Clinical Efficacy and Safety of a Sustainable Sonic Power Toothbrush in Adults Using a Single-Use Plaque Removal Model

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Objective

The objective of this single-day, randomised, controlled, examiner-blind, parallel-design clinical trial is to assess the safety and plaque removal efficacy of the use of a SURI sustainable sonic toothbrush compared to a manual toothbrush when brushing with a standard fluoride dentifrice.

Methodology

This was a single-day, randomised, examiner-blind clinical trial. 80 subjects were included in the study, with 61 females and 19 males. The mean age was 51.7, and all demographic variables were comparable among the two groups. Plaque baseline scores were also comparable for both treatments. The treatment groups were: (1) Experimental Group - SURI Sonic Power Toothbrush, and (2) Control Group – ADA Manual Toothbrush. Safety was assessed with Oral Soft and Hard Tissue examinations at both the pre- and post-brushing procedures.

Supragingival dental plaque was assessed according to the Turesky Modification of the Quigley-Hein Plaque Index as further modified by Lobene and Soparkar (PI). Plaque was disclosed using a red disclosing solution and each tooth was scored in six areas (distobuccal, midbuccal and mesiobuccal, distolingual, midlingual and mesiolingual)

Results

The results showed that the SURI sustainable sonic toothbrush was significantly more effective at reducing plaque than the manual toothbrush. Plaque scores were reduced by 45.5% for the whole mouth with the sonic toothbrush, compared to 13.1% for the manual toothbrush (see chart below). The sonic toothbrush reductions were at least 3 times more effective as compared to those of the manual toothbrush. In fact, the sonic toothbrush exceeded the manual brush by 1 unit on the plaque index in whole mouth plaque reduction. This superiority for the sonic toothbrush was statistically significant $p<0.001$ for all primary endpoints; whole mouth, gumline, and interproximal sites.

Two exploratory endpoints, 'facial' and lingual', have been added as secondary endpoints. SURI sustainable electric toothbrush removed 4 and 5 times more plaque than the manual toothbrush on the facial and lingual sites, respectively ($p<0.001$).

No safety issues were identified during the conduct of the study

Conclusion

The study met its primary objectives, and the superiority of the sonic toothbrush was statistically significant for all primary endpoints. SURI sonic toothbrush was at least 3x more effective in reducing plaque compared to the manual toothbrush. The secondary endpoint demonstrated that SURI removed 5x more plaque from the lingual site compared to manual toothbrushes.

Modified Plaque Index (PI)

% Reduction from baseline after a single use.