P&G Oral Presentations

Thursday, March 4

151 SnF_2 Effects on Acid Resistance of HAP Mineral In Vitro

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The efficacy of stannous fluoride for the treatment of dentinal hypersensitivity may include protection of exposed root surfaces against oral environmental conditions including dietary acids. **Objectives:** This study describes a method to compare effects of Stannous Fluoride Hexametaphosphate dentifrice (SF-HMP) to NaF dentifrice (NaF) on kinetics of mineral solubilization in vitro. **Methods:** 500 mg of HAP mineral standard (BioRad HTP) was pretreated with 25 % dentifrice supernatant and washed 3x with water through centrifugation cycles. HAP was re-dispersed into water (10 ml) and a 1 ml (50 mg HAP suspension) aliquot was added into 50 ml of citric acid solution containing 50mM citric acid adjusted to initial pH 2.5 or 3.5 then diluted to 10mM concentration. During dissolution the pH was monitored de novo by potentiostat. Kinetics of dissolution were modeled under controlled hydrodynamics with pH change during dissolution monitored by ion selective electrode. Non treated HAP produced a kinetic profile permitting development of rate parameters for quantitative comparison of mineral protection against dietary acids. Results are standardized as % protection vs. Crest NaF regular paste control. **Results:** Stannous fluoride hexametaphosphate dentifrice produced reductions in HAP demineralization averaging 40 % over Crest NaF regular paste at pH 2.5 (sig. $p < 0.05$) and 42 % over Crest NaF regular paste at pH 3.5 (sig. $p < 0.05$). **Conclusions: These results provide a more detailed mechanism rationale for the actions of stannous fluoride hexametaphosphate dentifrice in providing smear layer acid resistance previously documented (J Clin Dent 2007:18,55-9) and may explain clinical actions in reducing hypersensitivity for this dentifrice (Compend Contin Educ Dent 2005:26(Suppl-1),35-40; J Contemp Dent Pract 2006:7,1-8). HAP solubilization kinetics may provide a rapid screening method to assess potential for desensitizing technologies to provide environmental resistance to dentin surfaces.**

Thursday, March 4

165 Clinical Trial of Gingivitis Image Analysis and Gingivitis Natural History

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Objectives: A 56-day prospective clinical trial evaluated whether a non-invasive intraoral digital photography method (gingivitis image analysis) could assess disease natural history. **Methods:** Healthy adults were enrolled in a 3-phase induced (experimental) gingivitis clinical trial. From Day -14 to Day 0, oral health was promoted via 2 dental prophylaxes and daily supervised brushing. At Day 0, oral hygiene was suspended to induce gingivitis over 21 days. Treatment commenced at Day 21 with supervised dental flossing only, then flossing + brushing at Day 28, and then prophylaxis + flossing + brushing at Day 35. Gingivitis was measured every 7 days using a novel, continuous and non-invasive instrumental method through Day 42. Gingivitis image analysis (GIA) used standardized digital photography and lighting for image capture and image analysis software to assess red-green-blue (RGB) values on the marginal gingiva, with the primary response parameter as change in ΔG. Paired images were compared to assess longitudinal response, and anatomical maps were generated to assess plausibility. **Results:** Mean (SD) age of the 20 enrolled subjects was 24.9 (9.0) years, with 19 completing the study. During the oral hygiene phase, mean (SD) ΔG was 8.6 (8.1) at Day -7 and 11.6 (9.7) at Day 0, improving significantly ($p<0.001$) from starting values. Gingival color ΔG decreased without oral hygiene, ranging from a mean (SD) of -3.7 (6.0) at Day 7 to -10.7 (8.2) at Day 21, and differing significantly from baseline ($p<0.02$) beginning at Day 7. Sequential treatment showed significant ($p<0.001$) improvement through Day 42, and the anatomical maps demonstrated floss effects confined to the marginal gingiva. **Conclusions: In a 56-day induced gingivitis study, gingivitis image analysis measured gingivitis natural history including treatment and progression, consistent with established disease processes.**

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