Abstract

- **Objective:** The primary objective of this study was to compare the effectiveness of a water flosser plus sonic toothbrush to a sonic toothbrush alone on the reduction of bleeding, gingivitis, and plaque. The secondary objective was to compare the effectiveness of different sonic toothbrushes on bleeding, gingivitis, and plaque.

- **Methods:** One-hundred and thirty-nine subjects completed this randomized, four-week, single-masked, parallel clinical study. Subjects were assigned to one of four groups: Waterpik® Complete Care, which is a combination of a water flosser plus power toothbrush (WFS); Sensonic® Professional Plus Toothbrush (SPP); Sonicare® FlexCare toothbrush (SF); or an Oral-B® Indicator manual toothbrush (MT). Subjects were provided written and verbal instructions for all power products at baseline, and instructions were reviewed at the two-week visit. Data were evaluated for whole mouth, facial, and lingual surfaces for bleeding on probing (BOP) and gingivitis (MGI). Plaque data were evaluated for whole mouth, lingual, facial, approximal, and marginal areas of the tooth using the Rustogi Modification of the Navy Plaque Index (RMNPI). Data were recorded at baseline (BL), two weeks (W2), and four weeks (W4).

- **Results:** All groups showed a significant reduction from BL in BOP, MGI, and RMNPI for all areas measured at the W2 and W4 visits (p < 0.001). The reduction of BOP was significantly higher for the WFS group than the other three groups at W2 and W4 for all areas measured (p < 0.001 for all, except p = 0.007 at W2 and p = 0.008 for W4 lingual comparison to SPP). The WFS group was 34% more effective than the SPP group, 70% more effective than the SF group, and 1.59 times more effective than the MT group for whole mouth bleeding scores (p < 0.001) at W4. The reduction of MGI was significantly higher for the WFS group; 23% more effective than SPP, 48% more effective than SF, and 1.35 times more effective than MT for whole mouth (p < 0.001) at W4. The reduction of MGI was significantly higher for WFS than the SF and MT groups for facial and lingual surfaces, and more effective than the SPP for facial surfaces (p < 0.001) at W4. The WFS group showed significantly better reductions for plaque than the SF and MT groups for whole mouth, facial, lingual, approximal, and marginal areas at W4 (p < 0.001; SF facial p = 0.025). For plaque reduction, the WFS was significantly better than the SPP for whole mouth (p = 0.003) and comparable for all other areas and surfaces at W4. The WFS was 52% more effective for whole mouth, 31% for facial, 77% for lingual, 1.22 times for approximal, and 1.67 times for marginal areas compared to the SF for reducing plaque scores at W4 (p < 0.001; SF facial p = 0.025). The SPP had significantly higher reductions than the SF for whole mouth and lingual BOP and MGI scores, and whole mouth, approximal, marginal, and lingual areas for plaque at W4.

- **Conclusion:** The Waterpik Complete Care is significantly more effective than the Sonicare FlexCare toothbrush for reducing gingival bleeding, gingivitis, and plaque. The Sensonic Professional Plus Toothbrush is significantly more effective than the Sonicare FlexCare for reducing gingival bleeding, gingivitis, and plaque.

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