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Neutralizing effect by resin-based materials containing silane-coated glass fillers

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Abstract:
The aim of this study was to evaluate the fluoride release, neutralizing ability and inhibitory effect on secondary caries of resin-based materials containing a silane-coated glass filler. Resin-based materials containing fluoro-boro-alumino-silicate glass coated by 3-methacryloxypropyltrimethoxysilane or 3-aminopropyltrimethoxysilane were used and resin material containing glass filler without coating was used as a control. The fluoride release and pH value after immersion were measured for 10 weeks. The inhibitory effect was also evaluated. During the initial period, the material with 3-aminopropyltrimethoxysilane gave the greater amount of fluoride release and produced a higher pH value compared with the other materials. However, the neutralizing ability of the material with 3-aminopropyltrimethoxysilane filler became weaker with ageing of the specimens. The mean depth of outer lesions was similar among the three materials. Within the limitations of this study, secondary caries around restorations could not be inhibited even for products showing high fluoride releasing and neutralizing ability.

Key words:

Neutralization, pH, Silane coupling

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