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2619 Antistress sensitivity of putative pathogens in Chinese periodontal patients

K.Y. ZEE, D.H. LEE and I.P. SAMARANAYAKE (Faculty of Dentistry, The University of Hong Kong)

The aim of the present study was to investigate the antistress sensitivity of the putative periodontal pathogens cultivable in Chinese patients suffering from advanced periodontal disease. Subjects with at least one tooth with severe periodontal involvement scheduled for extraction and who taking any antibiotics for at least 3 months were excluded from the study. A total of 20 samples were obtained from the bottom of the pocket before extraction. Each sample was dispensed in reduced transport fluid and cultured on unselective, selective and semi-selective media. All isolates were finally identified based on morphology, cultural and biochemical tests. Five commonly used antibiotics in Hong Kong: tetracycline, ampicillin, metronidazole, enrofloxacin and cotrimoxazole were selected and against the clinical isolate species using the Kirby-Bauer test. A total of 24 samples were obtained from 19 subjects. From the 24 samples, 33 strains of bacteria were isolated against the 5 antibiotics. Some of the MIC (mg/L) values of the various important species were shown below:

Monobactam Tetracycline Amoxicillin Erythromycin Metronidazole
A u 0.125 256 0.5 256 256
Furoxacin 0.125 256 0.5 256 256
Piperacillin 0.06 16 0.0625 16 16
Piperacillin-tazobactam 0.016 0.0625 0.016 0.0625 0.016
Sulbactam 0.06 0.25 0.0125 0.125 0.06
Ceftepim 0.125 0.5 0.125 0.25 0.0125 0.025 0.004 0.0125

Some of the operators yielded MIC values comparable to those in the literature. However, due to the scarcity of data, further efforts are required to establish such a relationship. The results obtained showed that a careful selection of antibiotics may be necessary during the treatment of periodontal diseases in Chinese patients. (This study was supported by Hong Kong Research Grant No 1060262).

2620 Dentin Permeability in Vivo After Application of Tetractic Acid

Solutions, M.T. TAUQIL, A. LUCCHESI, S. CHERTON, C. PRATI, Univ. of Bologna and Ferrara, ITALY

Introduction: Preliminary investigations demonstrated that tetractic salts solutions are able to create a layer of non-homogenous crystals able to close dentinal tubules and to reduce fluid flow and the bacterial penetration of the dentin. The aim of the present study was to determine the ability of a new solution consist of tetractic acid (TA) solutions to inhibit in vivo the fluid flow and the bacterial penetration of the dentin.

Materials and Methods: The dentine was prepared and treated with 1:1 EDTA for 2 minutes to remove the smear layer from the surface and to calculate the maximum rate for each tooth (to which an arbitrary value of 100% was associated). Discs were then embedded in polyester resin and sectioned at 100 microns. The smear layer was re-created in half of the samples. Solution was applied for 2 minutes, washed with water for 1 minute, and fluid flow rate was calculated thereafter. After 30 minutes, washed and fluid flow rate was calculated. SEM analysis was obtained for several samples. Measurements were made with a mean flow rate of 34.02 ± 5.21. (Student t-test, P < 0.05 for each group).

Results: The results showed that TA-solution, may prevent dentin from fluid leak and may reduce dentin hypersensitivity.

2622 Cutaneous Hypersensitivity Following a Mild Cold Injury on Human Skin

C. R. BERGER, K. K. KJAESEN, D. SIMONE (University of Minnesota, School of Dentistry and Medicine, Minneapolis, MN, USA)

Hypersensitivity to cold is often present following serve tissue injuries, whereby gentle cooling of the skin produces a painful sensation. The underlying peripheral neural mechanisms that mediate cold hypersensitivity are poorly understood. It is possible that t-tetroxyl acid (TA) may reduce the sensitivity to cold stimuli (reduced threshold and increased response to suprathreshold stimuli). In this study, we developed a model of cutaneous hyperalgesia by applying a cold conditioning stimulus (-35°C, 15 min) to the skin. Then, we assessed the ability of cold heat pain sensation evoked by a wide range of stimulus temperatures using a 1 cm² Peltier type thermode before and beginning 5 minutes after the CS (Cold 34°C to 37°C) and best (38-40°C) stimuli were delivered at an interval of 10 seconds. Cold pain threshold decreased as an average of 10.9 ± 3.9°C (p < 0.001) and the threshold for heat pain decreased 4.7 ± 1.1°C (p < 0.001). It was also observed that the quality of pain evoked by suprathreshold cold and heat stimuli increased significantly after the CS, and the quality of cold pain was decreased to a background sensation. The CS also produces a surrounding area of secondary hyperalgesia that stimulated a mechanical stimulus that measured 46.6 ± 28.8 mm (p < 0.001). Cutaneous, hyperalgesia to thermal and mechanical stimuli develops following a short cold injury. This model may be useful to study neural mechanisms that underlie cold hyp.