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‹ Back to results | 1 of 1

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Effect of dentin pre-treatment on smear layer thickness . An ultrastructural study (Article)

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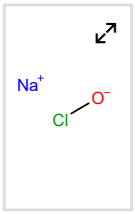
Abstract

View references (17)

The aim of this study was to investigate the morphological changes of etched dentin by sodium hypochlorite (NaOCl) pre-treatment method applied for different durations and smear layer (SL) thickness . Sixty human molars were used in this study and sectioned at the coronal part to expose a flat dentin disc. They were ground with #180-or #600-grit silicon carbide papers, to produce thick and thin SL respectively. All specimens were assigned into 6 groups; G1: control; G2: Acid Etch (AE); G3, G4, G5 and G6: AE + 10% NaOCl for 15, 30, 60, and 120s, respectively. Specimens were observed under a Scanning Electron Microscope and the photomicrographs were classified according to the following scores: 0: presence of SL; 1: No smear layer + non-altered collagen fibrils; 2: No smear layer + slightly altered collagen fibrils; 3: No smear layer + severely altered collagen fibrils; and 4: No smear layer and absence of collagen fibrils. Kruskal Wallis showed all groups treated with NaOCl solution were significantly different, and alteration regarding the collagen fibrils network. The higher the duration of NaOCl pre-treatment, the more alteration of collagen fibrils occured.

Chemistry database information

Substances



Author keywords

Collagen fibrils | Smear layer (SL) | Sodium hypochlorite (NaOCl)

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