Effects of Application of Platelet Releasate in Periodontal Regeneration Therapy

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The alpha granules of platelets contain various growth factors, which display in vitro and in vivo activities known to be important in wound healing. Biologically active proteins from platelets include platelet-derived growth factor, transforming growth factor-b, and insulin-like growth factor, as well as other less well-described angiogenic and differentiated protein factors. The purpose of this study was to evaluate histologically and histometrically the new tissue formation on furcation treatment with platelet-derived factor releasate (PR) in beagle dogs. Class II furcations were created in the mandibular premolars of eight adult male beagle dogs. Periodontal regenerative treatments were then performed using collagen sponge graft material with and without the topical application of PR. PR was prepared fresh from blood drawn from dogs before treatments. A histologic evaluation of the effect on new tissue formation was then performed by comparing periodontal tissue regeneration of sites treated with and without PR. Four and 12 weeks after the flap operations, histologic sections were processed and histologically analyzed. The evaluated parameters were bone, cementum and connective tissue attachment regeneration, length of epithelium, resorption, and ankylosis. Histologically evaluated, the regeneration of new cementum was greater at the collagen sponge with PR sites compared to the control sites throughout the entire research period (P , .01). Four and 12 weeks after the flap operations, the amount of new bone in the sites treated with PR was greater than that in the control group (P , .05). These results suggest that collagen sponge graft material with PR promotes new attachment on the periodontal tissue regeneration treatments.
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