EFFECT OF CHITOSAN NANO PARTICLE 0.2%, CHITOSAN 0.2%, AND EDTA 17% AS IRRIGANTS ON DENTIN MICROHARDNES IN ROOT CANAL TREATMENT

ABSTRACT

Background: *The use of irrigation material effect on the structure of the tooth root canal walls. Chitosan is a natural biocompatible polymers can be used in the field of dentistry. Modification of chitosan nanoparticles causes the chitosan nanoparticles have a high absorption power when compared to regular chitosan, and are more reactive.*

Objective*: For irrigation solution which has the smallest changes in dentin microhardness.*

Material and Methods*: This study used a mandibular first premolar tooth with a single root canal and caries-free, divided into 4 groups. Group A: materials irrigated with 0.2% chitosan nanoparticles, group B: irrigated with 0.2% chitosan material. Group C: irrigated with 17% EDTA chitosan materials. Group D: irrigated with irrigation materials Aquadest as a negative control. Then do indented with Vicker microhardness tool.*

Results*: There are significant differences which p = 0.000 p> 0.01so that the conclusions obtained is that there are differences in root canal dentin microhardness meaningful based on the four types of irrigation materialsbetween 0.2% Nanoparticle Chitosan, Chitosan 0.2%, EDTA 17%, and distilled water.*

Conclusion*: Modification of 0.2% chitosan nanoparticles as irrigation materials can provide a decrease dentin microhardness smaller than 0.2% chitosan solution and EDTA 17%.*

Keywords: *Chitosan, chitosan nanoparticles, irrigants solution, dentin microhardness*