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TITLE: Gingivitis, Whitening, and Plaque Imaging of Two-Step Hygiene or Chlorhexidine

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ABSTRACT BODY:

Objectives: A randomized controlled trial used image analysis methods to compare gingivitis, whitening, and plaque for two-step hygiene or prescription rinse.

Methods: After IRB/consent, 38 adults were enrolled in an experimental gingivitis study. Oral health was promoted via prophylaxis and daily supervised brushing over 7 days, hygiene was suspended to induce gingivitis over 14 days, and subjects were randomly assigned to 21 days treatment with a two-step oral hygiene combination or chlorhexidine rinse (positive control). The two-step group brushed with a 0.454% SnF₂ paste followed by a 3% H₂O₂ gel (Crest® Pro-Health HD™, Procter & Gamble Co.), while the control group brushed with regular 0.76% NaMFP paste (Colgate® Cavity Protection) and rinsed with 0.12% chlorhexidine gluconate (Enjuague Oral-B®). During the treatment phase, oral hygiene was supervised BID following labeled instructions, and subjects were evaluated after 1 & 3 weeks. Concurrent high resolution images were collected to independently measure gingivitis (ΔG), tooth color (ΔL*), and fluorescein-disclosed plaque (area % coverage) using standard image analysis methods blind to assignment.

Results: Mean (SD) age was 29.1 (8.7), with all subjects completing. At Week 1, both groups exhibited significant (p<0.01) health and cleaning effects, favoring the two-step, with groups differing (p=0.027) on ΔL*. At Week 3, adjusted mean change in ΔG was 8.8 and 8.5 in the two-step and control, and plaque coverage was 3.5% and 3.7%, respectively. Groups did not differ (p>0.78) on gingivitis or plaque at Week 3, but the two-step group exhibited significant (p>0.0009) tooth color response, with adjusted ΔL* means of 0.95 compared to 0.05 for the control.

Conclusions: Image analysis of induced gingivitis treatment showed a two-step stannous fluoride paste and hydrogen peroxide gel to yield similar improvements in gingivitis and plaque to chlorhexidine rinse with significantly better stain response.