

The Suppression of Hypersensitivity Accompanied by Tooth Bleaching using Nonthermal Plasma

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Tooth hypersensitivity is a common side effect that occurs in the treatment of tooth bleaching [1]. Fluoride treatment has been known to cause less tooth sensitivity [2]. Thus, before or after the tooth bleaching, fluoride is generally applied to teeth. The purpose of this study is to investigate fluoride-coating effect of nonthermal plasma on human tooth.

Human enamel specimens were prepared and randomly divided into 7 groups: N1(2% NaF), N2(2% NaF + iontophoresis), N3(2% NaF + plasma), A1(1.23% APF gel), A2(1.23% APF gel + plasma), V1(5% NaF varnish), V2(5% NaF varnish + plasma). The samples were applied with fluoride products and plasma four times at a week interval. Fluorine content on fluoride-treated enamel was measured using electron probe micro analyzer (EPMA).

Only N3 group was detected to contain fluorine among the N groups, and the amount of coated fluorine decreased as frequency of plasma treatment decreased. More fluorine was detected in A2 than that of A1. Both V1 and V2 groups did not show detectable fluorine on tooth enamel.

This study suggests that combination treatment of plasma and fluoride products is highly recommended to suppress tooth hypersensitivity.

References

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