

CLINICAL STUDIES

Ref: Ro J Stomatol. 2024;70(3)
DOI: 10.37897/RJS.2024.3.8

The chromatograph evaluation of white spot lesion treated with magnesium gel and diode laser: an in vitro study

ABSTRACT

Objective. White spot lesions are one of the most common concerns of 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.

Methods. 42 extracted sound upper premolar teeth were recruited for this study. WSL was artificially induced, until it appears in wet and dry condition on buccal surface of each tooth. Different approaches have been utilized for treatment WSL. 6 experimental groups were involved: Group A: Control, 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. In present study, topical application of 0.5% MgCl₂ gel ensure color reinstating compared to other groups.