

Letter to the Editor

Efficacy of sodium hypochlorite and chlorhexidine against *Enterococcus faecalis* - A systematic review

Sir,

We read with interest the publication 'Efficacy of sodium hypochlorite and chlorhexidine against *Enterococcus faecalis* - A systematic review' (Journal Applied Oral Science 2008;16(6):364-8). The authors are to be congratulated on their attempts to find and synthesize evidence for the effectiveness of these two antimicrobial agents but in doing so they refer to and imply that they have adhered to "the guidelines of the Cochrane Collaboration", we would therefore like to take the opportunity to highlight not only the differences between this review and Cochrane systematic reviews but also our doubts about the validity of their meta-analysis.

Although the not infrequent in-text references to these "guidelines" might appear to add credence to the scientific rigor of this review, the methods described pay scant attention to the most important criteria for high quality systematic reviews i.e. clarity, consistency, transparency and reproducibility. Moreover it is these deficiencies which may in fact limit the plausibility of the statistical conclusions that are presented in Table 1 as "Total".

Significant lack of clarity in the research question is illustrated by the degree of inconsistency in the interventions that are stated as being included in this review. Thus the review title refers to NaOCL and CHX; the objectives of the review to "NaOCL or CHX against *E. faecalis*"; the literature review to "NaOCL and CHX against *E. faecalis*"; with a choice of NaOCL and CHX in the search terms and NaOCL or CHX in the inclusion criteria. The inconsistency extends to the title of Table 1, "efficacy of the NaOCL and CHX against *E. faecalis*", and its contents in which the sole irrigant listed by the authors is a range of concentrations of NaOCL.

Whilst we are in agreement with the authors that "explicit methods limit bias in identifying studies", to pre-empt any allegation of selection bias towards studies to be included in this review it would have been preferable if they had expressed greater clarity in their objectives and more specifically in their inclusion criteria by indicating whether the agents were to be compared with each other, or against inactive agents or used in combination with other intracanal medications. The inclusion criteria for this review further stipulate that "studies related to the efficacy of intracanal irrigants and medications other than NaOCL and CHX will be excluded", yet the authors appear to have included the Zerella, et al. study in which the concomitant use of a Ca(OH)₂ slurry might be considered an effect modifier and thus a potential confounder for the intervention of interest.

Transparency in Cochrane reviews is ensured through a priori statements about the types of studies which are to be included in a review. Albeit Estrela, et al. were fairly explicit about a number of their inclusion criteria; this was clearly not the case for the study designs to be included in their review, which were inadequately defined as "using an analysis of longitudinal studies" and "studies related to the efficacy of NaOCL or CHX".

The review authors stated that this review was conducted "according to the guidelines of the Cochrane Collaboration, which recommend the search for the largest possible number of articles", but they then somewhat surprisingly chose to exclude "non English studies". The report provided no explanation or reasoning for this choice and it would appear that the authors may be unaware that the exclusion of studies in other languages can be a significant source of publication bias and is an issue which has been well

documented in the literature (Türp, 2002). The potential risk of other forms of bias in this review is further accentuated by not only the total absence of any structured evidence tables but also any mention of assessments of 'risk of bias' or any other assessment of methodological quality of the included studies (Higgins, 2008).

The validity of any decision to pool the data in a meta-analysis is dependent on the clinical homogeneity of the included studies and may include factors such as the applicability and clinical relevance of the trial results, as well as the decision on whether they are similar enough to combine. This should be explored in the review by examining the characteristics of the eligible studies, to assess the similarities and differences among the types of participants or subjects, the interventions received and outcome measures.

Significantly the authors in this review state that the "present essay involved 5 studies characterized by the heterogeneity of the clinical protocols", and although an assessment of heterogeneity was reported, we believe that pooling of the data in a meta-analysis would be inappropriate and, comparisons of the results of the trials might also be unstable because of the presence of confounding factors and biases which are likely to have influenced decisions about which studies are suitable for inclusion. For these reasons we consider that the average effect shown by the 'Total' in Table 1 is unreliable and overprecise, and is incompatible with the conclusions as stated in the abstract but somewhat confusingly consistent with the final summary in the 'Conclusion'.

Finally, it is conceivable that Table 2 and Table 3, which are referred to in-text but are conspicuous by their absence in the report, may be the source of answers to our concerns about the quality of this review.

Yours sincerely

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Türp JC, Schulte JM, Antes G. Nearly half of dental randomised controlled trials published in German are not included in Medline. *Eur J Oral Sci.* 2002;110:405-11.

Higgins JPT, Altman DG (Ed). Assessing risk of bias in included studies. In: Higgins JPT, Green S (Eds). *Cochrane handbook for systematic reviews of interventions: version 5.0.1.* Chapter 8. The Cochrane Collaboration; 2008. Available from www.cochrane-handbook.org. (updated September 2008).

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