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Stereomicroscopic evaluation of the silver penetration and distribution in caries free and carious lesions of deciduous teeth treated with silver diamine fluoride.

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Aim: The aim of this study was to determine the effects of commercially available 38% Silver Diamine Fluoride (SDF) [Kids-E-Dental] on carious dentinal lesions and caries free dentin of human deciduous teeth and to study the same effect under a stereomicroscope.

Method: Eight extracted deciduous teeth including caries free and with dentinal caries were collected and treated with Kids-E-Dental SDF. After the application, the teeth were sectioned through the center by a diamond disk bur getting us uniform sections of the caries free deciduous teeth and of the dentinal carious lesion in deciduous teeth. The extent of silver precipitation was examined using a high magnification stereo microscope and digital images were recorded.

Results: Images revealed that the free silver particles could potentially penetrate through the pellicle complex, along with the rod sheaths into the demineralized enamel rods and the dentinal tubules, and form silver-enriched barriers surrounding the carious lesions at considerable depths, but the same was less likely in the sound healthy enamel or dentin. Current observations provide new evidences of demonstrating the SDF mode of action for arresting dentinal caries and suggest that the application of a highly concentrated SDF solution (38%) on deciduous teeth should be used with extreme caution for various carious lesions.

Keywords: Dentinal caries; silver diamine fluoride; deciduous tooth; Enamel; Dentin.

Biography

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