

Comparison of Surface Hardness of Filling Material Glass Ionomer Cement Which Soaked in Alcohol Containing Mouthwash and Alcohol-Free Mouthwash

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Abstract : Glass ionomer cement is one of the filling material that often used in the field of dentistry because it is relatively less expensive and mostly available. Surface hardness is one of the most important properties of restoration material; it is the ability of material to stand against indentation, which is directly connected to the material compressive strength and its ability to withstand abrasion. The higher surface hardness of a material means it is better to withstand abrasion. The existence of glass ionomer cement in the mouth makes it susceptible to any substance that comes into mouth, one of them is mouthwash which is a solution that used for many purposes such as antiseptic, astringent, to prevent caries, and bad breath. The presence of alcohol in mouthwash could affect the properties of glass ionomer cement, surface hardness. Objective: To determine the comparison of surface hardness of glass ionomer cement which soaked in alcohol containing mouthwash and alcohol-free mouthwash. Methods: This research is a laboratory experimental type study. There were 30 samples made from GC FUJI IX GP EXTRA and then soaked in artificial saliva for the first 24 hours inside incubator which temperature and humidity were controlled. Samples then divided into three groups. The first group will be soaked in alcohol-containing mouthwash; second group will be soaked alcohol-free mouthwash and control group will be soaked in artificial saliva for 6 hours inside incubator. Listerine is the mouthwash that was used on this research and surface hardness was examined using Vickers Hardness Tester. The result of this research shows mean value for surface hardness of the first group is 16.36 VHN, 24.04 VHN for second group, and 43.60 VHN for control group. The result one way ANOVA with post hoc Bonferroni comparing test show significant results $p = 0.00$. Conclusions: The data showed there were statistically significant differences of surface hardness between each group, which surface hardness of the first group is lower than the second group, and both surface hardness of the first (alcohol mouthwash) and second group (alcohol-free mouthwash) are lowered than control group ($p = 0.00$).

Keywords : glass ionomer cement, mouthwash, surface hardness, Vickers hardness tester

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