

**Republic of Iraq
Ministry of Higher Education
And Scientific Research
University of Baghdad
College of Dentistry**



**Evaluation of the Effectiveness of Biodentine in
Combination with Diode Laser in the Management of
Dentine Hypersensitivity: A Randomized Clinical Trial**

A Thesis

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of Baghdad in Partial Fulfillment of the Requirements for the Degree
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Abstract

Background

Dentine hypersensitivity is a relatively common problem experienced in clinical dental practice. This condition may disturb the patient during eating, drinking, brushing, and sometimes even breathing. The etiology is multifactorial, the most important of them is acidic erosion; however, over recent years the role of erosion has become increasingly because of changing food habits. For dentine hypersensitivity to occur, the lesion must first be localized on the tooth surface and then initiated to exposed dentine tubules which are patent to the pulp causing occasional pain. The short, sharp pain symptoms are thought to be derived from the hydrodynamic theory of pain. This episodic pain condition is likely to become a more frequent dental complaint in the future due to the increase in longevity of the dentition and the rise in tooth wear. Therapeutic intervention by desensitizing agents may provide only partial pain relief and recurrence is common due to persistence of underlying causes such as exposure to acid that causing erosion. However, conclusive evidence of successful treatment regimens still eludes us despite a multitude of products available for treatment. In explanation, pain studies are notoriously difficult to conduct due to the subjective nature of pain and the complexity of pain assessment. The basic principles of treatment are directed towards altering fluid flow in the dentinal tubules through tubule occlusion or modifying or blocking pulpal nerve response, chemically with agents like potassium or physically by diode laser. Several studies suggest a bio- modulatory influence of low-intensity laser radiation in the inflammatory and reparative processes of biological tissues. Recently, studies exhibited that lasers can improve the permanence of the desensitizers for a longer time than when later used alone.

Aim of the study

To evaluate the effectiveness of Biodentine as a desensitizer material in combination with diode laser in the management of dentinal hypersensitivity.

Objectives

Evaluate the desensitizing effect of diode laser 976nm combination with Biodentine monitoring by Schiff cold air sensitivity scale compared to diode laser 976nm combination with sodium fluoride varnish.

Material and methods

Twenty patients with non-carious cervical lesions suffer from dentine hypersensitivity were registered in the present study with a total number of 135 sensitive teeth. The study utilizes a split-mouth design and the teeth were randomly divided into three groups, the control group was treated with diode laser while test groups one was treated with fluoride with diode laser, and the second group was treated with Biodentine with diode laser. Sensitivity was assessed by Schiff cold air sensitivity scale, baseline, after 30 minutes, 2 weeks, and one month.

Results

The test group showed lower dentine hypersensitivity than the control group immediately after 30 mins ($p=0.00$), two weeks ($p=0.00$) one month ($p=0.00$) of treatment compared to baseline ($P=0.74$).

Conclusion

The findings of the present study indicated that the application of Biodentine in combination with diode laser could be effective in the reduction of dentine hypersensitivity immediately after application and for up to one month of follow up.



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