ABSTRACT

Dentine hypersensitivity is a condition that is often present in individuals, leading them to seek dentinal treatment. The objective of this study was to compare the effectiveness of four desensitizing products in order to reduce hypersensitivity by occluding dentinal tubules in vitro. This study involved application of four desensitizing products to 12 teeth samples with sensitivity. For this, a total of 12 healthy teeth were extracted from orthodontic patients. Initially, sample teeth were divided into 4 groups each containing 3 samples. Later on, 2 best teeth were isolated from each group. Samples of Group-1 were labeled as I1 and I2 due to their treatment with Isodan. Samples of Group-2 were labeled as P1 and P2 treated with Pulpdent EMBRACE^{TM} varnish. Samples of Group-3 were labeled as S1 & S2 due to be treated with Sensodyne Repair & Protect Extra Fresh. Similarly, samples of Group-4 were labeled as W1 & W2 treated with Walterberry Enamelast^{TM} Fluoride varnish. ZEISS EVO10 Scanning electron microscope was used for sample analysis. Analysis by SEM was done in three steps. In 1st step, all the samples were analyzed by SEM before application of desensitizing products and condition of dentinal tubules was observed. In 2nd step, all samples were analyzed by SEM after application of desensitizing products to observe extent of tubules occlusion. In 3rd step, all samples were analyzed through SEM after brushing for two months in order to evaluate the retention of desensitizing products. After detailed analysis by SEM, it was concluded that among four desensitizing products, Isodan was least effective in occluding dentinal tubules. While in case of Pulpdent EMBRACE^{TM} varnish & Sensodyne Repair & Protect Extra Fresh, no significant difference was observed as both of them kept maximum dentinal tubules occluded even after brushing. However, Walterberry Enamelast^{TM} Fluoride varnish showed extraordinary results by occluding almost all of the dentinal tubules even after 2 month of brushing. But for long time relief from hypersensitivity, none of these materials is reliable enough because most of these agents fail to retain on the tooth surface and come off after brushing.