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What Methods Are Effective for Reducing the Incidence of Dental Caries?

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CONTINUED FROM PAGE 3

The Cochrane review identified 1 RCT of 1,098 patients that directly compared 320 mg saw palmetto with 5 mg finasteride (a 5-alpha reductase inhibitor) for 6 months. Saw palmetto reduced the International Prostate Symptom Score (IPSS) by 37% and finasteride reduced the IPSS by 39% after 6 months (difference not significant).[2] Two randomized prospective trials in the Cochrane review directly compared 320 mg saw palmetto with 0.4 mg of the alpha-blocker tamsulosin (in a total of 582 patients) and found no significant difference between the 2 in resulting IPSS scores.

A large observational study not included in the Cochrane review evaluated the treatment and outcomes of 2,351 patients in 6 European countries with BPH who presented with new BPH symptoms. After 1 year of follow-up, the percentage of men who had a significant improvement in symptoms was greatest for alpha blockers (68%), followed by finasteride (57%), and then saw palmetto (43%). Another common botanical used for BPH, *Pygeum africanum*, also had a 43% significant improvement in IPSS scores. Compared with watchful waiting, saw palmetto and *P africanum* reduced IPSS scores an average of 3 points more and resulted in a better quality of life (phytotherapy increased quality-of-life scores by 1.0, alpha blockers by 1.9).[3]

Evidence of benefit is mixed. However, the Cochrane review established the general safety of saw palmetto, with gastrointestinal adverse effects being the most common (in 4% of patients). Side effects of saw palmetto are generally mild and comparable to placebo. In comparison, the side effects of finasteride include erectile dysfunction, gynecomastia, decreased libido, and decreased ejaculate volume.

A commonly used dose of saw palmetto is 320 mg daily (or 160 mg BID) and a 1-month supply costs approximately $10.39. Finasteride costs approximately $70.00 a month and tamsulosin costs about $143.00 a month (www.drugstore.com). EBP

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HDAs
HelpDesk Answers

The HelpDesk Search Strategy

HelpDesk Answers are intended to provide the same quality response to a clinical question as would be achieved by a search-savvy physician spending an hour or so on the Internet. Authors of HelpDesk Answers are directed to search Healthlinks (http://healthlinks.washington.edu/search_evidence) and the TRIP database (www.tripdatabase.com). These portals provide access to more than a dozen sources of the highest quality evidence-based clinical information, including BMJ Clinical Evidence, the Guide to Clinical Preventive Services, AHRQ Evidence Reports, and others. Searches of the Cochrane Database, Medline, and other databases, are conducted as needed.

What methods are effective for reducing the incidence of dental caries?

Evidence-Based Answer

Fluoride mouth rinses and fluoride toothpastes used regularly at home reduce the incidence of dental caries about 25%. (SOR **A**, based on systematic reviews of RCTs.) Professionally applied fluoride varnishes reduce carries by about 50%. (SOR **A**, based on systematic reviews of RCTs.) Pit and fissure sealants provide additional protection beyond fluoride varnishes. (SOR **B**, based on a meta-analysis with a small number of patients.)

A 2003 Cochrane review pooled 34 studies for meta-analysis to investigate the caries-inhibiting effect of fluorinated mouth rinses in 14,600 children over a period of 2 to 3 years. Of the studies selected, 29 were double-blinded, 3 were blinded, and 4 were unclear as to what outcome assessment was used. The mouth rinses were administered under supervision in school programs at a frequency of 3 to 330 times per year. The fluorides used were acidulated phosphate fluoride (APF), sodium fluoride (NaF), amine fluoride (AmF), sodium monofluorophosphate (SMFP), ammonium fluoride (NH4F), and stannous fluoride (SnF2). When rinsing, 16 of the trials used a concentration of 900 ppm fluoride once or twice per week. Across all studies, concentrations of fluoride varied between 100 and 3,000 ppm in volumes of 5 or 10 mL. Rinse times were between 1 and 2 minutes. There was a 26% reduction of caries found on the surfaces of teeth in children who used fluorinated mouth rinse treatments compared with placebo or no treatment (95% confidence interval [CI], 0.23–0.30; $P<.0001$).[1]

A 2003 meta-analysis, in which 70 double-blinded studies were pooled, examined the effect of fluoride toothpastes on 42,300 children over a period of 1 to 7 years. Children brushed their teeth with fluoride or placebo toothpaste once or twice daily. The fluoride compounds used were APF, NaF, AmF, SMFP, and SnF2. Concentrations of fluoride varied between 250 and 2,500 ppm. There was a 24% reduction of caries in children brushing with fluoride toothpaste compared with placebo (95% CI, 0.21–0.28; *P*<.0001).[2]

A 2002 Cochrane review, in which 7 studies were pooled for meta-analysis, evaluated the caries-inhibiting effect of fluoride varnish in 2,790 children over a period of 1 to 4.5 years. Of the studies selected, 3 were double-blinded, 5 blinded, and 1 was unclear as to what outcome assessment was used. Dental professionals applied varnish to the teeth with a small brush, probe, or cotton swab 2 to 4 times per year. The fluoride varnishes studied were sodium fluoride–based (Duraphat®, Lawefluor®, and bifluoride 12) or difluorsilane. Concentrations of fluoride varied between 7,000 ppm (difluorsilane) and 56,300 ppm (sodium fluoride–based varnishes) in a volume of 0.5 mL per child for 1 to 4 minutes. The meta-analysis demonstrated a 46% reduction of caries in children who used fluoride varnish treatments compared with placebo or no treatment (95% CI, 0.30–0.63; *P*<.0001).[3]

A 2002 meta-analysis, including 23 studies, examined the caries-inhibiting effect of topically applied fluoride gels in 7,747 children over a period of 1 to 4 years. Of the studies selected, 14 were double-blinded, 6 were blinded, and 5 were unclear as to what outcome assessment was used. The gel was administered either by tray or brush 1 to 140 times per year. The fluorides used were APF, NaF, AmF, and SnF2. Concentrations of fluoride varied between 2,425 ppm (SnF2) and 12,500 ppm (AmF and NaF) in volumes of 1 to 4 mL. Teeth were exposed to the fluoride gels between 2 and 12 minutes. Fluoride gels demonstrated a 28% reduction of caries compared with placebo or no treatment (95% CI, 0.19–0.37; *P*<.0001).[4]

A 2006 Cochrane review of 4 studies investigated whether pit and fissure sealants or fluoride varnishes were superior for preventing dental caries in 317 people over a period of 1 to 9 years. Of the 4 studies, 2 utilized allocation concealment along with randomization. The remaining 2 studies used randomization with an unclear concealment approach. Three of the studies compared fluoride varnishes with pit and fissure sealants directly using either parallel study groups or a split-mouth design. One study compared a combination of fluoride varnish and pit and fissure sealant with fluoride varnish treatment alone. Three different types of sealants were used and applied to both sound and repaired surfaces of teeth. All studies used Duraphat as the fluoride varnish, which was applied twice yearly. Patients using pit and fissure sealants developed fewer caries compared with fluoride varnish after 24 months (risk ratio [RR]=0.75; 95% CI, 0.58–0.95) and 9 years (RR=0.48; 95% CI, 0.29–0.79). Patients using pit and fissure sealant in combination with fluoride varnish developed fewer caries compared with fluoride varnish alone after 24 months (RR=0.36; 95% CI, 0.21–0.61).[5]

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What common food additives can cause acute, nonallergic symptoms?

Evidence-Based Answer

Aspartame may be associated with headaches in susceptible individuals (SOR **B**, based on a small crossover study.) Monosodium glutamate (MSG) is associated with a range of constitutional symptoms; however, with blinding, responses to MSG are rarely consistent. (SOR **B**, based on a randomized controlled trial [RCT].)

A prospective, crossover trial studied 32 patients who reported headaches after ingesting products that contain aspartame. Participants were randomized to