Comparison the effect of halogen and 2th and 3th generation of LED Light cure units on degree of conversion (DC) of three bulk fill composites at the top and bottom surfaces.

Sadaghiani M[1], Nemati anaraki S[2], Maheri R[3]

[1]Assistant Professor, Restorative Dept,Dental Branch,Islamic Azad University, Tehran, Iran

[2] Assistant Professor, Restorative Dept, and Member of Dental Material Research Center,Dental Branch,Islamic Azad University, Tehran, Iran

[3]Dentist

Abstract

Background and Aim: regarding to importance of polymerization and information deficiency about comparison of three conventional light cure Iranian devices, this study was purposed to compare the effect of three Light cure unite to degree of conversion (DC) of three bulk fill composites at the top and bottom surfaces.

Materials and Methods: in this experimental in vitro study, light cure units including astralis 7 (QTH), pencur (J.MORRITA)(second generation of LED) and blue phas N (Ivoclar)(third generation of LED) and three bulk fill resin composites including tetric evoceram bulk fill (Ivoclar), x-trafill (voco) and filtek bulk fill (3m) and were investigated. Cylindrical composites with5 mm diameter and 4 mm widthness were performed and cured regarding to manufacture instruction. Before curing, composites were covered by with transparent celoloid membrane in order to formation of inhibition layer. Degree of conversion (DC) was assessed by FTIR device. DC was measured for samples on top and bottom surface after 24 h storage period at 37c (n=5). Results were analysed using Kruskal Wallis and Mann-u-Whitney tests.

Result:at the top surface there were no significant difference between the unites of light cures in %DC.($p<0.2$) but at the bottom surface the QTH and third generation of LED (poly wave) had significant difference to second Generation of LED (mono wave). ($p<0.001$) Also, polymerization degrees of top and bottom surfaces were acceptable a more than basic level of 55%.

Conclusion: All three Bulk fill composites were cured successfully with three light cure units both in top and bottom surfaces.

Keywords: Halogen (QTH) , LED , Degree of conversion Bluk fill, FTIR.

* Corresponding Author Email:Dr_rama_75@yahoo.com