Antibacterial surface properties of fluoride-containing resin-based sealants

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Summary

Objectives

This aim of the present study was to determine antibacterial properties of three resin-based pit and fissure sealant products: Clinpro (3 M ESPE), Embrace (Pulpdent), and UltraSeal XT plus (Ultradent). Methods: The antibacterial effects of the sealants were tested in both an agar diffusion assay and a planktonic growth inhibition assay using Streptococcus mutans and Lactobacillus acidophilus. The materials were applied to paper and enamel disks in the former and on the side walls of 96-well microtiter plates on the latter.

Results

All materials showed either diffusible or contact antibacterial effects in the agar diffusion assays. The effect was diminished when enamel disks were used as substrate. In the planktonic growth inhibition assay, Clinpro had its effect reduced, but retained activity against both bacteria over time. L. acidophilus was more sensitive than S. mutans to UltraSeal. Embrace retained antibacterial activity against both bacteria over time.

Conclusions

Within the limitations of this in vitro study it can be concluded that all materials are capable of contact inhibition of L. acidophilus and S. mutans growth. Embrace has the longer lasting antibacterial activity when in solution, especially against S. mutans.

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