Letters to the Editor

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A systematic review and meta-analysis of the effects of fluoride toothpastes on the prevention of dental caries in the primary dentition of preschool children. *Evid Based Dent.* 2014; **1:** 5

We thank Drs. Elkhadem and Wanees for reviewing our article that was published last year in Community Dentistry and Oral Epidemiology. The benefits and risks of fluoride toothpaste use by preschool children is still under debate but many professional associations (e.g. American Academy of Pediatrics, American Academy of Pediatric Dentistry, American Dental Association, Brazilian Association of Pediatric Dentistry and Brazilian Society of Pediatrics) already endorse the recommendation printed in our paper: "based on the best available evidence, all children should use standard fluoride toothpaste, regardless of age". Drs. Elkhadem and Wanees expressed their concerns regarding the quality of the studies included in our review and the potential effect of fluoride toothpastes on dental fluorosis development. We would like to briefly discuss these issues in order to provide readers of Evidence-Based Dentistry with additional information that could help them make a better-informed decision on how to apply our findings to their practices.

1. We agree with Drs. Elkhadem and Wanees that half of the included studies were judged to have an unclear risk of bias regarding crucial aspects of their design and we have pointed that out in our paper. Nevertheless, if we had included only the studies that reported adequate randomization and blinding, our conclusion would not be different. In that case, we would have to analyze the results using the "vote counting" approach: Davies et al.[1] did not find any statistically significant difference in the mean number of decayed, missing and filled teeth nor in the incidence of dental caries between children who used a low-fluoride toothpaste and those who received no intervention; on the other hand, they did find that children who brushed their teeth with standard fluoride toothpaste had significantly fewer decayed, missing and filled teeth and a lower risk of developing caries than those who received no intervention; Whittle et al.[2] did not find any statistically significant difference in the mean number of decayed, missing and filled surfaces between children who used a low-fluoride toothpaste and those who received no intervention; and Rong et al.[3] did find that children who brushed their teeth twice a day with a 1100 ppm fluoride toothpaste presented significantly fewer decayed, missing and filled surfaces than children who brushed their teeth with a non-fluoride toothpaste;
2. Although the prevalence of moderate and severe dental fluorosis is usually low[4], there is still a concern that the use of standard fluoride toothpaste by very young children could increase it. Recently published systematic reviews[5,6] showed that the use of standard fluoride toothpaste by children is associated with a higher risk of developing dental fluorosis, but these reviews did not take into consideration the severity of dental fluorosis. Very mild and mild levels of fluorosis do not cause any impact on the lives of patients and their families[7,8]. We performed a meta-analysis[9] with the results of the same two clinical trials that were included in the review by Wong et al.[5]. Instead of comparing "any fluorosis" to "no fluorosis", we compared children who developed no fluorosis or mild fluorosis (TF=0,1 or 2) with children who developed aesthetically objectionable fluorosis (TF≥3) and we did not find any association. Thus, our findings did not confirm the hypothesis that the use of toothpaste with lower fluoride concentration by preschool children reduces the risk of developing aesthetically objectionable fluorosis in the upper permanent incisors.

We do not wish to overlook the need to improve our understanding of how to maximize the benefits of fluoride toothpaste use by young children and minimize the risk of dental fluorosis development. However, the most reliable evidence currently available indicates that the best way to achieve this goal is to reduce the possible ingestion of fluoride toothpaste (i.e., by decreasing the amount of toothpaste and performing toothbrushing under adult supervision) rather than reducing the concentration of fluoride.[10] Researchers, dentists and the general community should not disregard the increase in caries in young children due to reductions in toothpaste fluoride concentration, an outcome to be expected even under experimental circumstances.

Ana Paula Pires dos Santos
Paulo Nadanovsky
Branca Heloisa de Oliveira

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