This is an excerpt of the article *Evidence-based clinical practice guideline on non-restorative treatments for carious lesions. A report from the American Dental Association,* published in JADA, October 2018

An expert panel convened by the American Dental Association Council on Scientific Affairs and the Center for Evidence-Based Dentistry conducted a systematic review and formulated evidence-based clinical recommendations for the arrest or reversal of non-cavitated and cavitated dental caries using non-restorative treatments in children and adults.

Although the recommended interventions are often used for caries prevention, or in conjunction with restorative treatment options, these approaches have shown to be effective in arresting or reversing carious lesions. ***Clinicians are encouraged to prioritize use of these interventions based on effectiveness, safety, and feasibility.***

Question

To arrest cavitated root carious lesions or arrest or reverse non-cavitated root carious lesions on permanent teeth, should we recommend NaF, stannous fluoride, APF, difluorsilane, ammonium fluoride, polyols, chlorhexidine, calcium phosphate, ACP, CPP-ACP, nano-hydroxyapatite, tricalcium phosphate, or prebiotics with or without 1.5% arginine, probiotics, SDF, silver nitrate, lasers, resin infiltration, sealants, sodium bicarbonate, calcium hydroxide, or carbamide peroxide?

Non-cavitated and Cavitated Lesions on Root Surfaces

Recommendation

- To arrest or reverse non-cavitated and cavitated carious lesions on root surfaces of permanent teeth, the expert panel suggests clinicians prioritize the use of 5,000 ppm fluoride (1.1% NaF) toothpaste or gel (at least once per day) over 5% NaF varnish (application every 3-6 months), 38% SDF plus potassium iodide solution (annual application), 38% SDF solution (annual application), or 1% chlorhexidine plus 1% thymol varnish (application every 3-6 months). (Low-certainty evidence, conditional recommendation.)

Notes

- The order of treatments included in this recommendation is a ranking of priority that the panel defined by accounting for their effectiveness, feasibility, patient values and preferences, and resource use.
- Given that non-cavitated and cavitated root lesions are difficult to distinguish in practice, the panel did not provide separate recommendations for these 2 types of lesions.
- Investigators conducted all studies in adult or older adult patients (permanent teeth), who are predominantly affected by root caries.
- The use of 5,000 ppm fluoride (1.1% NaF) toothpaste or gel requires patient adherence, which includes filling prescriptions and daily use at home. Because adherence is integral to its success, this intervention may not be feasible for populations in nursing homes and those with special needs. Furthermore, this treatment may not be covered universally by insurance. At the time of

publication, some brand-name toothpastes cost 23 cents per toothbrushing, and generic versions cost 17 cents per tooth brushing. If cost is a barrier, other interventions suggested for treating root caries may be more appropriate. Finally, if 38% SDF solution is chosen over 5,000 ppm fluoride (1.1% NaF) toothpaste or gel, the remarks associated with the use of SDF for cavitated lesions on any coronal surface also apply to the use of SDF on root surfaces.

Clinical Implications

- Clinicians can use a variety of treatments to arrest or reverse carious lesions. The panel approached decision making by considering the type of lesion (non-cavitated or cavitated), dentition (primary or permanent), and tooth surface (for example, occlusal). The certainty in the evidence informing the panel recommendations ranged from very low to high because of issues of risk of bias, imprecision, indirectness, and inconsistency.
- The expert panel emphasizes the importance of actively monitoring non-cavitated and cavitated lesions during the course of non-restorative treatment to ensure the success of the management plan. Clinicians should observe signs of hardness on gentle probing or radiographic evidence of arrest or reversal over time and, if they do not see these signs, should implement additional or alternative treatment options. The panel suggests applying all treatments according to the dosage and technique provided within manufacturers' instructions.
- Although the panel did not include diet counseling as an intervention in this guideline, the panel emphasizes that non-restorative treatments should be accompanied by a diet low in sugar. The panel will consider dietary modifications as an intervention for the next article on caries prevention.