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REMINERALIZATION ABILITY OF FLUORIDE VARNISH CONTAINING TRICALCIUM PHOSPHATE BY TIME

Objectives: The aim of this study was to evaluate the degree of remineralization over time after application of fluoride varnish with and without tricalcium phosphate (TCP).

Methods: This in vitro study used extracted bovine lateral incisors without dental caries. Artificial lesions were created in the enamel specimens. The amount of mineral loss (ΔF_{before}) was measured using quantitative light-induced fluorescence (QLF). Test fluoride varnishes (10 mg) were applied to the enamel surface of the specimen and dried for 4 min. No fluoride varnish was applied to the specimens in the control group. Each group was randomly assigned 12 specimens, and remineralization was allowed to occur to different time points (0.5, 1, 3, 6, 12, and 24 h) in each group. Specimens were washed with distilled water and dried with compressed air for 3 s. ΔF_{after} was determined using QLF.

Results: When fluoride varnish containing TCP was applied for up to 6 h, the amount of mineral loss significantly increased, and when non-TCP fluoride varnish was applied for up to 12 hours, the amount of mineral loss significantly increased ($P < 0.05$). However, the amount of mineral loss was higher in the control group. The difference between ΔF_{before} and ΔF_{after} ($\Delta\Delta F$) increased over time. There was a significant difference between the TCP group and the control group after 6 h. The non-TCP group showed a significant difference after 24 h compared to the control group. After 12 h, significant differences were observed in the TCP group compared to both the non-TCP and control groups.

Conclusions: This study showed that the degree of remineralization increased gradually over time after fluoride varnish application compared to the control group. In particular, fluoride varnish containing TCP showed better remineralization capability than varnish without TCP.

Biography

Bo-Hyoung Jin has received her D.D.S. degree from the Seoul National University College of Dentistry, Korea in 1990. She received a PhD in Preventive Dentistry in 1997 from the Seoul National University College of Dentistry with subjects of demineralization and remineralization of dental enamel. Presently she has been working at Seoul National University School of Dentistry in the department of preventive and public health dentistry as a Professor.

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