Fluoride Varnish

Case Study

Case Study: The Use of Fluoride Varnish in a Multicultural U.S. Population

Fluoride varnish, a form of topical fluoride, consists of a concentrated topical fluoride with a synthetic or resin base. Numerous reviews of the effect of fluoride varnish on permanent teeth have been reported in the literature and consistently indicated a protective effect on permanent teeth. A clinical trial was conducted to determine the effect of fluoride varnish on caries prevention in deciduous teeth.[1]

Families of children aged 6-44 months received nutritional counseling and were randomized into three groups: (1) no fluoride varnish, (2) fluoride varnish once per year and (3) fluoride varnish twice per year. The inclusion criteria were: four erupted maxillary incisors; all primary teeth caries-free without demineralized white spots; born in San Francisco or a fluoridated community in the San Francisco Bay Area and planning to reside in San Francisco for at least two years (eliminating water fluoridation as a potential confounder and demonstrating geographic stability); and a parent providing informed consent in English, Spanish or Chinese. Exclusion criteria were: medical problems or medications possibly affecting oral health; cleft lip/palate; developmental disabilities; transient residence; or another household member participating.

There were 376 children enrolled and randomized, with a mean age of 1.8 years ($\pm$0.6). Of those, 280 (74%) children had a 12- or 24-month follow-up visit. Overall, 53% were girls, 47% were Hispanic, 46% were Asian, and 7% were other race/ethnicity. Caries incidence was higher for those not receiving any varnish as compared to those receiving

varnish once per year (OR = 2.20, 95% CI 1.19-4.08) and those receiving varnish twice per year (OR = 3.77, 95% CI 1.88-7.58). Thus, the addition of fluoride varnish to caregiver counseling was shown to be effective in reducing early childhood caries incidence.

This study is important in that it demonstrates that even a single application of fluoride varnish annually results in a 52% decrease in dental caries incidence in young children. All children were caries free at baseline; thus, the effect on incremental caries incidence could not be determined. These findings demonstrate that fluoride varnish and parental counseling are important components of caries prevention programs targeting infants and young children. Guidelines from the American Associations of Pediatric Dentistry (AAPD) and Public Health Dentistry (AAPHD) support the use of fluoride varnish to prevent early childhood caries and reduce caries increment in very young children.

For more information contact:

Center to Address Disparities in Children's Oral Health and Comprehensive Oral Health Research
Center of Discovery, University of California, San Francisco School of Dentistry
3333 California Street, Suite 495,
San Francisco, CA 94143-1361, USA

References:

[1]J.A. Weintraub,* F. Ramos-Gomez, B. Jue, S. Shain, C.I. Hoover, J.D.B. Featherstone, and S.A. Gansky. Fluoride Varnish Efficacy in Preventing Early Childhood Caries. J Dent Res. 2006 February; 85(2): 172–176.