INFLAMMATION RESPONSE OF MECHANICALLY EXPOSED PULP AFTER DIRECT PULP CAPPING WITH CALCIUM HYDROXIDE CEMENT AND PLATELET RICH PLASMA

(RESPONS PERADANGAN PADA PULPA TERBUKA SECARA MEKANIK SETELAH PULP CAPPING DIRECT DENGAN SEMEN KALSIUM HIDROKSID DAN PLATELET RICH PLASMA)

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Abstract

During cavity preparation and the removal of caries dentine, it is possible to accidentally expose the dental pulp. Direct pulp capping may be indicated for maintaining pulp health and function. The direct pulp capping material that used in this study was platelet rich plasma (PRP). Platelet rich plasma is on autologous growth factor containing of platelet derived growth factor (PDGF), transforming growth factor-β (TGF-β), vascular endothelial growth factor (VEGF), insulin growth factor (IGF) and epidermal growth factor (EGF). The aim of this study was to evaluate inflammation response of pulp tissue following direct pulp capping with PRP. Thirty sound teeth from Sprague Dawley were used and divided into two groups: group 1 as a control, teeth were capped with calcium hydroxide/Ca(OH)₂ (n=15) and group 2 with PRP (n=15). After the 1st, 7th and 21st days, respectively, 5 teeth of each group were processed for light microscopic examination. Inflammation responses were assessed by haematoxylin eosin. The result showed a similar inflammation response of Ca(OH)₂ (group 1) on the 1st and 7th days 40% necrose and 40% severe inflammation and the 21st day 60% samples were severe inflammation. Inflammation response of PRP (group 2) on the 1st day showed 40% necrose and 40% severe inflammation, on the 7th day, 100% severe inflammation and on the 21st day, 60% mild inflammation. After the 21st day observation period, Kruskal Wallis test showed that inflammation response was not significant in both groups (p>0.05). In conclusion, PRP and Ca(OH)₂ as a direct pulp capping material had no different inflammation response.

Key words: pulp capping, platelet rich plasma, inflammation response