Cetylpyridinium chloride-containing mouth rinses and plaque control

Abstracted from

Haps S, Slot DE, Berchier CE, Van der Weijden GA.

The effect of cetylpyridinium chloride-containing mouth rinses as adjuncts to toothbrushing on plaque and parameters of gingival inflammation: a systematic review.

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Question: Is the use of a cetylpyridinium chloride-containing mouth rinses as an adjunct to toothbrushing more effective than toothbrushing alone in preventing plaque accumulation and gingivitis?

Data Sources Medline and the Cochrane Central register of controlled trials were used to identify relevant reports.

Study selection Randomised controlled trials and controlled clinical trials were included if they were of ≥ 4 weeks' duration, were conducted in people of ≥ 18 years of age and in good general health, and used plaque/bleeding/gingivitis or pocket depth as outcome measures. Case reports, letters and narrative or historical reviews were excluded and only English language papers were considered.

Data extraction and synthesis Descriptive comparisons are presented for brushing only or for brushing and rinsing and, where appropriate, a meta-analysis was performed using a random effects model.

Results Eight studies met the inclusion criteria and they showed a small but significant additional benefit of cetylpyridinium chloride (CPC) use.

Conclusions The existing evidence supports the use of CPC-containing mouthrinses as adjuncts to either supervised or unsupervised oral hygiene as they provide a small but significant additional benefit in reducing plaque accumulation and gingival inflammation.

Commentary

Supragingival biofilm control is necessary in the prevention of periodontal diseases. Mechanical plaque control (such as by toothbrushing) has demonstrated its efficacy in biofilm control. In certain subjects, however, it may not be sufficient to attain the desired health objective. In this situation, chemical plaque control may be useful and add relevant benefits when used in addition to mechanical control.¹

Most chemical plaque control is based on antimicrobial products. Three of these products have met the American Dental Association criteria to be considered effective agents in gingivitis control.² These agents are a 0.12% chlorhexidine mouthrinse, an essential oils mouthrinse and a dentifrice with triclosan and copolymer. All these agents have adverse effects and controversy exists about their daily use. Other active agents are also available and research is ongoing to discover whether they would help improve plaque control with fewer adverse effects. Among them, CPC is one the most-studied

products in recent years, since new formulations have been marketed, with either improved bioavailability or higher concentrations.

In the systematic review by Haps and coworkers, an effort was made to select and pool relevant papers evaluating CPC-containing products. Eight papers were selected, although only three of them included a 6-month follow-up. The selected studies evaluated different product formulations, including important differences in product concentration (from 0.05–0.1%). This may be relevant, since many authors have concluded that the efficacy of CPC products is highly dependent on the formulation.³ The outcome measures included the two main variables for these studies on oral hygiene products, namely plaque and gingivitis levels.

Results are presented in a descriptive manner and in meta-analyses. In both, an additional effect of the CPC formulations is observed but the lack of relevant information in some studies precludes definitive conclusions. Specifically, the meta-analyses are not based on the differences between changes in the control and test groups from baseline to final visit. Instead, the authors have calculated the control–test group differences at baseline and then at the final visit. Since no significant differences were detected at baseline and, in some analyses, significant differences were detected at the final visit, the authors have inferred that there is a significant effect, of limited magnitude, of the test formulation.

In conclusion, CPC formulations may be useful as adjuncts to mechanical plaque control, but this conclusion should be considered with caution because of heterogeneity of the pooled studies, the evaluation of different formulations with different agent concentrations, the short duration of some studies, and the evident limitations of the meta-analyses performed.

Practice points

- The quality of the available evidence means that the use of CPC mouthrinses as an adjunct to mechanical plaque control should be considered with caution.

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