

Efficacy of subgingivally applied minocycline in the treatment of chronic periodontitis.

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Abstract

BACKGROUND: The use of adjunctive minocycline with mechanical debridement in treating periodontitis has been widely studied using different methods. However, the results from these studies are equivocal. **OBJECTIVE:** The purpose of this study was to clarify the efficacy of the adjunctive use of subgingival minocycline application plus scaling/root planing as compared with the results of one episode of scaling/root planing in the treatment of chronic periodontitis. **METHODS:** Fifteen patients were enrolled in this split-mouth clinical trial. Probing depth, clinical attachment loss, gingival index, and bleeding on probing were evaluated at the baseline before scaling/root planing and 6, 10, 14, and 18 weeks later according to a single-blind protocol. The amount of interleukin-1beta (interleukin-1beta pg/site) at each lesion was also simultaneously measured in gingival crevicular fluid in a parallel comparison design. After full-mouth baseline measurements and scaling/root planing, 78 lesions with a residual mean probing depth of 5 mm at anterior teeth were selected and equally distributed in either right or left sites based on a split-mouth symmetrical design and randomly assigned to one of two treatment groups (with or without minocycline administration, n = 39 for each group). **RESULTS:** Probing depth significantly decreased from the baseline (week 0) to week 6 after scaling/root planing ($p < 0.05$) in both groups, but there was no statistically significant difference between the two groups ($p > 0.05$). However, at weeks 10, 14, and 18, the experimental group showed significantly greater improvement in pocket reduction than the control group ($p < 0.05$). Similarly, both groups also showed significant decreases in gingival index scores from weeks 0-6 ($p < 0.05$), but gingival index reductions at weeks 10, 14, and 18 were statistically significant in favor of the experimental group ($p < 0.05$). The experimental group had more attachment gain than the control group at weeks 14 and 18 ($p < 0.05$). Values of interleukin-1beta (pg/site) at the experimental sites were significantly reduced at weeks 10, 14, and 18, as compared to values at control sites ($p < 0.01$). Finally, the incidence of bleeding on probing showed no differences between the two groups for any time interval ($p > 0.05$). **CONCLUSIONS:** In this 18-week clinical trial, the results suggested that scaling/root planing with adjunctive subgingival

administration of minocycline ointment has a significantly better and prolonged effect compared to scaling/root planing alone on the reduction of probing depth, clinical attachment loss, gingival index, and interleukin-1beta content, but not on bleeding on probing.