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Effect of 5% fluoride varnish application on caries among school children in rural Brazil: a randomized controlled trial.

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Abstract

OBJECTIVES: To determine the efficacy of 5% sodium fluoride (NaF) varnish application in reducing caries increments in the permanent dentition of rural Brazilian school children over the course of 12 months.

METHODS: A double-blind, randomized, placebo-controlled trial was conducted with 379 children aged 7-14 years who attended three schools in Brazil between January 2006 and December 2007. During this period, each school was visited four times at 6-month interval for recruitment, dental examinations, and fluoride varnish applications. Recruited children were randomly assigned to either a treatment (5% NaF varnish, n = 198) or a control group (placebo, n = 181). Trained interviewers collected data on oral health habits and sociodemographic characteristics from the children. Information on the child's diet was collected through a 7-day food frequency diary. Caries examinations were conducted using the International Caries Detection and Assessment System (ICDAS). The efficacy of fluoride varnish application on caries prevention was reported as a preventive fraction (PF). Crude caries increments of decayed and filled surfaces (DFS) were compared between fluoride varnish and placebo groups. A generalized linear model (GLM) was constructed to test the differences in DFS increments between the groups after accounting for confounding factors.

RESULTS: Of the total sample (N = 379), 210 (55.4%) children had completed 12 months of follow-up including one or two applications of fluoride varnish or placebo. At the baseline examination, the children in the treatment and control groups presented on average 6.2 and 5.6 DFS, respectively (P < 0.001). After 12 months of follow-up, the children in the varnish group showed significantly lower DFS increments than did children in the control group (10.8 versus 13.3; P < 0.007), with PF of 40% (95% CI: 34.3-45.7%; P < 0.0001).

CONCLUSIONS: The results of this study suggest that applications of 5% NaF varnish can be recommended as a public health measure for reducing caries incidence in this high-caries-risk population.

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Comment in

Fluoride varnish was effective at reducing caries on high caries risk school children in rural Brazil. [Evid Based Dent. 2012]

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