

Summary of: Full-mouth treatment *versus* quadrant root surface debridement in the treatment of chronic periodontitis: a systematic review

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VERIFIABLE CPD PAPER

FULL PAPER DETAILS

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Online article number E18
Refereed Paper – accepted 11 July 2008
DOI: 10.1038/sj.bdj.2008.874
©British Dental Journal 2008; 205: E18

Background and aims Non-surgical periodontal therapy has been proven to be an effective treatment for patients with chronic periodontitis. Conventional non-surgical therapy by debridement of the root surfaces is performed on a quadrant basis with 1-2 week intervals. This time interval may result in re-colonisation by the bacteria of the instrumented pockets and impair healing. Therefore, a new approach of full-mouth non-surgical therapy to be completed within two consecutive days with (full-mouth disinfection) or without (full-mouth debridement) use of oral antiseptics has been suggested. The aim of this review was to compare the clinical outcomes of the three modalities of non-surgical therapy (full-mouth disinfection [FMD], full-mouth debridement [FRp], quadrant scaling and root planing [Q]). **Methods** Standard searches of Medline and Embase databases and appropriate hand searching provided the published studies, which were then assessed against pre-determined inclusion criteria. Meta-analysis was performed wherever possible using Review Manager 4.2 software. **Results** Seven randomised controlled trials (RCTs) were included in the review and these failed to show any statistically significant differences between the FRp and Q approaches. Further studies are required to reach conclusion regarding the advantages of FMD approach. **Practical implications** Mechanical debridement is an important component of treatment for chronic periodontitis and this review suggests that both the traditional quadrant approach and the newer the full-mouth debridement could be equally effective.

EDITOR'S SUMMARY

The authors of this important review set out to clarify which, if any, type of non-surgical treatment for chronic periodontitis was more effective: traditional quadrant-based root surface debridement or the newer full-mouth treatment. In so doing, however, they made incidental findings that are arguably as important as the main conclusions.

The gold standard for analysing the body of published research in a particular area is the meta-analysis. The meta-analysis in this review was carefully carried out and reported in detail, making the paper useful for anyone interested in or considering carrying out a similar review or a clinical trial. The results show that the traditional quadrant-based treatment for chronic periodontitis and the newer full-mouth debridement method appear to be

equally effective – an important finding for practising clinicians. It is this type of paper that makes evidence-based dentistry a reality.

However, it is also important to note that the authors found only seven articles that fulfilled the criteria for inclusion in the review and of these seven, only three were considered to be in the highest group in terms of methodological quality (and therefore at lowest risk of bias). The authors also note in their discussion that none of the studies reported actual data that was accessible for easy transformation in the meta-analysis, for example including standard deviation and standard error measures. This raises important questions about the quality of many of the clinical trials being carried out in dentistry. In order to be useful in the long-term, clinical trials must be carefully designed and the data pre-

sented in a standard statistical manner.

The importance of this review, therefore, is that it shows us both the benefits and the problems inherent in evidence-based dentistry. As a meticulously performed and reported meta-analysis, it demonstrates how dental practice can benefit from clinical evidence. By highlighting the shortcomings of some published clinical trials, it not only suggests that performing well-designed trials in dentistry may be difficult, but also shows why it is so important that such trials are carried out and correctly reported.

The full paper can be accessed from the *BDJ* website (www.bdj.co.uk), under 'Research' in the table of contents for Volume 205 issue 9.

Rowena Milan,
Journal Editor

DOI: 10.1038/sj.bdj.2008.952

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IN BRIEF

- There were no significant differences in the effects of full-mouth treatment over the quadrant-wise approach over six months after treatment.
- Root surface debridement remains the primary treatment modality for the professional management of chronic periodontitis.
- The evidence for the additional benefit of antiseptic use is inconclusive.

COMMENT

The paper is recommended to anyone undertaking or planning clinical periodontal research. A methodological application of meta-analysis is carefully reported. While it aims to provide much needed evidence in support of a treatment protocol for periodontal disease, this paper achieves a wider range of conclusions of relevance to dental research as a whole.

The authors attempt to produce evidence of different treatment regimes for management of chronic periodontitis. In using careful and meticulously developed methodology to undertake a meta-analysis, the authors highlight a major concern in relation to the quality of existing published periodontal literature. The issue of publication bias is explained and the limitations of the attempt to control this in the current study recognised.

The findings are that no current evidence supports a difference in clinical outcome between full-mouth disinfection, full-mouth debridement and conventional quadrant root planning and scaling. Some future areas for investigation are highlighted, including the incidence of pain and raised body temperature associated with whole mouth therapy and potential reduced treatment times which have also reported.

After an extensive and fully reported literature search and application of strict selection criteria, only seven papers from 117 were selected for meta-analysis. The authors comment on methodological quality in published data and report experience of problems

in accessing data in a format suitable to allow comparative analysis. There is clearly a need for closer adherence to Consort Standard of Reporting Trials guidelines. In addition, standard data presentation should be developed within the dental literature.

The paper as an example of research methodology is most informative. The conclusions in themselves are limited by the current published data.

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AUTHOR QUESTIONS AND ANSWERS**1. Why did you undertake this research?**

Non-surgical periodontal treatment is the mainstay for the treatment of chronic periodontitis. For many decades now, the main approach has been quadrant-wise root surface debridement undertaken over a number of visits spaced one to two weeks apart. There was concern that this approach could allow re-infection of the treated sites by bacteria from the untreated sites and thus the full-mouth disinfection method was introduced about ten years ago. Initial studies suggested that the latter approach could offer benefits but subsequent studies were less clear.

This research was undertaken because a systematic review allows thorough analysis of the published literature and attempts to clarify the strength of evidence in this area.

2. What would you like to do next in this area to follow on from this work?

One of the problems with clinical research in periodontics is that surrogate endpoints such as probing depths or attachment levels have to be used, as the real endpoint of tooth loss may take many years. In addition, studies may be limited by the use of simpler statistical analysis. Currently, the principal interest is in outcomes that are perceived as of direct benefit by the patient. Thus, newer and longer studies, using patient-related outcome measures with possible multilevel modelling should be established on the back of this review. In addition, prospective studies should also build in economic appraisal to allow cost effectiveness analysis. Of course, the review can be updated if further studies of similar methodology are published.