Response to Letter to the Editor

Efficacy of sodium hypochlorite and chlorhexidine against *Enterococcus faecalis*

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Dear Editor,

We thank Professors Fedorowicz & Sequeira for letter concerned on the systematic review - Efficacy of sodium hypochlorite and chlorhexidine against *Enterococcus faecalis*.

The authors' intention was to cite the Cochrane Collaboration as a model for performing the systematic review to situate the readers in relation to the type of study developed, because few systematic reviews were published in the JAOS. Thus, we agree that the review developed by us have differences to a Cochrane systematic review. Our study started from a question of specific interest of the researcher with knowledge on the area of root canal irrigants, and our search was limited to articles published in English. We agree that to reduce the bias the searches should be in all languages. It was mentioned only the English language due to the fact that in the period of time that the search was done no articles of interest for the theme were found in other languages.

The objective of the study was to review the antimicrobial potential of two irrigant solutions commonly used in endodontics, sodium hypochlorite and chlorhexidine, against an important microorganism in endodontic lesions, *Enterococcus faecalis*. For this reason, the use of the term AND in the title. In the electronic search strategy and in the inclusion criteria the term OR was used because there was interest to analyze the articles that evaluated both substances in a same study as well as in articles that evaluated only one of the substances.

The inclusion of the article by Zerella, et al.[6] (2005) occurred due to the specific use of the results related to sodium hypochlorite (before and after root canal preparation using just the group of sodium hypochlorite, G1). The collects of the second and third sessions were unconsidered. We did not consider the data related to calcium hydroxide. Thus, the results of the collects performed after the use of calcium hydroxide did not interfere with our analysis.

We considered the treatment protocols of the 5 included studies heterogeneous and for this reason the article was sent to the editor without a statistical grouping as a meta-analysis. However, one of the reviewers of the JAOS asked us to perform the meta-analysis. The statistical grouping was performed, nevertheless we maintained the observations relative to the heterogeneity of the treatment protocols. In the discussion we emphasized that "The investigation model adopted in the present essay involved 5 studies, characterized by the heterogeneity of the clinical protocols", and that "...limitations of the methodology employed in this study should be considered " … " The difficulty in comparing the studies retrieved in the present search is due to differences in the methodological design of each investigation: standardization of the limit of preparation, choice of the preparation technique, standardization of tooth type and sample size, time of the initial endodontic treatment in cases of secondary infection, quality control of the chemical irrigants and variation in their concentration, criteria for the detection of the periapical lesion etc, in addition to other important data that were not mentioned in these studies (Table 1)".

Considering differences in the experimental methodology, concentration, type of irrigating solution, patient and anatomical differences in root canal or the period of time used in the analysis, the results were also distinct. We agree that the heterogeneity of the clinical protocols resulted in a fragile association of the results. The survival of *E. faecalis* as to the analyzed therapeutic protocols directed to the results described in the abstract and results. "...NaOCl or CHX showed low ability to eliminate *E. faecalis* when evaluated by either culture or PCR techniques...". Studies in human teeth where bacteria survived to the endodontic treatment have shown the necessity of additional procedures for the control of the endodontic infections (Sundqvist, et al.[5] (1998), Nair, et al.[2] (2005)).

Once we had described the results, in the conclusion there was a direction to the implications. Tables 2 and 3 that did not appear on the report showed the graphic representation of the heterogeneity of the included studies.

We agree with Prof. Spångberg[3] (2007) when he reported that to do a systematic review is not easy, and lacking randomized controlled trials, which are the gold standard, it is probably better to focus on some of the good observational studies available.

Therefore, we thank the observations made on the review by Professors Fedorowicz & Sequeira.

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2- Nair PNR, Henry S, Cano V, Vera J. Microbial status of apical root canal system of human mandibular first molars with primary apical periodontitis after one-visit-endodontic treatment. Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 2005;99:231-52.

3- Spångberg LSW. Systematic reviews in endodontics - examples of GIGO? Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 2007;103:723-4.

4- Sundqvist G, Figdor D. Life as an endodontic pathogen. Ecological differences between the untreated and root-filled root canals. Endod Topic 2003;6:3-28.

5- Sundqvist G, Figdor D, Persson S, Sjögren U. Microbiologic analysis of teeth with failed endodontic treatment and the outcome of conservative re-treatment. Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 1998;85:86-93.

6- Zerella JA, Fouad AF, Spangberg LS. Efficacy of a calcium hydroxide and chlorhexidine digluconate mixture as disinfectant during retreatment of failed endodontic cases. Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 2005;100:756-61.