ABSTRACT

MECHANISM OF WATER EXTRACTS GOLD SEA CUCUMBER (Stichopus hermanii) IN EARLY PROCESS FOR DENTIN REPARATIVE ESTABLISHMENT ON DIRECT PULP CAPPING TREATMENT

(Experimental Laboratory Study on Rattus norvegicus)

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Background: The golden sea cucumber (Sticophus hermanii) has many active highest glycosaminoglycan (GAG) ingredients. It is hyaluronic acid which has anti ROS, which is expected to be used as a direct pulp capping treatment. Objective: To prove and analyze the effectiveness of water extract golden sea cucumber in the early process in reparative dentin formation on direct pulp capping treatment by observing at the expression of HMGB-1, IL-6, IL-10, TGF-ß1, collagen type I, DMP-1, ALP. Materials and methods: 80 molar teeth of Rattus norvegicus were divided into 10 groups: normal control group (K-) without treatment; negative control group (K +) with cavity preparation and mechanized perforation without treatment of pulp capping; 4 positive control groups (K +) with cavity preparation, mechanized perforation and then direct pulp capping treatment with 60% pure Ca(OH)2 and available drug of Ca(OH)2 (Hydcal) during 7 and 14 days; 4 treatment groups (P) groups with cavity preparation, mechanized perforation and then direct pulp capping treatment with 60% and 80% water extract of golden sea cucumber during 7 and 14 days. After 7 and 14 days, HMGB-1, IL-6, IL-10, TGF-ß1, collagen type I, DMP-1 and ALP were examined using immunohistochemical techniques. Results: The lowest HMGB is P1, there are differences between P1 and K(+): 3 (p<0.05). The lowest IL-6 is P1, there are differences between P1 and P3 (p<0.05). The highest IL-10 is P3, there are differences between P3 with K (+): 1,2,3,4 and P1, P2 (p<0.05). The highest TGF-ß1 is P3, there are differences between P3 with K(+): 1,2,3,4 and P2, P4 (p<0.05). The highest collagen type I is P1, there are differences between P1 with K(+): 1,2,3,4 and P4 (p<0.05). The highest DMP-1 is P1, there are differences between P1 with K(+): 1,2,3,4 and P4 (p<0.05). The highest ALP is P4, there are differences between P1 with K(+): 1,2 (p<0.05). Conclusions: The water extract golden sea cucumber 60% and 80% for 7 days in the initial process of reparative dentine formation by decreasing expression of HMGB-1 and IL-6 and increasing expression of IL-10, TGF-ß1, collagen type I, DMP-1 and ALP. Keywords: Stichopus hermanii water extract, Ca(OH)2, direct pulp capping, inflammation, reparative dentine