ABSTRACT

EXPRESSION OF DMP1 AND DSP IN COMBINATION OF CALCIUM HYDROXIDE AND PROPOLIS EXTRACT IN PERFORATED RAT TEETH MODEL

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ABSTRACT
Background: Calcium hydroxide, the golden standart for pulp capping treatment was known to have some disadavantages such as high solubility and formation of tunnel defect. Propolis with its anti-inflammatory properties is expected to improve the treatment outcome when it is combined with calcium hydroxide as direct pulp capping agent.
Objective: Evaluating of the effect of calcium hydroxide and Propolis extract combination as a direct pulp capping agent based on its capability to form reparative dentin bridge which is represented by expression of DMP1 and DSP in perforated rat teeth model.
Material and Methods: This experimental study using a total of 60 maxillary first molar of wistar rat which then randomly divided into experimental combination of calcium hydroxide and Propolis extract group, control calcium hydroxide group, and negative control group. The cavities then sealed with Cention. After 14 and 28 days, rats then sacrificed from each group, and sections of the teeth were obtained. After being decalcified, specimens underwent histological evaluation under light microscope to identify the presence of odontoblast-like cell, inflammation cells, and dentin bridge. The immunohistochemistry (IHC) method using anti-DMP1 and anti-DSP was then performed to evaluate the expression of DMP1 and DSP. The results then statistically evaluated by Kolmogorrov Smirnov, homogeneity, and one way ANNOVA tests.
Results: Combination of calcium hydroxide and Propolis extract group shows most cells expressing both DMP1 and DSP, followed by control calcium hydroxide group, and negative control group as the least group expressing DMP1 and DSP.
Conclusion: Propolis extract combined with calcium hydroxide, complement its function as direct pulp capping agent as their combination induce more mineralization rather than the use of calcium hydroxide alone.

Keywords: *Calcium hydroxide, Propolis extract, reparative dentin bridge, DMP1, DSP, direct pulp capping*