

## Comparative Study in Dental Tubuli Occlusion Using Bioglass and Copper-Bromide Laser

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**Abstract :** Cervical dentinal hypersensitivity (CDH) affects 8-30% of adults and nearly 85% of perio-treated patients. Various treatment schemes have been applied for treating CDH, among them being fluoride application, laser irradiation, and, recently, bioglass. The purpose of this study was to investigate the influence of bioglass, copper-bromide (Cu-Br) laser irradiation and their combination on dentinal tubule occlusion as a potential dentinal hypersensitivity treatment for CDH. 45 human dentin surfaces were organized into three equal groups: group A received Cu-Br laser only; group B received bioglass only; group C received bioglass followed by Cu-Br laser irradiation. Specimens were evaluated with regard to dentinal tubule occlusion under environmental scanning electron microscope. Treatment modality significantly affected dentinal tubule occlusion ( $p < 0.001$ ). Groups B and C scored higher dentinal tubule occlusion than group A. Binary logistic regression showed that bioglass application significantly ( $p < 0.001$ ) contributed to dentinal tubule occlusion, compared with other variables. Under the conditions used herein and within the limitations of this study, bioglass application, alone or combined with Cu-Br laser irradiation, is a superior method for producing dentinal tubule occlusion, and may lead to an effective treatment modality for CDH.

**Keywords :** bioglass, Cu-Br laser, cervical dentinal hypersensitivity, dentinal tubule occlusion

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