

COMPARISON OF TWO BIOMEMBRANES IN THE DIRECT PULP CAPPING

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ABSTRACT

The objective of this study was evaluate the response of direct pulp capping in rat molars front the use of bacterial cellulose and bovine pericardium biomembrane. Biomebranes were utilized as scaffolds to induce the pulp protection and prevent the passage of monomers to complex pulp. For bovine pericardium biomembrane preparation, small pieces of bovine pericardium (PB) were treated with an alkaline solution of sulfates and hydroxides¹. A solution of 1% chitosan was allocated in Teflon molds, freezed in N₂ and covered with PB hydrated sample and lyophilized. After that, at chitosan side it was added a mixture of Ca(OH)₂ and gelatin, dried at air flow and ambient temperature. Bacterial cellulose was purchased from Bionext®. Both materials were sterilized by ethylene oxide. The cavities were prepared on the occlusal surface of lower first molar in Wistar rats. The animals were randomly divided into 4 groups: G₁: control group: Otosporin + Ca(OH)₂ + glass ionomer + adhesive system + composite resin; G₂: Otosporin + bacterial cellulose biomembrane + adhesive system + composite resin; G₃: Otosporin + bacterial cellulose biomembrane + mineral trioxide aggregate + adhesive system + composite resin; G₄: Otosporin + biomembrane bovine pericardium with Ca(OH)₂ + adhesive system + composite resin. The ages of analyzes were 7, 14 and 30 days. In group 1 and 3 predominated gentle desorganization of odontoblastic cell layer but with normal appearance of the pulp, both as 7, 14 and 30 14 days. In the same period, in group 2, predominated the general loss of cellular morphology pulp necrosis and periapical abscess in some teeth. In group 4 predominated normal cells with mild inflammation. It is possible to conclude that bacterial cellulose did not to use the scaffold to induce the pulp protection, but calcium hydroxide is still the material most suitable for pulp protection, and when associated with pericardium biomembrane, induced to favorable results in cases of pulp exposure.

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References

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