Sugar substitute appears to prevent early-childhood cavities

July 6 2009

Children given an oral syrup containing the naturally occurring sweetener xylitol may be less likely to develop decay in their baby teeth, according to a report in the July issue of *Archives of Pediatrics & Adolescent Medicine,* one of the JAMA/Archives journals.

Early childhood caries (cavities), also called baby bottle tooth decay or nursing caries, continue to increase in prevalence, according to background information in the article. "Poor children experience rates twice as high as those of their more affluent peers, and their disease is more likely to be untreated," the authors write. "Poor oral health affects diet and nutrition and significantly diminishes quality of life. However, tooth decay is a disease that is largely preventable."

Xylitol, approved in the United States for use in food since 1963, has been shown to effectively prevent tooth decay by acting as an antibacterial agent against organisms that cause cavities. These previous investigations have primarily involved chewing gum or lozenges used in school-age children with permanent teeth. Peter Milgrom, D.D.S., of the University of Washington, Seattle, and colleagues evaluated the effectiveness of applying oral syrup containing xylitol among 94 children age 9 to 15 months in the Republic of the Marshall Islands, where early childhood tooth decay is a serious health care problem.

Two active treatment groups received 8 grams per day of xylitol syrup divided into two (33 children) or three (32 children) doses per day. A third, control group of 29 children received a small amount (a single

2.67-gram dose) of xylitol syrup per day because the internal review committee appointed by the secretary of health of the Republic of the Marshall Islands did not permit the use of a placebo.

After an average of 10.5 months, eight of 33 children (24.2 percent) receiving two doses of xylitol per day and 13 of the 32 children (40.6 percent) receiving three doses of xylitol per day had tooth decay, compared with 15 of the 29 children (51.7 percent) in the control group. The average numbers of decayed teeth were 0.6 in the two-dose xylitol group, one in the three-dose xylitol group and 1.9 in the control group.

"Our results suggest that exposure to xylitol (8 grams per day) in a twice-daily topical oral syrup during primary tooth eruption could prevent up to 70 percent of decayed teeth," the authors write. "Dividing the 8 grams into three doses did not increase the effectiveness of the treatment. These results provide evidence for the first time (to our knowledge) that xylitol is effective for the prevention of decay in primary teeth of toddlers." More research is needed to develop vehicles and strategies for optimal public health, but in populations with high rates of tooth decay, xylitol is likely to be a cost-effective preventive measure, they conclude.

More information: *Arch Pediatr Adolesc Med.* 2009;163[7]:601-607.

Source: JAMA and Archives Journals (news : web)