

ANTIBIOTIC ADJUNCTS TO PERIO DONTAL TREATMENT

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PERIODONTITIS

§ IS A COMPLEX DISEASE THAT INVOLVES THE LOSS OF ATTACHMENT AROUND TEETH RESULTING FROM ACTIONS OF MICROORGANISMS AND THE RESPONSE OF THE HOST TO THESE ORGANISMS.

§ Dental Clinics of North America Vol 42; Number 2; April 1998: 245-261.

PERIODONTITIS

§ THE MOST EFFECTIVE TREATMENT CURRENTLY REQUIRES MECHANICAL ROOT PREPARATION IN THE PRESENCE OR ABSENCE OF SURGICAL REVISION OF THE PERIODONTIUM.

PERIODONTITIS

§ TREATMENT CAN BE TIME CONSUMING, EXPENSIVE AND FRIGHTENING TO PATIENTS.

PERIODONTITIS

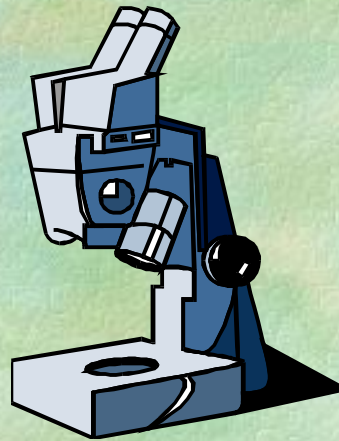
§ THE SEARCH FOR
A MAGIC BULLET
IS A HIGH
PRIORITY

PERIODONTITIS

- § A.a.
- § P. gingivalis
- § T. denticola
- § B. forsythus
- § P. intermedia
- § E. nodatum
- § Spirochetes

PERIODONTAL PATHOGENS

- § GRAM-NEGATIVE ANAEROBIC RODS
- § GRAM-POSITIVE FACULTATIVE AND ANAEROBIC COCCI AND RODS
- § GRAM-NEGATIVE FACULTATIVE RODS



PERIODONTAL PATHOGENS

- § TOTAL BACTERIAL LOAD
- § BINDING OF THE DRUG TO TISSUES
- § BIOINACTIVATION OF THE DRUG BY NONTARGET ORGANISMS
- § BIOFILM PRESENCE AFFORDING THE PATHOGEN PROTECTION
- § DRUG RESISTANT PATHOGENS
- § IMPAIRED HOST RESISTANCE
- § RECOLONIZATION FROM SUPRAGINGIVAL SITES AFTER TERMINATION OF ANTIMICROBIAL THERAPY

ANTIBIOTICS

- § PENICILLIN
- § MACROLIDES
- § TETRACYCLINE
- § CLINDAMYCIN
- § CIPROFLOXACIN
- § METRONIDAZOLE

PENICILLINS

- § INHIBIT BACTERIAL WALL SYNTHESIS
- § INDICATED IN ACUTE INFECTIONS FROM GRAM-POSITIVE BACTERIA
- § RESISTANT ORGANISMS
- § AMOXICILLIN MORE EFFECTIVE
- § CAN BE COMBINED WITH CLAVULINIC ACID WHICH PROTECTS AMOXICILLIN FROM DEGRADATION
- § NOT EFFECTIVE AGAINST Aa

PENICILLINS

§ CLINICALLY ADMINISTRATION DECREASED PLAQUE BUT PATIENTS DEVELOPED ABSCESSSES DURING THE STUDY WHICH WORSENEED THE CLINICAL PARAMETERS

§ NO SIGNIFICANT OR LASTING EFFECT WAS SEEN

§ Heluvo et al., Effects of penicillin and erythromycin on the clinical parameters of the periodontium. Jperio 1989;60:467-472

MACROGLIDES

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MACROGLIDES

- § ERYTHROMYCIN
- § CONTAINS A LACTONE RING TO WHICH SUGARS ARE ATTACHED WHICH BIND TO BACTERIAL RIBOSOMES AND DISRUPT PROTEIN SYNTHESIS
- § BACTERIOSTATIC
- § LIMITED ACTIVITY AGAINST PERIODONTAL PATHOGENS
- § LIMITED USE IN PERIODONTAL TREATMENT

TETRACYCLINES

- § MOST COMMONLY PRESCRIBED ANTIMICROBIALS IN PERIODONTICS
- § INHIBIT PROTEIN SYNTHESIS BY BINDING TO BACTERIAL RIBOSOMAL UNITS
- § BROAD SPECTRUM
- § INCLUDES TETRACYCLINE, DOXYCYCLINE, AND MINOCYCLINE
- § MORE EFFECTIVE AGAINST GRAM POSITIVE
- § GOOD ACTIVITY AGAINST SPIROCHETES, ANAEROBIC AND FACULTATIVE BACTERIA
- § HIGH CONCENTRATIONS IN CREVICULAR FLUID

TETRACYCLINES

§ CLINICAL USE IN ADULT PERIODONTITIS FOUND TETRACYCLINE TO BE NO DIFFERENT THAN PLACEBO RELATIVE TO CHANGES IN PROBING DEPTHS, ATTACHMENT LEVELS AND PERCENT SPIROCHETES.

§ AL Joburi et al., Effects of adjunctive treatment of periodontitis with tetracycline and spiramycin. Jperio 1989;60:533-539.

TETRACYCLINES

§ HAVE BEEN WIDELY USED IN TREATMENT OF BOTH GENERALIZED AND LOCALIZED JUVENILE PERIODONTITIS

§ Mandell, RL. et al., Microbiological and clinical effects of surgery plus doxycycline on juvenile periodontitis. Jperio 1988;59:373-379

TETRACYCLINES

§ RELATIONSHIPS WERE FOUND BETWEEN THE DECREASE OF Aa IN THE POCKET AND AN INCREASE IN PROBING ATTACHMENT LEVELS.

§ Van Winkelhoff, A. et al, Microbiology in diagnosis and treatment planning in periodontics. *Paradontol Implantol* 1994;13:439-450

TETRACYCLINES

§ CLINICAL USE IN REFRACTORY PERIODONTITIS WAS BENEFICIAL BY SIGNIFICANTLY REDUCING SPIROCHETES, MOTILE RODS, PROBING DEPTHS AND SUPPURATION.

§ Lundstrom A. et al., Effect of combined systemic antimicrobial therapy and mechanical plaque control in patients with recurrent periodontal disease. *Jclin Perio* 1984;11:321-330.

DOXYCYCLINE

- § A SIMILAR EFFICACY AND SPECTRUM OF ACTIVITY AS TETRACYCLINE
- § ELEVATED IN GINGIVAL CREVICULAR FLUID AT LEVELS COMPARABLE TO TETRACYCLINE
- § ABSORPTION OF DOXYCYCLINE IS LESS SENSITIVE TO THE PRESENCE OF FOOD

CLINDAMYCIN

- § EFFECTIVE AGAINST GRAM-POSITIVE AND MOST ANAEROBIC BACTERIA
- § INHIBITS BACTERIAL PROTEIN SYNTHESIS BY BINDING TO BACTERIAL RIBOSOMES
- § USE OF CLINDAMYCIN IN THE TREATMENT OF PERIODONTAL DISEASE HAS BEEN LIMITED BECAUSE OF POTENTIALLY SEVERE SIDE EFFECTS, SUCH AS ABDOMINAL DISCOMFORT, DIARRHEA, AND PSEUDOMEMBRANOUS COLITIS

CLINDAMYCIN

§ THE AUTHORS CONCLUDED THAT CLINDAMYCIN WAS EFFECTIVE IN CONTROLLING THE RATE OF ATTACHMENT LOSS IN REFRACTORY PERIODONTITIS PATIENTS

§ Gordon J, et al. Efficacy of clindamycin hychloride in refractory periodontitis. 12 month results. J Periodontal 1985;56:75-80.

CIPROFLOXACIN

§ A BROAD-SPECTRUM ANTIMICROBIAL THAT INHIBITS BACTERIAL DNA SYNTHESIS THROUGH ITS BINDING TO DNA GYRASE, AN ENZYME RESPONSIBLE FOR THE UNWINDING AND SUPERCOILING OF DNA.

§ EFFECTIVE AGAINST GRAM-NEGATIVE BACTERIA, STAPHYLOCOCCI, AND PSEUDOMONAS AERUGINOSA.

§ MAY PROMOTE THE REPOPULATION OF THE PERIODONTIUM WITH BENEFICIAL MICROFLORA BY VIRTUE OF ITS SELECTIVITY.

CIPROFLOXACIN

- § IT HAS A MINIMAL EFFECT ON STREPTOCOCCAL MICROBES
- § CIPROFLOXACIN THERAPY MAY FACILITATE THE REPOPULATION OF THE POCKET WITH MICROFLORA MORE ASSOCIATED WITH PERIODONTAL HEALTH

- § Slots J. et al., In vitro antimicrobial sensitivity of enteric rods and pseudomonads from advanced adult periodontitis. *Oral Microbiol Immunol* 1990;5:298-301.

METRONIDAZOLE

- § A BROAD- SPECTRUM ANTIMICROBIAL, DISPLAYING ACTIVITY AGAINST ANAEROBIC COCCI, GRAM-NEATIVE BACILLI, AND GRAM-POSITIVE BACILLI
- § PERMEABLE THROUGH THE BACTERIAL CELL WALL, THE DRUG BINDS DNA AND DISRUPTS THE HELICAL STRUCTURE. BREAKAGE OF THE DNA STRANDS FOLLOWS LEADING TO CELL DEATH.
- § LEVELS OF THE DRUG IN CREVICULAR FLUID CAN APPROACH TWICE THAT IN THE SERUM.

METRONIDAZOLE

§ THE EFFECT OF THE METRONIDAZOLE WAS MAINTAINED FOR A TWO TO THREE YEAR RECALL PERIOD. IT CAN SIGNIFICANTLY REDUCE THE NEED FOR PERIODONTAL SURGERY COMPARED TO DEBRIDEMENT ALONE.

§ Loesche WH, et al., Effects of metronidazole on periodontal treatment needs. J Periodontol 1991; 62:247-257.

METRONIDAZOLE

§ SHOWED COMPLETE ELIMINATION OF Aa IN NINE JUVENILE PERIODONTITIS SUBJECTS SIX OF WHOM LATER HAD SURGERY TO CORRECT RESIDUAL DEFECTS.

§ Saxen L, et al., In the treatment of localized juvenile periodontitis. J Clin Periodontal 1993;20:166-171.

METRONIDAZOLE

§ REFRACTORY PERIODONTITIS WITH OR WITHOUT OTHER ANTIBIOTIC COMBINATIONS HAS BEEN SUCCESSFULLY TREATED FOR UP TO TWO YEARS FOLLOWING PERIODONTAL DEBRIDEMENT PLUS METRONIDAZOLE

§ van Winkelhoff AJ, et al., Microbiology in the management of destructive periodontal disease. J Clin Periodontol 1991;18:411-420.

LOCAL DELIVERY OF ANTIBIOTICS

§ RECURRENT POCKETS IN THE PERIODONTAL MAINTENANCE PATIENT

§ THE AILING OR FAILING IMPLANT

§ PERIODONTAL ABSCESSSES

LOCAL DELIVERY OF ANTIBIOTICS

§ TETRACYCLINE
FIBER (ACTISITE)

§ DOXYCYCLINE
POLYMER
(ATRIDOX)

§ MINOCYCLINE
OINTMENT
(PERIOCLINE)

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42: Number 2: April 1998: 263-283.

ACTISITE

- § DELIVERY SYSTEM CONSISTS OF A POLYMER, ETHYLENE VINYL ACETATE, 25% SATURATED TETRACYCLINE HYDROCHLORIDE
- § CONTAINS 12.7 MG OF TETRACYCLINE HYDROCHLORIDE
- § THE FIBER RELEASES TETRACYCLINE AT A CONSTANT RATE FOR 14 DAYS
- § A CONCENTRATION MORE THAN 150 TIMES THAT ACHIEVED BY SYSTEMIC TETRACYCLINE
- § BACTERICIDAL CONCENTRATION OF TETRACYCLINE
- § FEWER SIDE EFFECTS
- § BEST WHEN USED IN COMBINATION WITH SCALING AND ROOT PLANING

ATRIDOX

- § A LIQUID BIODEGRADABLE DRUG DELIVERY SYSTEM THAT HARDENS IN THE PERIODONTAL POCKET AND GIVES A CONTROLLED RELEASE OF THE INCORPORATED AGENT
- § ADMINISTERED VIA SYRINGE
- § STUDIES IN PROGRESS UTILIZING THIS MATERIAL IN CONJUNCTION WITH ROOT PLANING AND SCALING
- § NOT FDA APPROVED

PERIOCLINE

- § MANUFACTURED IN JAPAN
- § APPLIED INTO THE POCKET WITH A SYRINGE AND BLUNT CANNULA
- § REDUCTION IN PROBING POCKET DEPTH IN SITES TREATED WITH SCALING AND ROOT PLANING