

Comparison of fluoride uptake of three fluoride varnishes on primary teeth enamel

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Abstract

Background: The amount of fluoride uptake is an important factor of varnish fluoride to choose it for use. The purpose of this study was to compare of primary teeth's fluoride uptake among three kinds of sodium fluoride varnishes (Ariadent, Vocco and Soltan).

Materials and Methods: An experimental study was done on three kinds of sodium fluoride varnishes (including Ariadent, Soltan and Vocco ones). Twenty-five extracted primary molar were set in each groups. Amount of fluoride uptake and efficacy among these three varnish models were evaluated. Each tooth was divided in halves in mesiodistal direction while each half was randomly selected in case and experimental subgroups. Roots were also removed. All surfaces; except enamel, was covered by polish and then varnish fluoride was applied on enamel surface. For 24 hours followed by inserting to 10 cc deionized water. Two steps of adding KOH 0.2 mol and perchloric acid (HClO₄) 0.5 mol each one for 30 seconds were performed. All specimens were soluted in 10 cc deionized double washed water and shaken with shaker. Next all samples were prepared by Acid Etch Enamel Biopsy method for determining fluoride concentrations with spectrophotometer. Data was analyzed by variance, one way variance and Games-Howell test. The level of significancy was less than 0.01.

Results: The results showed that fluoride uptake was different for studied varnishes while applying Sultan varnish showed highest fluoride amount in teeth. Comparison between Vocco and Ariadent showed significant difference as well as Sultan and Ariadent varnish (p-value 0.014 and 0.016 consequently), but there was no significant difference between Vocco and Soltan varnishes.

Conclusion: Fluoride uptake could help us to choose varnish beside with other characteristics like easily applying, the color remaining on teeth, packing, flavor, durability. The results and findings proved that among three evaluated sodium fluoride varnishes, the Sultan showed better efficacy and potency in aspect of tooth uptaking fluoride.

Key words: Fluoride uptake, Oral health, Varnishes, Tooth