

Evaluation of the effectiveness in teeth whitening of a single session with 6% hydrogen peroxide Laser/LED system

- Bersezio C.^a,
- Pardo C.^{b, c, d},
- Miranda S.^a,
- Medeiros Maran B.^{d, e},
- Jorquera G.^f,
- Rosa da Silva A., Jr^g,
- Tonetto Rodrigues M.^g,
- Fernández E.^{a, h}

Abstract

Background: Due to the current importance of dental whitening, multiple studies have been carried out in order to achieve an efficient, effective, and innocuous procedure. This study aimed to compare the effectiveness and sensitivity of in-office dental bleaching with one versus two applications of 6% hydrogen peroxide (HP) gel with nitrogen titanium dioxide (TiO₂) nanoparticles activated by LED/Laser lamp in a single-session. Methods: This RCT with a split-mouth design was performed in twenty-seven volunteers. The in-office dental bleaching technique was performed using 6% HP with nitrogen TiO₂ nanoparticles. In each patient, groups were randomized by hemiarch: Group 1 received one application of 72 minutes and Group 2 received two applications of 36 minutes, both groups in a single-session. Results: There were no significant differences in the effectiveness of a single-session with one or two applications of 6% HP with nitrogen TiO₂ nanoparticles between both groups ($p > 0.05$). A positive and increase of ΔE value was observed in both groups. Group 1 showed an increase of 4.45 in the immediate measurement, remaining at 4.41 until the one-week control, to increase up to an ΔE of 4.99 at one-month control. Group 2 showed a sustained increase of 4.02 units in the immediate control until reaching the maximum value of 5.46 units of ΔE at one-month control. Conclusion: One session single application protocol of 6% Hydrogen Peroxide gel with nanoparticulate TiO₂ activated by LED/Laser is effective and efficient for dental bleaching. © 2021 Elsevier B.V.

Author keywords

Bleaching teeth; Clinical randomized trial; Laser