

THE USE OF TETRACYCLINE IN THE TREATMENT OF PERIODONTITIS

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Abstract

Background. Gingivitis and periodontitis are primarily bacterial infections caused by diverse groups of microorganisms. The prevalence and severity of the disease can be reduced by mechanical plaque removal or a variety of systemic and topically applied antimicrobial agents, with aim to selectively removing or inhibiting pathogenic bacteria. Tetracycline has been widely used in the treatment of localized and generalized periodontitis. **Objectives.** The purpose of this literature review is to show the potential therapeutic role of tetracyclines in the treatment of periodontal diseases. **Literature studies.** Tetracyclines are broadspectrum antibiotic that are effective against a wide range of microorganism. Tetracycline includes tetracycline-HCl, minocycline, and Doxycycline, all of which inhibit most putative periodontal pathogens, which can be used locally or sistemic. Tetracycline also has non-antimicrobial properties which can inhibit matrix metalloproteinases (MMPs). **Discussion.** Tetracycline can be a drug of choice to treat aggressive periodontitis, not because they were broadspectrum antibiotic, but because they also have the highest concentration in the gingival crevicular fluid, and they have the ability to inhibit matrix metalloproteinases (MMPs), which are responsible in periodontal breakdown. **Conclusion.** Tetracycline can be used to treat periodontitis and also to inhibit the progression of the diseases.

Key words: Tetracyclines, matrix metalloproteinases, periodontitis

Pendahuluan

Tetracycline telah digunakan secara luas pada perawatan penyakit periodontal, umumnya sering digunakan pada perawatan refractory priodontitis, termasuk localized aggressive periontitis(LAP), tetracycline mempunyai kemampuan berkonsentrasi di dalam jaringan periodontium dan menghambat pertumbuhan *Actinobacillus actinomycetemcomitans*. Sebagai tambahan tetracycline mengeluarkan antikolagenase yang dapat mencegah kerusakan jaringan dan membantu regenerasi tulang. Akan tetapi penggunaannya mulai berkurang, sejalan dengan meningkatnya resistensi mikroorganisme, perkembangan antibiotic baru, munculnya toksisitas pada tulang dan gigi anak dan meningkatnya

kekuatiran akan tetrasiklin yang tidak terserap, pada flora usus.

Setelah satu sejak dekade ditemukannya, tetracycline telah digunakan pada beberapa penyakit kulit dan menunjukkan adanya kemampuan/sifat antiinflamasi, disamping sifat antimikrobiaalnya, sasat ini penggunaannya juga telah berkembang untuk ; epidermolysis bullosum, bullous pemphigoid, rosacea, pyoderma gangrenosum dan lain-lain.

Pada 1983 Golub LM, melakukan percobaan untuk melihat peranan mikroorganisme dalam menginduksi kolagenase pada jaringan gingiva tikus yang menderita diabetes dan rapid progressively