C-4. Inhibition of Cyclosporin A Induced Gingival Overgrowth by Azithromycin through Phagocytosis: An In vivo and In vitro Study

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연구 배경

The objective of the present study was to investigate the effect of cyclosporin A (CsA) and azithromycin (AZI) on collagen metabolism in the gingiva of rats.

연구방법 및 재료

Fifty 6-week-old male Sprague-Dawley(SD) rats(weight 120 to 150g) were randomly distributed into five groups. All groups received various drugs via gastric feeding for 7weeks. The first group(Mo group) received mineral oil for 7weeks as a control; the CsA group received CsA in mineral oil for 7weeks(dosage 30mg/kg); the CsA/Mo group received CsA in mineral oil for 6weeks and mineral oil only for the seventh week; the CsA/AZI group received CsA in mineral oil for 6weeks and AZI(dosage 10mg/kg) in mineral oil simultaneously with CsA in the seventh week; and the Mo/AZI group received mineral oil for 6weeks and AZI in mineral oil for the seventh week. All animals were sacrificed for clinical and histological analyses. Gingival fibroblasts were cultured at the fourth passage, and the amount of collagen was measured. Type I collagen and collagenase mRNA were measured by reverse transcription-polymerase chain reaction. Collagen phagocytosis assay also was performed.

연구결과

Clinically, CsA induced gingival overgrowth in rats, whereas AZI reduced gingival overgrowth. Histological results of the CsA group showed a marked increase of tissue volume compared to the other groups. High collagen amounts were found when gingivalovergrowth was induced. However, type I collagen mRNA and collagenase mRNA expressions did not statistically differ among groups. Phagocytosis assay showed that CsA decreased phagocytic activity of gingival fibroblasts, whereas AZI increased the activity. These results suggest that the induction and reduction of CsA-induced gingival overgrowth were closely associated with phagocytic activity.

결론

Cyclosporin A decreases collagen degradation by lowering phagocytic activity of rat gingival fibroblasts. Azithromycin partially compensates for this lowered phagocytic activity.

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