**ABSTRACT**

Objectives: A randomized controlled trial was conducted to evaluate effects of combination oral hygiene on oral malodor and gingivitis, and to assess possible endpoint correlations.

Methods: The study targeted adult volunteers with appreciable malodor and gingivitis. Institutional review and informed consent were obtained, and subjects were assigned a regular antacidity dentifrice and manual brush for 1-week acclimation. Baseline measurements were collected, and subjects with moderate-to-extensive malodor and gingivitis were randomly assigned to combination oral hygiene regimen or a regular hygiene control group. The regimen group received a 0.454% Snf2 dentifrice (Crest® Pro-Health™ Clinical Plaque Protection), a 0.07% CPC rinse (Crest Pro-Health), floss (Oral-B® Glide Pro-Health Clinical) and a crisscross manual brush (Oral-B Clinical Pro-Flex), while subjects in the control group received a 0.243% Naft dentifrice (Crest Cavity Protection) and manual brush (Oral-B Indicator). Test products were dispensed blinded to treatment in kits with instructions for use. After 1-week, oral malodor was assessed by trained judges using a 9-point hedonic scale, and gingivitis was measured independently by a trained examiner using a 4-point scale (Loe-Silness) to quantify bleeding sites.

Results: At baseline, the population (N=60) exhibited diversity in age (18-60), bleeding sites (32-135), and malodor (7-9). For malodor, Week 1 adjusted mean (SE) hedonic scores were 2.54 (0.24) and 7.99 (0.24) for the regimen and control groups, respectively, with treatments differing significantly (p<0.0001). For gingivitis, Week 1 adjusted mean (SE) bleeding sites were 14.3 (3.5) and 70.6 (3.5) in the regimen and control groups, again differing significantly (p<0.0001). Changes in malodor and gingival bleeding were well correlated (r=0.71, p<0.0001). Both treatments were well-tolerated.

Conclusions: One week use of a stannous fluoride dentifrice, cetylpyridinium chloride rinse, floss and crisscross brush yielded 68-80% reductions in oral malodor and gingival bleeding relative to regular oral hygiene.

**MATERIALS AND METHODS**

This was a randomized, 2-treatment, parallel group, examiner-blind clinical trial. All subjects were acclimated with Crest Cavity Protection dentifrice for 1 week prior to Baseline visit. The subjects were randomly assigned to either the regimen or the negative control at the Baseline visit, balancing for age, gender, Hedonic Score, and Number of Bleeding Sites. Breath and Gingivitis evaluations were repeated after one week of treatment. Treatment groups were compared using an analysis of covariance.

**RESULTS**

Subjects ranged in age from 18 to 60 years of age with and average of 36.7 years and 68% of the subjects were female.

**CONCLUSIONS**

One week use of a stannous fluoride dentifrice, cetylpyridinium chloride rinse, floss and crisscross brush yielded 68-80% reductions in oral malodor and gingival bleeding relative to regular oral hygiene.