Effect of the Combination of Demineralization Freeze Dried Dentin Matrix (DFDDM) and Moringa Oleifera Lam on Nuclear Factor Kapa B as a Marker of Bone

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Abstract

Background: The socket preservation has important role in alveolar bone resorption after tooth extraction. Various graft materials can be used in socket preservation must have osteoconductive, osteoinductive and osteoproliferation properties. Autogenous bone graft from dentin can be used because it has good osteoinductive and osteoconductive properties. One of the active substances of Moringaoleifera (MO) is flavonoidsthat have several beneficial characteristics as an antiâ€‘inflammatory. The combination of anti-inflammatory with MO extract and Demineralization Freeze Dried Dentin Matrix (DFDDM) is expected to provide a good response to bone formation.

Aim: To determine the potentialof combination Moringaoleifera and DFDDM in formation of OPG and RANKL expression post extraction caviacobaya's tooth.

Method: The mandibular incisors of 45 Caviacobaya were extracted and divided into five groups subjected to different socket preservation treatments sequentially with MO, DFDDM, combination of MO and DFDDM, Gamacha® and polyethylene glycol (PEG). The caviacobaya were examined on days 7, 14 and 21 after which the specimens were sacrificed and examined using an immunohistochemical technique. The resulting data were then analyzed using oneâ€‘way ANOVA and Tukey's honestly significant difference tests.

Result: The One Way Anova test results showed a significant difference in OPG and RANKL between the groups ($p<0.05$) on day 7, 14 and 21 observation. The highest mean amount of OPG and lowest mean amount of RANKL were found in the third group.

Conclusion: Combination of MO and DFDDM can effectively generate OPG and RANKL expressions during the preservation of tooth extraction sockets.

Key words: Demineralization Freeze Dried Dentin matrix (DFDDM), Moringa oleifera, Nuclear Factor Kapa B, Bone Remodeling