

ABSTRACT

INTRODUCTION:

The most common oral disease affecting large number of people is dental caries. The occurrence of caries is pH dependent. When pH drops below 5.5, enamel dissolution starts embarking on the path of demineralization. It marks the beginning of early enamel caries. During demineralization, subsurface layer gets demineralized while the enamel surface layer stays consistently unmutilated. Neutralizing the oral pH opposes the process of demineralization. This can be achieved by increasing calcium and phosphate ions. This process is called as remineralization which involves rebuilding of partly dissolved apatite crystals.

AIM AND OBJECTIVES:

To evaluate the remineralization efficacy of Bioactive glass, Tri-calcium Phosphate, Nanohydroxyapatite.

To compare the efficacy of Bioactive glass, Tri-calcium Phosphate, Nanohydroxyapatite on artificially created carious lesion using microhardness test.

METHODOLOGY:

60 freshly extracted maxillary premolars were collected. Teeth were embedded in self cure acrylic with the enamel surface exposed. Samples were stored in deionised water for one month. Demineralization were carried out using a prepared demineralizing solution for a period of 48 hours at 37°C. The sample were divided into four groups of 15 each :Group 1 - Tri-Calcium Phosphate, Group 2 - Nanohydroxyapatite, Group 3 - Bioactive glass ,Group 4 - Artificial Saliva (Control). The Samples were rubbed with respective remineralizing agent with the help of polishing cup attached to a contra angle hand piece for 4 min, washed with deionized water and then placed in the artificial saliva. This procedure was repeated at every 24th hours for 7 days (except control group). Artificial saliva was renewed every 24 hours just before immersion of freshly treated samples. All samples were placed in universal incubator at 37°C between each remineralizing cycle. After 7 cycles of remineralization, Surface Microhardness of the specimens were determined using Vicker's microhardness testing machine.

RESULTS:

Microhardness of Nanohydroxyapatite was higher than Tricalcium phosphate & Bioactive glass.

CONCLUSION:

All the three remineralising agents showed improved surface remineralisation. Nano-hydroxyapatite comparatively performed better for remineralisation followed by Tricalcium phosphate and Bioactive glass.

KEY WORDS:

Vicker's micro hardness, Nano-hydroxyapatite, Tricalcium phosphate ,Bioactive glass.