Supportive periodontal care: the effect of periodic subgingival debridement compared with supragingival prophylaxis with respect to clinical outcomes

Heasman P A, McCracken G I, Steen N

Authors' objectives
To assess the effectiveness of supportive periodontal care (SPC) using supragingival prophylaxis or subgingival debridement in patients with chronic periodontitis.

Searching
MEDLINE and the Cochrane Oral Health Group's Trials Register were searched for reports published in the English language from 1970 onwards; the search strategy was provided. The Journal of Periodontology (up to April 2001), the Journal of Clinical Periodontology and the Journal of Periodontal Research were searched manually, and ‘in press’ reports and accepted publications were requested from these journals. The reference lists in reviews, relevant texts, and World and European Workshops were also checked. Authors and researchers were contacted.

Study selection
Study designs of evaluations included in the review
The original intention of the review was to include only randomised controlled trials and controlled clinical trials, but no relevant studies were identified. The studies included were described as prospective clinical trials in which the maintenance programme lasted at least 12 months. One study was a direct comparison (non-randomised) of SPC regimens; the others only provided data from SPC-treated ‘cohorts’ with no control group. Case reports were excluded.

Specific interventions included in the review
Studies of SPC that used either supragingival prophylaxis or subgingival debridement were eligible for inclusion. In the review, supragingival prophylaxis was defined as the removal of tooth deposits from the clinical crowns of teeth. Subgingival debridement was defined as the use of instruments below the gingival margin in treatments that involved subgingival scaling or root planing, using either manual or ultrasonic instruments. In the review, the term SPC covered maintenance, supportive therapy, supportive care and recall treatments. The frequency of SPC in the included studies ranged from 2 weeks to 3 months.

Participants included in the review
Studies of patients aged 20 years or older with a diagnosis of chronic periodontitis, chronic periodontal disease, moderate periodontitis or moderate-to-advanced periodontitis were eligible for inclusion. The diagnosis had to have been made before the treatment phase of the study; chronic periodontitis was determined by an initial full mouth mean pocket probing depth of at least 4 mm. In addition, the participants had to have received initial, nonsurgical cause-related treatment and have natural teeth. Studies of patients with implants, and of patients or split mouth components that had only been treated surgically, were excluded. Where reported, the participants in the included studies were aged from 42 to 56 years.

Outcomes assessed in the review
No inclusion criteria relating to the outcomes were specified. The primary outcome assessed in the review was the mean change in probing depth (PD) between baseline and the 12-month follow-up. The review also assessed the mean change in clinical attachment level (CAL).

How were decisions on the relevance of primary studies made?
Two reviewers independently selected studies and resolved any disagreements by discussion. Inter-reviewer agreement was assessed using the kappa statistic.

Assessment of study quality
The quality of the included studies was assessed on the basis of blinding of the patients, examiners and therapists, and...
completeness of follow-up. Quality was assessed using a predetermined appraisal form, but the authors did not state how many reviewers performed the quality assessment.

**Data extraction**

Two reviewers independently extracted the data onto a specifically designed form. Authors of reports with missing information were contacted for additional data. For studies of split mouth design, only data for quadrants receiving nonsurgical treatment were extracted. For each study, the mean change in PD and CAL from baseline to the 12-month follow-up was extracted, together with the standard deviation (SD) or the standard error (SE) of the mean. The SDs and SEs were estimated if not reported. For studies that reported changes categorised by initial probing depth, a weighted mean was estimated for the analysis.

**Methods of synthesis**

How were the studies combined?
The authors reported calculating a weighted mean of the change in PD and CAL in the supragingival prophylaxis and subgingival debridement studies separately. The method used to weight the studies was unclear. Crude 95% confidence intervals (CIs) were calculated based on the mean SD from the studies that were combined. Some results were presented both including and excluding studies that did not report an SE error of the mean, and including and excluding data from the relevant single treatment arm of the comparative trial.

How were differences between studies investigated?
Studies of supragingival prophylaxis and subgingival debridement were presented separately. The findings of the comparative trial were presented separately.

**Results of the review**

Eleven prospective studies were included: one non-randomised trial (n=31) and 10 studies without controls (n=333).

There was good agreement between the reviewers for study selection (kappa was 0.79 for both screening and selection).

The non-randomised comparison of supragingival prophylaxis (coronal scaling) with and without subgingival debridement (39 patients entered, 31 completed 12 months of SPC) found no significant difference in the change in PD or CAL. The mean change in PD was 0.59 mm (SD=0.13) with scaling alone versus 0.37 mm (SD=0.15) with subgingival debridement (P=0.27). The mean change in CAL was 0.13 mm (SD=0.19) with scaling alone versus 0.14 mm (SD=0.18) with subgingival debridement (P=0.74).

The mean change in PD was reported in 5 uncontrolled studies of supragingival prophylaxis and in 4 uncontrolled studies of subgingival debridement. In both cases, the results varied markedly between the studies. For studies of supragingival prophylaxis, the combined mean change in PD from baseline was 1.15 mm (crude 95% CI: -0.17, 2.38), based on the 4 studies that reported an SE. For studies of subgingival debridement, the combined mean change in PD was 0.92 mm (crude 95% CI: 0.37, 1.47); it was unclear whether the study that did not report an SE was included in this estimate.

The combined mean change in CAL was 0.18 mm (crude 95% CI: -0.38, 0.74) for supragingival prophylaxis (based on 6 uncontrolled studies) and 0.50 mm (crude 95% CI: 0.11, 0.89) for subgingival debridement (based on 4 uncontrolled studies).

**Authors’ conclusions**

There was insufficient evidence to reach definitive conclusions about supragingival prophylaxis or subgingival debridement. The best evidence showed that these two treatments were comparable for PD and CAL at 12 months after nonsurgical treatment.
CRD commentary
The review question was clear in terms of the intervention and participants. The inclusion criteria for study design were amended in the light of the studies identified, as the authors acknowledged. Several relevant sources were searched to identify studies. However, by limiting the search to 1970 onwards and the English language, some relevant studies may have been omitted. Steps were taken to reduce the potential for bias and errors in the study selection and data extraction processes, but the potential for bias in each of the included studies was not assessed thoroughly.

Although the studies were described in the narrative, detailed information was not presented in tabular format. The authors commented that there appeared to be systematic differences between the study populations but presented few details. The authors emphasised the limitations of the meta-analyses of the 10 uncontrolled studies, and highlighted the conclusions from the only study (the non-randomised trial) where it could be assumed that the patients were directly comparable. Indeed, the validity of combining data from uncontrolled studies is questionable, particularly as the results from the individual studies did not appear to be homogeneous from the graphical presentations shown in the report. Losses to follow-up do not appear to have been taken into account. The evidence presented was insufficient to support the conclusions about how supragingival prophylaxis and subgingival debridement compare with regard to their clinical outcomes.

Implications of the review for practice and research
Practice: The authors did not state any implications for practice because they considered it inappropriate to make any firm recommendations in relation to clinical practice, based on the 'crude' meta-analyses and the review of the 11 included studies.

Research: The authors stated that randomised controlled trials are required to assess the relative effectiveness of supragingival prophylaxis and subgingival debridement. They stated that future research should assess the effect of these treatments on the long-term stability of periodontal disease and the optimal microbiological flora for periodontal health and stability, and should also assess cost-effectiveness.

Bibliographic details

PubMedID
12787216

Indexing Status
Subject indexing assigned by NLM

MeSH
Adult; Chronic Disease; Clinical Trials as Topic; Confidence Intervals; Dental Scaling; Humans; Periodontal Index; Periodontitis /therapy; Secondary Prevention; Subgingival Curettage

AccessionNumber
12003000826

Date bibliographic record published
30/09/2004

Date abstract record published
30/09/2004

Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract
contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.