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**EVALUATION OF SHEAR BOND STRENGTH OF ZIRCONIA
REINFORCED GLASS IONOMER CEMENT AND
CONVENTIONAL GLASS IONOMER CEMENT TO MINERAL
TRIOXIDE AGGREGATE AND BIODENTINE - AN IN VITRO
STUDY.**

By

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ABSTRACT

Background: Dental caries is one of the most prevalent causes leading to pulpitis and pulp necrosis. American Academy of Pediatric Dentistry has recommended vital pulp therapy procedures in cases with reversible pulpal inflammation. Success of the vital pulp therapy depends on the adequate bond between the pulp capping biomaterial with restorative material.

Aims and Objectives: To evaluate the shear bond strength of mineral trioxide aggregate and biodentine with zirconia reinforced glass ionomer cement and conventional glass ionomer cement and to analyse the mode of failure under a stereomicroscope.

Significance of the study: Mineral trioxide aggregate (MTA) and Biodentine have great importance as pulp capping agents. There is no previous study comparing the bond strength of MTA and Biodentine with Zirconia reinforced Glass Ionomer Cement.

Materials and methods: 80 acrylic samples were created with a central indentation and were filled with pulp capping materials Biodentine and MTA. Restorative material buildup (Zirconomer/Type IX GIC) was done above the capping materials and the samples were subjected to Shear bond strength testing following which the debonded samples were analysed for the mode of failure under a stereomicroscope.

Results: On shear bond strength analysis the highest mean shear bond strength value was recorded for Group 1 followed by Group 4 and Group 3. The lowest bond strength was observed in group 2. In stereomicroscopic analysis majority of fractures observed were adhesive in nature followed by mixed and the least observed were cohesive fractures.

Conclusion: In the present study, Biodentine showed a better shear bond strength with Type IX GIC in comparison to Zirconomer whereas MTA showed a better shear bond strength with Zirconomer in comparison to Type IX GIC. Biodentine group had more of mixed failures followed by adhesive and cohesive failures and MTA group had more of adhesive failures followed by mixed and cohesive failures. Within the parameters of this study it can be concluded that Zirconomer can be used as a suitable restorative material after pulp capping procedures.

Keywords: MTA, Biodentine, GIC, Zirconomer, Shear bond strength, vital pulp therapy