

Original

Evaluation of Enamel Acid Resistance Acquired under a Temporary Esthetic Coating Material

Izumi IWAYA, Yoshiharu MUKAI, Hiromi FUKUKAWA and Toshio TERANAKA

Abstract: In this study, we assessed the acid resistance of bovine enamel coated with a temporary fluoride-releasing flowable composite resin (BeutiCoat: BC) following vital bleaching with the HiLite (Hi) system. Each tooth received nine Hi applications before BC was applied. The teeth were stored in remineralization solution for 10 days. BC was then removed and the specimens underwent acid resistance testing for 10 days. The mineral profile and integrated mineral loss (IML) were obtained using transversal microradiography. Subsurface lesions were present in all specimens; however, the mean IML of specimens in the HiBC (no-primer) group was significantly lower than that in the Hi-alone group. On the other hand, the HiBC with primer group showed a similar IML to the Hi group. This suggests that the remineralization solution penetrates into the micro-spaces between the enamel and BC when the primer is not used. In addition, fluoride released from the surface pre-reacted glass-ionomer filler contained in BC may disperse in the micro-spaces and adhere to the enamel surface, thus inhibiting the progression of lesions.

Key words: Acid resistance, Whitening, Coating material, Fluoride

J Dent Hlth 59: 125-131, 2009

(Received: September 4, 2008/Accepted: March 9, 2009)