ONLINE ISSN : 1881-1361
PRINT ISSN : 0287-4547

Dental Materials Journal
Vol. 28 (2009) , No. 2 p.133-141

[PDF (1636K)] [References]

Effects of photocuring strategy on bonding of dual-cure one-step self-etch adhesive to root canal dentin

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(Received March 9, 2008)
(Accepted June 24, 2008)

Abstract:
This study evaluated the effects of light power density and light exposure time on regional bond strength of Clearfil DC Bond to root canal dentin. Post spaces were prepared in extracted premolars. Root canal dentin was treated with a dual-cure bonding system, Clearfil DC Bond, and light-cured for 10, 20, or 30 seconds using two halogen light curing units: Optilux 501 (830 mW/cm^2) and Hyperlightel (1350 mW/cm^2). Following which, all post spaces were filled with a dual-cure resin composite. After 24-hour storage, microtensile bond strengths (μTBS) at the coronal and apical regions were measured. At the coronal region, μTBS values were similar among all the experimental groups. At the apical region, bond strength improved when the curing time was extended to 30 seconds with Optilux 501, and likewise with Hyperlightel when curing time was extended to 20 or 30 seconds. In addition, significant differences in μTBS between the coronal and apical regions disappeared with prolonged curing times.

Key words:
Microtensile bond strength, Dual-cure self-etch adhesive, Root canal dentin

doi:10.4012/dmj.28.133

JOI JST.JSTAGE/dmj/28.133