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Silver diamine fluoride, resin-modified glass ionomer, and a resin-based sealant may be equally effective in preventing caries in primary molars, a new study suggests.

Researchers from the Universidade Estadual de Maringá, Brazil, planned to present the study at the International Association for Dental Research (IADR) 91st General Session and Exhibition in Seattle, Washington.

No statistical differences emerged over 24 months in 120 molars randomly selected either for treatment with one of the materials or for no treatment as a control.

All 3 materials have shown some efficacy in past research, and the American Dental Association (ADA) recommends resin-based sealants as the "first choice" for caries prevention.

Few clinicians in the United States use silver diamine fluoride because it has a reputation for severely staining teeth, Kevin Donly, DDS, chair of developmental dentistry at the University of Texas Health Science Center at Austin, who was not involved in the study, told *Medscape Medical News*. "In the US, people don't like their front teeth black."

The researchers randomly assigned 4 newly erupted primary molars in each of 30 children to treatment with silver diamine fluoride (Cariostatic), resin-modified glass ionomer (Vitremer), or resin-based sealant (Alpha Seal Light), or to no treatment.

The children were all between the ages of 36 and 60 months and had a history of at least 1 decayed, missing, or filled surface.

After 24 months, the researchers found an increase in the number of children without buccal bacterial plaque. The change was statistically significant (P = .007), and there was also a statistically significant difference between 12 and 24 months (P = .005).

Five of the teeth showed increased signs of dental caries: 2 of those treated with silver diamine fluoride, and 1 in each of the other 3 groups. This difference in caries incidence among the 4 groups was not statistically different.

The researchers also found no statistically significant difference in retention of the materials used, with a total retention rate for all the materials of 80%.

"Based on the results found, it can be concluded that the 3 materials assessed were effective in controlling occlusal caries," the researchers concluded. "However, when indicated for small children, they must be part of a set of preventive measures established to reverse risk factors for caries."

But Dr. Donly said the study was too small and too short in duration for its findings to be definitive.

"What I worry about is that people will say silver diamine fluoride is just as good as a sealant, and I don't think in a long-term study that that would be true," he said.

Dr. Donly served on an ADA expert panel that reviewed evidence for sealants. There were only a handful of articles that showed evidence for resin sealants, and even fewer for glass ionomer sealants, he said.

The panel made the <u>following recommendations</u>: Resin-based sealants are the first choice of material for dental sealants, and glass ionomer cement may be

used as an interim preventive agent when there are indications for placement of a resin-based sealant but also concerns that moisture control may compromise such placement.

Some research has shown sealants to be superior to sodium fluoride varnish, but it is not clear whether the same would be true of silver diamine fluoride treatments, he said.

"I would like to see some huge studies," he said.

Dr. Donly and the researchers have disclosed no relevant financial relationships.

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