Evaluation of the effectiveness of an in-office bleaching system and the effect of potassium nitrate as a desensitizing agent

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Abstrak

The aims of the study were to evaluate by spectrophotometer the in vivo colour changes resulting from the application of an in-office tooth bleaching system containing 28 % H2O2 by light-emitting diode (LED) activation and to determine whether the application of 5 % potassium nitrate 30 min before bleaching decreased tooth sensitivity. Thirty-two individuals were assigned randomly to two groups (n = 16). Group A received 5 % potassium nitrate as a desensitizing agent 30 min before bleaching with 28 % hydrogen peroxide activated by LED. Group B received glycerin as a placebo and the same bleaching protocol was applied. The colour of the right central incisor of each patient was measured visually and by spectrophotometer before bleaching, immediately thereafter, 15 days and 3 months later. Differences in L* a* b* values were tested with a repeated measures analysis of variance (ANOVA). Differences in AE values were tested with ANOVA statistical analysis at a 0.05 level of significance. Significant ($p < 0.05$) differences were detected in L*, as well as in b* values, between initial (I) and post bleaching (PB) and between initial (I) and 3 months post-op. In contrast, there was no significant difference between PB and 3 months post-op. The a* values showed no statistically significant differences among the different time points. Tooth sensitivity decreased significantly when potassium nitrate was applied. In-office bleaching system gave quantitatively stable results over a 3-month period. Tooth sensitivity was reduced significantly, when a desensitizing agent was applied 30 min before treatment, but the efficacy of bleaching decreased.