"EVALUATION AND COMPARISON OF COMPRESSIVE STRENGTH OF MINERAL TRIOXIDE AGGREGATE, MTA PLUS AND BIODENTINE CONJUGATE USING 2% CHITOSAN GEL AS A VEHICLE-AN IN VITRO STUDY."

by

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ABSTRACT

Aim: The aim of this in vitro study was to evaluate the compressive strength of Mineral trioxide aggregate (MTA), MTA Plus and Biodentine by adding 2% chitosan gel as a vehicle.

Materials and Methodology: Chitosan gel preparation: 2 grams of Chitosan was dissolved in 100ml of 0.2M acetic acid to form 2% chitosan solution. The materials was manipulated according to manufacturer's instructions. For conjugates, each material was mixed with 2% chitosan gel. Then each material was condensed with moderate force using hand plugger in to the cylindrical molds measuring 6 mm in height and 4mm in diameter. The molds were then wrapped in damp gauze and allowed to set for 72 hours in 100% humidity for 21 days. Samples were removed from molds for compressive strength. The material specimens were subjected for compressive strength using universal testing machine. The maximum load applied to fracture the specimens was recorded and compressive strength (MPa) was calculated. The data was analysed by one way ANOVA and Newman Keuls multiple post hoc.

Results: There was an increase in the compressive strength of MTA, MTA Plus and Biodentine when mixed with 2% chitosan gel as a vehicle. There were no statistically significant differences when the above mentioned materials were mixed and compared to that of control group.

Conclusion: Chitosan material increased the compressive strength of MTA, MTA Plus and Biodentine when used as 2% gel as a vehicle. This study provides an insight into the potential for creating better MTA, MTA Plus and Biodentine conjugates which overcomes its disadvantages like its poor physical properties.

Keywords: chitosan; MTA; MTA Plus; Biodentine; compressive strength