

THE EFFECT OF TOPICALLY APPLIED 1.23% ACIDULATED PHOSPHATE FLUORIDE ON ZINC PHOSPHATE CEMENT

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ABSTRACT

Topically applied fluoride preparations play an important role in reduction of caries incidence. It was found that the commonly used 1.23% acidulated phosphate fluoride (APF) gel has a deleterious effect on different dental materials. The effect of the gel on zinc phosphate cement is still not known. It is expected that 1.23% APF gel may affect the microstructure of the zinc phosphate cement. Thirty Teflon rings were prepared. Zinc phosphate cement was mixed and loaded into the rings. Excess cement material was removed and samples were stored in 20 ml of distilled water at 37°C for 24 hours. They were then equally divided into five groups. Samples of the control group were stored in 20 ml of distilled water at 37°C for 24 hours. The other four groups received four times application of 1.23% APF gel for 1, 4, 6 and 10 minutes at each application with an intermediate washing and immersion in 20 ml of distilled water at 37°C for one hour between applications. Samples were prepared for examination under the scanning electron microscope. Results showed that as the application time of the gel is increased, more reaction products are formed on the surface of the set zinc phosphate cement. These products mask and may protect the surface from erosion by the acidic APF gel. However, more surface roughness is produced that may accumulate bacteria and affect the gingival health.

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