

In Vitro Fluoride release of coated Conventional Glass Ionomer Cement

Objectives The primary objective of this in vitro study is to measure the effect of a surface coating on the fluoride release of glass ionomer restorations.

Materials and Method: forty-eight specimens of two different restorative glass ionomer materials (Fuji IX & Riva) were used. The samples were divided equally to six groups. Groups I & II: conventional glass ionomer cement with resin coating, Groups III & IV: Uncoated conventional glass ionomer cement and Groups V & VI: A partial resin-coated conventional glass ionomer cement. Each specimen from each group was stored in a jar with 25ml of deionized water. The fluoride concentration was measured with a fluoride ion-selective electrode at the following intervals: 1-2-3-4-5-6-7-8-9-10-14-19-24days-1 month -3 months and compared with calibrated fluoride solutions. The results were statistically analyzed using repeated 2 ways ANOVA.

Result: The total amounts of fluoride release from the coated samples were found to be significantly less than the partially coated. The total amounts of fluoride release from partially coated samples were significantly less than uncoated samples for both materials.

The highest fluoride release was at the fourth day. At the fourth day The RIVA samples released a total amount of fluoride 1.809ppm, 1.269ppm and 0.878ppm for uncoated, partially coated and coated samples respectively. While The Fuji IX samples released 2.203 ppm, 1.796ppm and 0.737ppm for uncoated, partially coated and coated samples respectively.

Similar patterns of fluoride release were found in coated, partially coated and uncoated samples.

Conclusion: The amount of Fluoride release is directly proportion with glass ionomer cement exposed. The application of a resin coating did not completely prevent fluoride release from glass ionomer cements.