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Xylitol Wipes Reduce Tooth Decay in Babies

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June 2, 2011 (San Diego, California) — Mothers can significantly reduce caries in their babies by wiping their mouths with wipes impregnated with xylitol, even though the wipes do not kill the bacteria most often blamed for the disease, researchers reported here at the International Association of Dental Research 89th General Session and Exhibition.

"We did not find a reduction in the cariogenic organisms, but we found a reduction in caries," Ling Zhan, DDS, PhD, assistant professor of dentistry at the University of California at San Francisco (UCSF), said in her presentation. "This does not follow the usual understanding."

Evidence is growing that xylitol can fight caries, but exactly how this sugar alcohol affects the disease isn't well understood. Whereas older children and adults can chew xylitol gum, these very young children can't, so researchers are exploring the use of xylitol wipes.

In their study, Dr. Zhan and colleagues at UCSF and the Pediatric Dental Clinic in Sacramento, California, enrolled 44 mother-and-child pairs. The children ranged in age from 6 to 35 months.

The researchers randomly assigned each mother to wipe her child's mouth 3 times a day with either Spiffies-brand wipes (DR Products, Tucson, Arizona), which deliver 5.4 mg of xylitol, or a placebo.

Examiners counted the number of surfaces with carious lesions and collected saliva samples at baseline, 6 months, and 1 year. Neither the mothers nor the examiners knew which pairs were using the xylitol. They used arbitrarily primed polymerase chain reaction to analyze the *Streptococcus mutans* present in the saliva.

Eighteen pairs in the xylitol group and 11 in the placebo group completed the study. Five dropout subjects from the placebo group returned at 1 year.

After 1 year, there was a significant difference in the mean number of new decayed surfaces between the xylitol group and the placebo group (0.45 vs 0.6; $P < .05$).

However, the 2 groups of babies appeared to have the same amount of *S mutans* in their mouths. There was no significant difference in the mean log counts of *S mutans* between babies in the xylitol group and those in the placebo group (2.7 vs 2.8).

In 36% of the children, the researchers found *S mutans* transmission from the mothers to their children, but these genotypes accounted for only 8% of the total *S mutans* genotypes in the xylitol group and 12% in the placebo group.

There was a trend toward greater transience in the genotypes of the *S mutans* in the xylitol group, but it was not statistically significant.

Asked to comment on the study, session moderator Anne C.R. Tanner, BDS, PhD, from the Forsyth Institute, an independent nonprofit organization affiliated with Harvard School of Dental Medicine and Harvard Medical School in Boston, Massachusetts, told *Medscape Medical News* that it is too early to recommend that parents use xylitol wipes. "I think before you have clinical recommendations, you have to test it on a whole lot more kids," she said.

She said the reason that a change in caries didn't correlate with a change in *S mutans* might be that other species of bacteria are involved.

Dr. Zhang told *Medscape Medical News* that she agreed that this is one possible explanation. Another might be that xylitol changes *S mutans* in some way that makes it less virulent, she said. Or perhaps it affects the biofilm in which the organism works.

A previous theory to explain how xylitol works is that *S mutans* tries to metabolize xylitol but can't get fuel from it and dies. Research like this refutes that theory, she said; "xylitol doesn't kill it."

Dr. Zhang and Dr. Tanner have disclosed no relevant financial relationships.

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Dr. Ellie's Comments

These infants were receiving way UNDER the amount known to reduce Strep mutans. What I see is that no matter how small the amount for an infant - it is worth getting some xylitol around teeth as a protective measure.

There are several other studies that show us that less than 4 grams a day will NOT eradicate Strep mutans - so this fits with those findings. Xylitol's caries protective effect is what is interesting - even at such a low dosage.

I suggest we older folks keep to above 6 grams Xylitol a day - to enjoy oral health and its impact on our systemic health!!!