Evaluation of the antimicrobial activity of tetracycline-HCl diluted in three vehicles on Fusobacterium nucleatum and Porphyromonas gingivalis

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Introduction & Objective: The development and progression of periodontal diseases is the results of the dynamic interaction of microorganisms in their habitat and their alteration generates a dysbiotic state. Fusobacterium nucleatum is a bridge microorganism between pioneer communities and red complex microorganisms responsible for periodontitis such as Porphyromonas gingivalis. The use of tetracycline-HCl as an adjuvant in the periodontal treatment is reported as an antiseptic but there are no clear principles of dilution or concentration. The objective is to evaluate the antimicrobial activity of tetracycline-HCl, dissolved in three vehicles: Distilled water, saline solution and Lidocaine 2% with Epinephrine 1:80,000 in cultures of Fusobacterium nucleatum and Porphyromonas gingivalis.

Method: The antimicrobial activity of tetracycline-HCl was evaluated in the content of 125, 250 and 500 mg dissolved in distilled water, saline and 2% Lidocaine with 1:80,000 Epinephrine (Newcaina 2% New Stetic S.A.); in different times of action: 30, 60 and 120 seconds on Fusobacterium nucleatum ATCC 25586 and Porphyromonas gingivalis ATCC 33277. This is the technique of Kelsey Maurer verifying the presence or absence of Colony Forming Units (CFU), each one by itself in triplicate with its corresponding viability controls.

Results: An inhibition of Fusobacterium nucleatum and Porphyromonas gingivalis was observed by tetracycline-HCl in 125, 250 and 500 mg dissolved in distilled water, saline and 2% Lidocaine with Epinephrine 1: 80,000 in times of 30, 60 and 120 seconds.

Conclusion: The results show that tetracycline-HCl is a good antimicrobial alternative for Fusobacterium nucleatum and Porphyromonas gingivalis regardless of the vehicle in which it was dissolved: Water, saline or Lidocaine 2% with Epinephrine 1:80,000 the times used here. Studies with more microorganisms and clinical studies are required to evaluate efficacy in vivo.

Biography

Andrea Escalante-Herrera is currently working as a Faculty of Medicine in Universidad Cooperativa de Colombia, USA

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