

THE USE OF TOPICAL DOXYCYCLINE AS AN ADJUNCT TO MECHANICAL DEBRIDEMENT CAN HAVE MODEST BENEFITS IN THE TREATMENT OF CHRONIC PERIODONTITIS

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CLINICAL PROBLEM

Chronic periodontitis is a disease affecting over 50% of the population worldwide (Benhamou, 2020). The disease affects oral tissues, and intensifies systemic inflammation. Mechanical debridement therapy is not always sufficient in controlling the disease.

CLINICAL QUESTION

In adults needing periodontal therapy, to what extent does the combination of topical doxycycline and mechanical debridement as compared to mechanical debridement alone affect probing depth, bleeding on probing and relative periodontal attachment level at 3 months and 6 months follow-up?

SEARCH STRATEGY

(Debridement OR non-surgical) AND ((topical doxycycline) OR (local doxycycline)) AND(periodontitis). Limits - Article Type: Guideline OR Meta-Analysis OR Practice Guideline OR Randomized Control Trial OR Systematic Review

APPLICABILITY

The studies were conducted mainly in university clinics in Europe, some in Asia and in the United States. The applicability of the results is thus limited due to the fact that most Canadian dentists practice in a private setting, and to differing practices in these countries as compared to Canada, specifically in terms of the accessibility of dental care and potentially differing training of the dentists participating in the studies. In all three studies, the patients were adults and already undergoing treatment for chronic periodontitis which is generalizable to our patient population.

The topical doxycycline is not feasible for some patients as the drug is difficult to administer, and it is quite costly so there would be a financial burden. That said, the timing and method of application is feasible in the general dental practice.

As the results of the treatment are not clinically significant, the use of topical doxycycline in addition to debridement does not justify the additional cost of this intervention in all periodontal patients. The adverse effects of topical antimicrobials include the risk of developing resistance to the antibiotic. The use of topical antimicrobials may be reserved for patients with deep periodontal pockets (>5mm) who have persistent clinical signs of inflammation despite initial debridement.

SELECTED STUDIES

1. Systematic review and meta-analysis (41 RCTs included), scaling and root planing alone or with the addition of topical antimicrobial, sample size 10 to 748.
2. Randomized controlled trial, debridement alone or with the addition of slow release doxycycline gel, sample size 202.
3. Randomized controlled trial, mechanical debridement alone or with the addition of doxycycline gel, sample size 128.

CLINICAL BOTTOM LINE

The results from the three selected studies (2 RCTs and 1 systematic review) demonstrate that topical doxycycline as an adjunct to mechanical debridement can have a modest improvement in PPD and CAL. However, while these results are statistically significant, they are modest. The benefit appears to decrease over time (> 6months), is primarily observed in deeper pockets (PD > 5) and may require repeated administration. Additional RCTs focusing on the frequency of doxycycline administration with solid methodology and follow-ups on longer term may bring a new insight on the topic.



BY ANDREE ALBERT

REFERENCES

1. Matesanz-Pérez et al., 2013, PMID: 23320860
2. Tonetti et al., 2012, PMID: 22429128
3. Bogren et al., 2008, PMID: 18454661

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