Gingivitis Reduction Following 4-week Use of Three Sonic Rechargeable Toothbrushes

S Farrell1*, J.M. Grender1, J.E. Rooney1, A.R. Biesbrock1, C.R. Goyal2, J. Qaqish2

1The Procter & Gamble Co., Mason, OH USA, 2BioSci Research Canada, Mississauga, ON, Canada

ABSTRACT

Objective: This research evaluated relative effectiveness of three marketed rechargeable sonic toothbrushes in gingivitis reduction over a 4-week usage period.

Methods: This was a single-center, examiner-blinded, parallel group, randomized clinical trial. One hundred fifty subjects with existing gingivitis were randomized to one of the three marketed rechargeable sonic toothbrushes: 1) Slim-handle Oral-B® Pulsonic (OBP), 2) Phillips Sonicare® Essence (PSE), and 3) Phillips Sonicare® Flexcare (PSF). Subjects were instructed to brush twice a day for 4 weeks with their assigned toothbrush and a regular cavity protection dentifrice following the manufacturers’ recommended instructions. Modified Gingival Index (MGI) and Gingival Bleeding Index (GBI) assessments were conducted at Baseline and Week 4.

Results: Mean age was 42 years and 71% of subjects were female. Groups were balanced (p ≥ 0.385) with respect to their Baseline gingivitis scores, with the average baseline whole mouth MGI score of 2.04 for the PCE and PSF groups and 2.03 for the OBP group, and the average baseline whole mouth GBI score of 0.069 for PSE and 0.090 for PSF and OBP groups. Use of all three toothbrushes resulted in statistically significant (p < 0.001) reduction of Week 4 MGI and GBI scores relative to baseline. Slim-handle OBP brush demonstrated significantly (p ≤ 0.025) lower MGI and GBI gingivitis scores relative to both PSE and PSF brushes following 4 weeks of product use. PSE and PSF brushes had 61.3% and 35.5% higher gingival bleeding scores than the OBP brush, respectively. No significant differences were observed between the PSE and PSF brushes.

Conclusion: Slim-handle OBP sonic toothbrush is shown to be more effective in reducing gingivitis than two other marketed sonic toothbrushes over a 4-week period.

MATERIALS AND METHODS

Tested Sonic Rechargeable Brushes:

- Oral-B Pulsonic (Procter & Gamble)
- Sonicare Essence (Philips)
- Sonicare Flexcare (Philips)

Study Design:

- N = 150
- Oral-B Pulsonic (OBP)
- Sonicare Essence (PSE)
- Sonicare Flexcare (PSF)

BL Week 4

Product use: 2x day for 4 weeks following manufacturers’ recommendation.

Efficacy Measurements: Modified Gingival Index (MGI) and Gingival Bleeding Index (GBI) at Baseline and Week 4.

Population: Healthy adult volunteers with existing gingivitis (1.75 ≤ Baseline MGI ≤ 2.30).

Data analysis: Statistical analyses for gingivitis efficacy were based on Week 4 whole-mouth average MGI and GBI scores. The within-treatment difference from baseline was tested versus 0 for each gingivitis endpoint using ANCOVA with the respective baseline score as the covariate. The Week 4 between-treatment differences for each gingivitis endpoint were analyzed using ANCOVA with the respective baseline score as a covariate.

RESULTS

Mean age was 42 years and 71% of subjects were female. Groups were balanced (p ≥ 0.385) with respect to their Baseline gingivitis scores, with the average baseline whole mouth MGI score of 2.04 for the PCE and PSF groups and 2.03 for the OBP group, and the average baseline whole mouth GBI score of 0.069 for PSE and 0.090 for PSF and OBP groups. All three brushes resulted in significant (p<0.001) reduction in gingivitis (MGI and GBI) at 4 weeks relative to baseline.

Oral-B Pulsonic toothbrush demonstrated significantly (p ≤ 0.025) lower MGI and GBI gingivitis scores relative to both Sonicare Essence and Sonicare Flexcare toothbrushes following 4 weeks of product use.

CONCLUSIONS

Slim-handle Oral-B Pulsonic sonic rechargeable toothbrush was shown to be more effective in reducing gingivitis than two other marketed sonic rechargeable toothbrushes over a 4-week period.

Research presented at the 88th General Session of the IADR, July 14-17, 2010, Barcelona, Spain