

Effect of antimicrobial agents on oral microorganisms

Kudiyirickal Marina George

Examiner's report

The subject of dissertation deals with a permanently topical problem of oral cavity microbial colonization and its participation in etiology and progression of oral diseases and subsequently with possibilities of systemic antibacterial strategy. Due to the large number of bacterial species inside the oral cavity and different possibilities of bacterial detection, such type of research work is mostly specifically directed to selected groups of bacterial species and results can be interpreted within the bounds of possibility of given laboratory and hospital. From this point of view, given retrospective study used routinely performed bacterial examinations of samples taken in connection with the treatment of various types of oral diseases. Dominantly, bacteria outside the spectrum of typical suspect periodontal pathogens and bacteria of infected root canals were detected.

Standard methods for cultivation of strict and facultative anaerobes and aerobes were used. Subsequently diffusion tests or microdilution broth method were used for antimicrobial susceptibility tests of cultivated bacteria. Data were analyzed to evaluate the relationships between specific microbes and gender. Relationships between specific microbes and their antibiotic sensitivity were also analysed. Within the limits of possibilities of bacterial detection and clinical documentation appropriate processing methods were used.

Results of this study confirmed a broad bacterial spectrum which is involved in the etiology and development of oral diseases of microbial origin. Both sexes had equal predilection for the disease and no significant changes in male/female ratio were recorded. Moreover the results indicated that despite of diversity and polymicrobial nature of odontogenic and nonodontogenic oral diseases, the choice of sensitive antibiotic therapy is relatively simple and generally based on activities of amoxicillin and amoxicillin/clavulanic acid. On the other side, increase of resistance of tested oral microbiota to tetracyclines was remarkable. Rationale use of both groups of antibiotics is recommendable in the spite of possible increase of sensitivity and therapeutical problems in future.

The study provokes some questions and additions:

1. In the study only a part of oral pathogens was detected and discussed. Probably the formulation „selected oral microorganisms“ will be more accurate in the title
2. Are there differences in spectra of detected microbiomes in the groups of odontogenic and nonodontogenic infections?
3. Why the susceptibility of detected oral bacteria, especially of obligate anaerobes to metronidazol was not evaluated?
4. How to explain the fact that only 14% of samples for cultivation were isolated from abscesses.

In view of the fact that continual rapid progress in oral microbiology is apparent, presented study would deserve the use of contemporary microbiological nomenclature and recent citations in literature overview.

Despite of aforementioned remarks the goals of research study were fulfilled and I can recommend it to the procedure of dissertation defence.

Pilsen, June 12th, 2012

Assoc. Prof. Pavel Poleník, MD, PhD
Dept. of Dentistry
Faculty of Medicine in Pilsen
Charles University in Prague