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### Effect of injectable-platelet rich fibrin on biocompatibility, bioactivity and bio mineralization of bioactive materials used as direct pulp capping: An experimental animal study

**Aim:** This study was conducted to investigate the effect of i-PRF on biocompatibility, bioactivity and bio mineralization of pulp capping agents (Mineral Trioxide Aggregate (MTA) and Bioactive Bone Graft (BBG)).

**Methodology:** A total number of 92 teeth of 8 healthy male beagle dogs were used. The teeth were exposed and randomly assigned into four groups, according to the capping agents. Group A; capped with MTA, Group B; capped with MTA+i-PRF, Group C; capped with BBG, Group D; capped with BBG+i-PRF. The access cavity was restored with Intermediate Restorative Material (IRM). The dogs were sacrificed at each pre-determined intervals (1 month, and 3 months). Then specimens were prepared for standard histopathological, immune histochemical examination polyclonal antibodies raised against Dentin Sialoprotein (DSP). Regarding the histopathological part, Chi square test was used to compare different groups. For the immunohistochemistry, ANOVA and Tukey's post hoc tests were used for intergroup comparisons, while Paired T Test was used for intragroup comparisons (effect of time within the same group). Kruskal-Wallis and Mann Whitney U tests were used for difference and percent change of sialoprotein marker in each group. Statistical significance was considered at  $P < .05$ .

**Results:** For the histopathological study, the results of dentin continuity, morphology and thickness after one month showed that there was a significant difference between all groups. Regarding the dentin morphology, there was a significant difference between groups, in one and three months. Results of immunohistochemical part, revealed that after one and three months the best values of immunoexpression of DSP marker, were recorded in groups B and D, followed by group C, with the least value recorded in group A.

**Conclusion:** i-PRF promoted a greater and a supportive regenerative ability for the stimulation of odontoblastic differentiation and reparative dentin formation for pulp healing. Furthermore, i-PRF also attenuated the inflammatory condition.

#### Recent Publications

1. Mansour, N.K., Sharraan, M., Fayad, D. and Abdullah Hashem, M., 2021. Effect of Injectable-Platelet Rich Fibrin on marginal adaptation of Bioactive Materials Used as Direct Pulp Capping; An Experimental Animal Study. *Dental Science Updates*, 2(2), pp.185-195.
2. Abdel Hafez, N.K., Fayyad, D.M. and Farghaly, A.M., 2022. Effect of Two Irrigants on Adaptability of Cross-Linked Gutta-Percha Core. *PanEndo Journal*, 1(1), pp.1-10.

#### Biography

Nirvana K. Mansour is an Endodontic specialist graduated from Cairo University, 2009 with a Bachelor Degree. He earned his Master Degree in Endodontics 2016 and Ph.D Degree in 2021. He is a Member of Scientific Committee in Princess Fatima Academy, Ministry of Health. He had Published his paper which was titled 'Effect of Injectable-PRF on Marginal Adaptation of Bioactive Materials Used as Direct Pulp Capping; an exp. Study' at DSU an International Journal. He worked in Suez Military Hospital from 2014 to 2019, in the Ministry of Health from 2011 to 2018. He is the owner and founder of Dr. Nirvana Dental Clinic.

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