J Clin Periodontol 2006; 33: 940–941 doi: 10.1111/j.1600-051X.2006.01023.x

Journal of Clinical Periodontology

Letter to the Editor

Response

Dear Editor,

We would like to thank Drs. Walter & Weiger (2006) and Dr. Feres-Filho et al. (2006) for their comments regarding our paper that was published in the September issue of the *Journal of Clinical Periodontology*. We agree with Dr. Walter that the discussion of controversial topics, such as the use of systemic antibiotics to treat periodontal infections, provides different points of view that can help to clarify the issues. To add to the Discussion, we would like to comment on the points raised in both letters to the Editor.

1. The subgingival biofilm needs to be mechanically removed or disturbed in order for systemic antibiotics to be effective.

The evidence that antibiotics need to be in higher concentrations to reach the minimum inhibitory concentration in a biofilm was derived from in vitro studies using primarily cultures of single bacterial species. This situation is quite different from that which occurs in naturally occurring subgingival biofilms. Thus, the results of in vitro studies cannot be readily extrapolated to the in vivo situation. Our study demonstrated that the systemic administration of metronidazole plus amoxicillin (M+A), without disturbing the subgingival biofilm by mechanical means, provided clinical and microbiological improvements similar to those obtained with scaling and root planing (SRP) alone. Thus, it appears that it is not essential to mechanically disrupt the subgingival biofilm in order for M+A to be effective. This finding has been previously demonstrated in patients with chronic periodontitis who received only M+A and no additional periodontal therapy during a 12-month study (López & Gamonal 1998, López et al. 2000). However, studies where systemically administered antibiotics were used in combination with mechanical disruption of the biofilm (i.e. SRP), the clinical and microbiological outcomes were significantly better than those achieved by SRP alone (Herrera et al. 2002, Haffajee et al. 2003). Therefore, mechanical disruption of the subgingvial biofilm can potentiate the antibiotic effect.

2. Antibiotic resistance and patient compliance.

Antibiotic resistance can occur any time an antibiotic is administered and is probably more likely to occur if the patient is not compliant with the drug administration protocol. The antibiotic treatment of tuberculosis cited by Drs. Walter and Feres-Filho is somewhat different from the treatment of periodontal infections, in that the antimicrobial agents to treat tuberculosis are administered over several months. Long-term administration of any medication is likely to produce lower compliance rates. In our study M+A, given to control periodontal infections, were prescribed for 7 days and compliance was more predictable than in the situation where long-term drug administration was employed. However, the issue of antibiotic resistance including the impact of patient compliance on the selection of new antibiotic resistant bacterial strains is extremely important and warrants further investigation.

3. Dr. Walter suggested that antibiotics as the sole therapy for periodontal infections may not be a low-cost approach to reach long-term periodontal health. We agree with Dr. Walter that this may be the case. However, the cost effectiveness together with the clinical effectiveness of different periodontal therapies need to be compared in randomized clinical trials.

4. Both letters commented that the systemically administered antibiotics employed in our study were not the only treatment as supragingival plaque removal was performed before baseline measurements and at the 3-month monitoring visits. Dr. Feres-Filho also cited studies in the literature where repeated, professional supragingival plaque removal had led to significant changes in the subgingival microbiota. In our study, there was the possibility that the subgingival biofilm was disturbed by supragingival scaling and this possibility was indicated in the discussion. However, it is highly unlikely that the level of supragingival plaque removal performed in the current study could have led to the observed clinical and microbiological changes. In the study of Ximenez-Fyvie et al. (2000), for example, the significant decreases in the mean counts of subgingival species was brought about by professional supragingival plaque removal performed each week for 12 weeks. That regimen was much more intensive than the 3-monthly cleanings performed in our study. Further, the studies of López & Gamonal (1998) and López et al. (2000), cited above, demonstrated a significant clinical improvement and reduction in the number of sites harboring *P. gingivalis* and *P. intermedia* after the administration of M+A without additional periodontal intervention and without changing the oral hygiene habits of patients. Nonetheless, the notion that the treatment performed in the test group in our study may be considered to be antibiotic therapy as an adjunct to supragingival plaque removal is plausible and may be the correct interpretation.

5. The question regarding differences between the results at multi-rooted *versus* single-rooted teeth posed by Dr. Walter is intriguing and we will examine these data with the possibility of presenting the findings in a future publication.

As indicated in the letters, and stated in the discussion of our paper, there are a number of issues that need to be addressed regarding the use of antibiotics to treat periodontal infections. Many of these issues were discussed by Haffajee (2006) in a letter to the editor. In particular, it is critical to weigh the benefits and drawbacks of antibiotic therapy for different subject groups and in different clinical settings. Nonetheless, our study indicated that ''occasional'' professional supragingival

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plaque control and the adjunctive administration of M+A was effective in controlling periodontal infections for up to 12 months in patients with untreated chronic periodontitis.

References

Feres-Filho et al. (2006) Letter to the editor. *Journal of Clinical Periodontology* **33**.

Haffajee, A. D. (2006) Systemic antibiotics: to use or not to use in the treatment of periodontal infections. That is the question. *Journal of Clinical Periodontology* **33**, 359–361.

Haffajee, A. D., Socransky, S. S. & Gunsolley, J. C. (2003) Systemic anti-infective periodontal therapy. A systematic review. *Annals of Periodontology* **8**, 115–181.

Herrera, D., Sanz, M., Jepsen, S., Needleman, I. & Roldan, S. (2002) A systematic review on the effect of systemic antimicrobials as an adjunct to scaling and root planing in periodontitis patients. *Journal of Clinical Periodontology* **29** (suppl. 3), 136–159.

López, N. J. & Gamonal, J. A. (1998) Effects of metronidazole plus amoxicillin in progressive untreated adult periodontitis: results of a single one-week course after 2 and 4 months. *Journal of Periodontology* **69**, 1291–1298.

López, N. J., Gamonal, J. A. & Martinez, B. (2000) Repeated metronidazol and amoxicillin treatment of periodontitis. A follow-up study. *Journal of Periodontology* **71**, 79–89.

López, N. J., Socransky, S. S., Da Silva, I., Japlit, M. R. & Haffajee, A. D. (2006) Effects of metronidazole plus amoxicillin as the only therapy on the microbiological and clinical parameters of untreated chronic periodontitis. *Journal of Clinical Periodontology* **33**, 648–660.

Walter & Weiger (2006) Letter to the editor. *Journal of Clinical Periodontology* **33**.

Ximenez-Fyvie, L. A., Haffajee, A. D., Som, S., Thompson, M., Torresyap, G. & Socransky, S. S. (2000) The effect of repeated professional supragingival plaque removal on the composition of the supra- and subgingival microbiota. *Journal of Clinical Periodontology* **27**, 637–647.

Yours sincerely

N. J. López, S. S Socranksy, I. Da Silva, M. R. Japlit & A. D. Haffajee
nlopez@interacti a.cl

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