

P&G Oral Presentations

Wednesday, March 10



0048

Meta-Analysis of Factors Contributing to Whitening Strip Effectiveness and Safety

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Objective: This research evaluated an extensive clinical trials database collected as part of the development of strip-based tooth whitening in order to ascertain factors that contributed to clinical effectiveness and safety. **Methods:** The inclusive meta-analysis used data from 66 different randomized clinical trials of whitening strips at concentrations ranging from 5-14% hydrogen peroxide. Treatment was daily for up to 3 months. In all studies, efficacy was measured in L*a*b* color space using calibrated digital images, while safety was assessed from examination and interview. ANCOVA and logistic models were fitted to establish the determinants of tooth discoloration in the study population, and to quantify factors that contributed to effectiveness and tolerability. **Results:** There were 3205 subjects ranging from 10-85 years of age in the pooled analysis. With respect to starting tooth color, age was highly significant ($p < 0.0001$), with mean (SE) b* (yellowness) increasing by ~ 0.1 (0.003) annually. In the whitening response model, baseline color, age, the color*age interaction, ethnicity, tobacco use and treatment were significant ($p < 0.05$) effects. The average subject in treatment experienced an additional $-0.2 \Delta b^*$ (reduction in yellowness) for every 1-unit increase in baseline b*. Younger subjects experienced better whitening with treatment ($\sim 0.3 \Delta b^*$ per decade depending on baseline color). Occurrence of tooth sensitivity (24%) and oral irritation (22%) did not adversely affect whitening response. Other side effects were unremarkable. The various strip systems were similarly well tolerated, with less than 1% of the population discontinuing treatment early due to adverse events. **Conclusion: The meta-analysis of a diverse population establishes effective and safe vital bleaching with whitening strips at concentrations ranging from 5-14% hydrogen peroxide.**

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0161

The Relative Effectiveness of Two Battery-Powered Toothbrushes

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Background: The effectiveness of rotation-oscillation power toothbrushes is well established. Objectives: This clinical study was conducted to evaluate the plaque removal efficacy of a battery-powered toothbrush with a stand-alone rotation-oscillation head (single motion) compared to a battery-powered toothbrush with both translating and rotation-oscillation heads (dual motion). **Methods:** This study was a randomized, examiner-blind, 4-period crossover design, which examined plaque removal with the two toothbrushes following a repeated single use in 44 completed subjects. Plaque was scored before and after brushing using the Bastiaan Modification of the Quigley-Hein Index. **Results:** Baseline plaque scores were 3.45 for both the dual motion and single motion toothbrushes. With respect to all surfaces examined, the dual motion toothbrush delivered an adjusted (via analysis of covariance) mean difference between baseline and post-brushing plaque scores of 0.86 while the single motion toothbrush delivered an adjusted mean difference of 0.76. The dual motion toothbrush, on average, had a 13% larger plaque removal score than the single motion toothbrush. These results were statistically significant ($p=0.007$). Turesky Modification of Q-H scores were derived from Bastiaan scores as well. The derived Turesky baseline plaque scores were 2.07 for both the dual motion and single motion toothbrushes. With respect to all surfaces examined, the dual motion toothbrush delivered an adjusted (via analysis of covariance) mean difference between baseline and post-brushing plaque scores of 0.32 while the single motion toothbrush delivered an adjusted mean difference of 0.26. The dual motion toothbrush, on average, had a 24% larger plaque removal score than the single motion toothbrush. These results were statistically significant ($p=0.002$). **Conclusion: The battery-powered toothbrush with both translating and rotation-oscillation heads (dual motion) was found to remove statistically significantly more plaque than the battery-powered toothbrush with a stand-alone rotation-oscillation head (single motion).**