

Brazilian Oral Research

Print version ISSN 1806-8324

Abstract





[GAMA-TEIXEIRA, Adriana](#) et al. *Streptococcus mutans*-induced secondary caries adjacent to glass ionomer cement, composite resin and amalgam restorations *in vitro*. *Braz. oral res.* [online]. 2007, vol.21, n.4, pp. 368-374. ISSN 1806-8324. doi: 10.1590/S1806-83242007000400015.

The aim of this study was to define, *in vitro*, the potential to inhibit secondary caries of restorative materials currently used in dental practice. Standard cavities were prepared on the buccal and lingual surfaces of fifty extracted human third molars. The teeth were randomly divided into five groups, each one restored with one of the following materials: glass ionomer cement (GIC); amalgam; light-cured composite resin; ion-releasing composite; and light-cured, fluoride-containing composite resin. The teeth were thermocycled, sterilized with gamma irradiation, exposed to a cariogenic challenge using a bacterial system using *Streptococcus mutans*, and then prepared for microscopic observation. The following parameters were measured in each lesion formed: extension, depth, and caries inhibition area. The outer lesions developed showed an intact surface layer and had a rectangular shape. Wall lesions were not observed inside the cavities. After Analysis of Variance and Component of Variance Models Analysis, it was observed that the GIC group had the smallest lesions and the greatest number of caries inhibition areas. The lesions developed around Amalgam and Ariston pHc restorations had an intermediate size and the largest lesions were observed around Z-100 and Heliomolar restorations. It may be concluded that the restorative materials GIC, amalgam and ion-releasing composites may reduce secondary caries formation.

Keywords : Dental caries; *Streptococcus mutans*; Dental materials.

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Sociedade Brasileira de Pesquisa Odontol^gica

Av. Lineu Prestes, 2227
Caixa Postal 8216
05508-900 S^o Paulo SP - Brazil
Tel./Fax: +55 11 3091-7810



bor@sbpgo.org.br