

Evaluation of bioactive glass and sodium bicarbonate polishing powders

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Objective: To compare the clinical effectiveness of sodium bicarbonate and bioactive glass powders when used in prophylaxis treatments.

Methods: Fifty Patients were recruited, twenty five patients were allocated to either a low or high oral hygiene subgroup determined by plaque scores and clinical examination. Using a double blinded, split mouth model, all patients underwent a full prophylaxis treatment on the lower jaw. The upper jaw was used as an untreated control. Bioactive glass (Sylc, OSspray ltd, UK) and sodium bicarbonate (Prophy Jet, Dentsply, UK) were applied randomly to opposite sides of the mouth. Participants had three parameters measured, 1) sensitivity to cold air and ice, 2) shade change and 3) comfort of procedure. All parameters were recorded at pre and post treatment and at 10 day recall.

Results: 1) The bioactive glass powder, in both sub groups, reported a 44% (0.80 ± 0.10 , $p < 0.05$) decrease in sensitivity, against control, immediately post op, and 42% (0.85 ± 0.05 , $p < 0.05$) at 10 day follow up when stimulated with cold air. Ice stimulation showed a 10% (3.05 ± 0.17 , $p < 0.05$) and 22% (2.64 ± 0.33 , $p < 0.05$) reduction in sensitivity immediately post op and at 10 day follow up. Application of sodium bicarbonate powders increase sensitivity, 17% (1.76 ± 0.3 , $p < 0.05$), at 10 days when stimulated with cold air. 2) Both test powders showed variation between subgroups, bioactive glass powder 1 and 4 shades whiter, sodium bicarbonate 1 and 2 shades whiter in good and bad oral hygiene respectively. 3) Patients in both sub groups reported a 46% (7.9 ± 1.4 , $p < 0.05$) increase in comfort of procedure with the bioactive glass over that of sodium bicarbonate.

Conclusion: The bioactive glass powder was more effective at desensitising both good and poor oral hygiene groups, and removing stain in poor oral hygiene patients. The bioactive glass also provides better patient comfort. This research was sponsored by OSspray.

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