Clinical study – Vokkaligara Sangha Dental College, Bangalore, India
Effects of two topical desensitizing agents and placebo on dentin hypersensitivity.

Pain due to dentine hypersensitivity (DH) occurs in 4–69 % of the adult population\(^1\). During a desensitising treatment a long-term sensitivity reduction is important for the affected patients. The pain development of the DH can be caused by thermal, mechanical or chemical stimuli of exposed dentine\(^2,3\). A therapeutic approach is the closure of the dentinal tubules in order to prevent irritation of the pain receptors by fluid shifts in the dentinal tubules\(^4\). Many different products like resins, primers, adhesives, glass ionomers, oxalates and protein precipitants are offered\(^5\).

The following study compared the efficacy in reducing the DH using the glutaraldehyde/HEMA-based GLUMA Desensitizer PowerGel, an oxalate-based desensitising product or a placebo treatment over a period of 6 months. GLUMA Desensitizer PowerGel demonstrated the best and most long-lasting reduction of sensitivity after 6 months in this study.

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Objective

Aim of this clinical study was to compare the efficacy of two desensitising agents and water as a placebo in patients with moderate to severe dentine hypersensitivity for a period of 6 months.

Materials and Methods

Each of the 50 patients with a total of 150 hypersensitive teeth was treated with the oxalate-based BisBlock (BISCO), the glutaraldehyde/HEMA-based GLUMA Desensitizer PowerGel (Heraeus Kulzer) and deionized water as control. The distribution of the treatment materials on the teeth was done randomly. Before application all teeth were isolated with rubber dam and cleaned with CCS Prophy Paste (Directa AB). Sensitivity of all teeth was tested by a probe-scratching test and an air blast evaporative stimulus before treatment (PRE) and had to have a level of sensitivity on the VAS (Visual Analog Scale) ≥ 6 (0 = no discomfort through 10 = intolerable pain). In the same manner the recording of sensitivity was performed immediately after application (Baseline BL), 1 day (1d), 1 week (1w), 1 (1m), 3 (3m), and 6 month (6m). The examiner was blinded regarding the previous obtained sensitivity scores and the chosen treatment for each tooth. The means and standard deviations of sensitivity scores were recorded. Normal distribution was confirmed with the Kolmogorov-Smirnov test and statistics were performed using an ANOVA and Tukey’s HSD test (p<0.05).

GLUMA Desensitizer Powergel demonstrated the strongest reduction of hypersensitivity.

There were no statistically significant differences between the sensitivity for the three groups before treatment. But after treatment for all three factors (treatment, time of testing and type of stimulation) the results showed statistically significant differences, so GLUMA Desensitizer PowerGel was superior to the other treatments. Even after 6 months the reduction of the score was statistically significant for GLUMA Desensitizer PowerGel.

Conclusion

The GLUMA Desensitizer PowerGel demonstrated a very effectively hypersensitivity reduction of moderately to highly hypersensitive cervical dentine. The treatment of the other 2 groups could be suitable in cases of moderate or low sensitivity.

Source