The Effects of a Fluoride Solution Containing 1.09% Sodium Fluoride, 0.40% Stannous Fluoride and 0.14% Hydrogen Fluoride on dentinal Sensitivity

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ABSTRACT

Many solutions have shown varying degrees of effectiveness on dentinal pain. Most of these require continuous use over considerable time. The purpose of this two-phase experiment was to assess the effects and time course of a solution containing 1.09% sodium fluoride, 0.40% stannous fluoride, and 0.14% hydrogen fluoride on pain associated with dentinal hypersensitivity. During phase 1, thirty subjects demonstrating dentinal hypersensitivity to a blast of cool air were divided into three double blind experimental groups. After baseline data were collected for all subjects, one group was instructed to apply the 0.717% fluoride solution* twice a day. The second group was instructed to apply a gel containing* 0.4% stannous fluoride** twice a day. A third group was instructed to apply distilled water. Each subject was assessed at 2, 4, 8, and 16 weeks utilizing the “method of limits” with a standardized, repeatable cold thermal stimulus. The results of a two factor repeated ANOVA indicated that those subjects who applied the 0.717% fluoride solution reported significantly less sensitivity at the two week period than the other groups (p <.05). In addition, those subjects whose solution contained the 0.4% stannous fluoride reported significantly less sensitivity at the four-eight week period (p<.05). Phase II of the study assessed the 0.717% fluoride solution on a more precise time course. These included: immediately, 15 min., one day, one week and two weeks. A one factor repeated ANOVA revealed that this effect presented within 15 min. post application (p <.05) and continued throughout the testing periods. It was concluded that the fully active 0.717% fluoride solution was an effective agent in the control of dentinal hypersensitivity within 15 min. of application.

(*DentinBloc, Colgate Hoyt/Gel-Kam) (**)Gel-Kam, Colgate Hoyt/Gel-Kam)