Surface Roughness Of Glass Ionomer Cemrnts Indicated For a Traumatic Restorative Treatment (ART) .

1. Sara Abdulrahman Alfawaz .Dental Internship at Alfarabi Colleges. Riyadh, Saudi Arabia.

This abstract is under supervision of Prof : Ahmed Elmarakby , Assis Prof at Restorative Dentistry Department , Alfarabi College for Dentistry and Nursing , Riyadh , Saudi Arabia

Introduction

The purpose of this study was to evaluate the surface roughness of four conventional chemically cured glass ionomer cements (Fuji IX, Ketac Molar, Vidrion R and Vitromolar) commonly used in a traumatic restorative treatment (ART) immediately after material preparation. Glucosyltransferes (GTF)

Since their introduction by Wilson and Kent in the early 1970's, changes have been made in the original formulation of glass ionomer cements (GICs) to improve their clinical behavior (1,2). Among other indications, GICs have been used in the atraumatic restorative treatment (ART) to preserve dental structure and provide preventive and curative care to needy populations (3,4). ART follows the concept of minimal intervention and involves hand excavation of carious tissue and use of conventional glass-ionomer cement as a filling material and a sealant to adjacent enamel fissures (5,6). The use of high-viscosity conventional GICs has been recommended for ART due to their improved mechanical properties, which are related to the size and type of filler particle content (7,8).

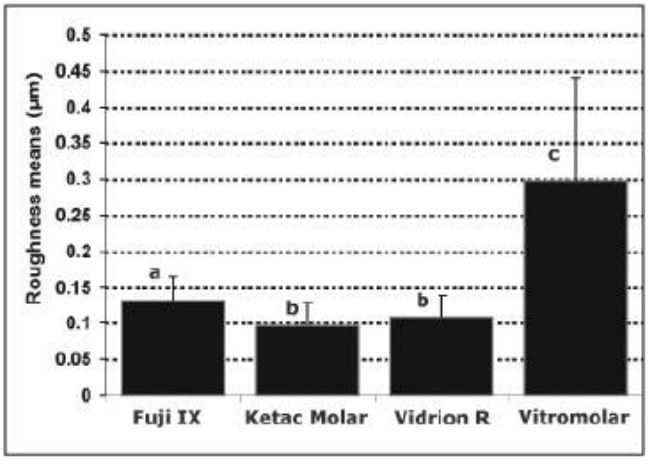

Figure 1. Surface roughness means (µm) of the tested conventional glass ionomer cements. Different letters indicate statistically significant difference at $p<0.05$.

Materials and Method

Twenty specimens of each glass ionomer cement were fabricated and surface roughness was measured after material setting. The specimens were further examined under scanning electron microscopy. Data were analyzed statistically by Kruskal-Wallis test and Mann-Whitney test at 5% significance level

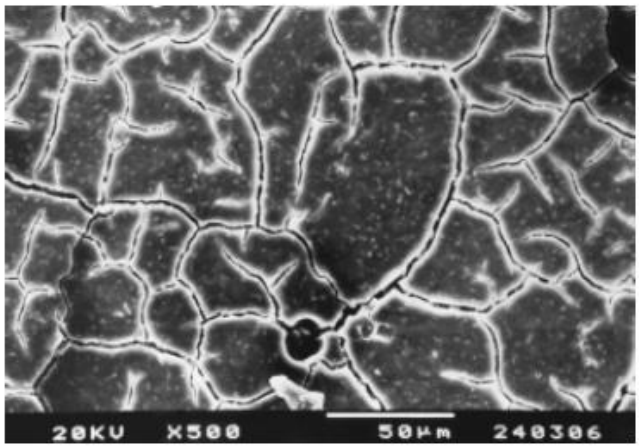

Figure 2. Morphological appearance of a glass ionomer specimen observed under scanning electron microscopy. Note the presence of voids and cracks.

Results

Two-by-two comparisons showed statistically significant difference ($p<0.05$) between all materials, except for Ketac Molar and Vidrion R, which had statically similar results ($p>0.05$). Regarding their results of surface roughness, the materials can be presented in a crescent order, as follows: Ketac Molar < Vidrion R < Fuji IX < Vitromolar

Conclusion& Recommendations

. In conclusion, from the tested glass ionomer cements, Fuji IX, Ketac Molar and Vidrion R presented acceptable surface roughness after setting reaction while Vitromolar showed remarkably higher surface roughness.

Refrences

1. Wilson AD, Kent BE. A new translucent cement for dentistry. The glass ionomer cement. Br Dent J 1972;132:133-135.

2. Pereira LCG, Nunes MCP, Dibb RGP, Powers JM, Roulet J, Navarro MFL. Mechanical properties and bond strength of glass ionomer cements. J Adhes Dent 2002;4:73-80.

3. American Academy of Pediatric Dentistry. Policy on alternative restorative treatment (ART). Pediatr Dent 2003;24:20.