periodontal tissues lost due to periodontal disease.^(2,3)

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