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Original Article

Effects of Magnesium Gel and Diode Laser in Combination on the Color Masking of Artificial White Spot Lesions: An in Vitro Study

ABSTRACT

Objective: White spot lesions are one of the most common problem during and after orthodontic therapy. The present study was accomplished to evaluate the ability of Magnesium gel at different concentration and diode laser in combination compared with commercially available 1.23%APF in color restoring of WSL on permanent teeth. **Materials and Methods:** In this in vitro study, 42 human caries-free premolar teeth were randomly divided into 6 experimental groups: Group A: Control (artificial saliva), Group B: 0.5%MgCl₂ gel, Group C: 1%MgCl₂ gel, Group D: 0.5%MgCl₂ gel and Diode laser, Group E: 1%MgCl₂ gel and Diode laser and Group F: 1.23%APF. The difference between the displayed color and the original color standard (ΔE) was assessed by colorimeter. The surface topography of teeth samples from each tested group was examined by a SEM. Collected data were investigated using one-way ANOVA followed by Duncan post hoc test at $p \leq 0.05$. **Result:** A significant difference in (ΔE) was noticed among groups ($p = 0.006$). Group (B) showed the lowest ΔE value (9.4 ± 1.6), followed by group (D) (10.2 ± 1.1), group (F) (10.4 ± 2.6), group (A) (11.6 ± 1.3), group (C) (12.9 ± 2.3) and group (E) (13.2 ± 1.3). **Conclusion:** 0.5% magnesium gel is as 1.23% APF gel in color restoring of white spot lesion. No synergistic effect between materials and diode laser.