

The Effect of a Novel Etchant Gel on Enamel-etch Characteristics and Resin-enamel Bond Strength

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Abstract:

Purpose: The aim of this study was to evaluate the influence of a novel Microcid Etchant Gel[®] (Saremco) on enamel-composite shear bond strength (SBS) as compared to a traditional 35 % phosphoric acid etching gel (3M ESPE). The etching patterns and elemental compositions of the tested enamel surfaces were also assessed by scanning electron microscopy (SEM) and energy dispersive X-ray (EDX) spectrometric analysis. **Methods:** The labial surfaces of human incisors were ground flat. The surface of each specimen was divided into two halves; the first half was etched using the traditional etchant whereas the other half was etched using the Microcid etchant. The SBMP⁺ (3M) bonding system was applied and a split mold with two circular chambers (2×2mm each) was placed and filled with composite resin (Z250, 3M) and light-cured. **Results:** On using the t-test, there was no statistically significant difference between the recorded mean SBS values of the traditional (16.3±4.9) and the Microcid (14.5±3.9MPa) etched groups (P>0.05). Chi-squared (χ^2) analysis of failure modes revealed also no statistically significant difference between both groups (P>0.05). In this study the tested etching gels resulted in different micromorphological changes at enamel surfaces. Qualitative comparison of the elemental profiles of both etched (and control) groups using EDX analysis showed no conspicuous variation. **Conclusion:** The utilization of the novel Microcid Etchant Gel[®] with its advantageous "Visual Etch Control" concept for enamel etching did not provide unique characteristics encouraging its use as traditional enamel etchant substitute.

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