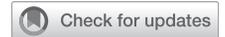


NONRESTORATIVE CARIES TREATMENT

Best choices for managing carious lesions nonrestoratively



BACKGROUND

Nonrestorative or non- and micro-restorative caries treatments are designed to manage caries at a lesion level, minimizing the loss of sound tooth structure. These can be fluoride-based or non-fluoride-based interventions and are a conservative alternative to restorative care once lesions become cavitated. The best evidence on the benefits and harms of these treatments was sought, noting the primary outcome achieved and adverse events that may occur.

METHODS

The literature search was done in MEDLINE and Embase via Ovid, Cochrane CENTRAL, and Cochrane Database of Systematic Reviews. Forty-four trials (48 reports) covering 7378 participants were identified, which reviewed the effect of 22 interventions for arresting or reversing noncavitated or cavitated carious lesions.

RESULTS

Four network meta-analyses were done according to lesion location, tooth surface, and lesion type. For coronal surfaces the analyses were done for noncavitated carious lesions on occlusal surfaces, approximal surfaces, facial/lingual surfaces, and any coronal surface. Treatments for root surfaces were also evaluated. The recommended approaches varied by surface.

For occlusal surface lesions, the combination of sealants and 5% sodium fluoride (NaF) varnish was the most effective in arresting or reversing lesions compared to no treatment in primary and permanent teeth. For approximal surfaces in primary and permanent teeth, the best results were obtained with resin infiltration and 5% NaF varnish. Compared to no treatment, 5% NaF varnish may be the most effective treatment of noncavitated facial/lingual lesions in permanent and primary teeth. For arresting any coronal surface lesion, the use of 38% silver diamine fluoride (SDF) solution applied biannually was more effective on primary teeth than 12% SDF solution applied biannually and 38% SDF solution applied annually.

For root surfaces in permanent teeth, the most effective treatment for noncavitated and cavitated carious lesions may be 5000-ppm fluoride (1.1% NaF) toothpaste or gel.

The adverse events reported with these nonrestorative treatments included black staining, tooth pain, gum pain, gingival swelling, gingival bleaching, and bitter taste. When the effect of sealants on occlusal noncavitated lesions was evaluated, it was shown that retention ranged from 41% to 89%, but no studies reported on sealant retention for approximal noncavitated lesions.

DISCUSSION

Although the ultimate goal of caries management is the prevention of caries onset, nonrestorative treatments can be effective in arresting lesions that have become cavitated. Most involve the use of NaF varnish, although some use SDF solution applied annually or biannually. Few adverse events have been reported with these nonrestorative treatments.

Clinical Significance

Clinicians would ideally like to prevent all caries and generally focus on preventive treatments. However, carious lesions can occur and progress, requiring some type of treatment to halt this process. Nonrestorative treatments using NaF varnish, resin infiltration combined with NaF varnish, NaF toothpastes or gels, and SDF solutions have been shown to offer a conservative treatment option that can arrest or reverse cavitated or noncavitated lesions on various tooth surfaces.

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Reprints available from MP Tampi, Ctr for Evidence-Based Dentistry, Science Inst, American Dental Assoc, 211 E Chicago Ave, Chicago, IL 60611; e-mail: tampim@ada.org