



## **Periodontal Therapy and the Medical Model for Treating a Systemic Bacterial Disease**

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Dentists are confronted with a strong and consistent organizational message that the use of systemic antibiotics to adjunctively treat periodontitis is inappropriate. Of the thousands of studies and research articles released since 2005 on the subject, only a select few have been chosen to frame the message that systemic antibiotic use has greater risks than benefits.

The vast majority of current cited research, reports on periodontal architecture as the success determinant. In short, some of the leadership guiding the publication of evidence and guidelines for treating periodontal disease state that pocket depths, recession levels, and bleeding on probing show no significant difference when mechanical debridement is the primary therapy rather than both it and adjunctive systemic antibiotics.

None of the evidence being presented to dental practitioners depicts pathogen assessments both prior to and following treatment as being a consideration for either method's effectiveness. Dentists who are engaged in the oral systemic movement are aware of many studies, which have shown superior local outcomes with the use of systemic antibiotics specific for pathogens identified in a pre-treatment test. The same are aware that tissue architecture is not relative to the presence or absence of disease... it is pathogen concentrations that determine the infection is in place, or not.

### **Periodontitis is a Systemic Disease**

Current evidence is overwhelming that periodontal disease is a systemic disease. Periodontal pathogens, especially the gram negative late colonizers, are found associated with and linked to cardiovascular disease, diabetes, and pre-term birth events to simply name a few. Medicine and

dentistry will soon learn that several of these organisms are now causal to some cardiovascular disease and will be moved up beyond the 'level A' designation.

These deadly pathogens are now established as regularly available in a systemic bacteremia, are present in a systemic micro-biome, are existing as dormant pathogens and in dormant micro-biomes, and are reproducing in an atherosclerotic micro-biome. The question mainstream dentistry has to answer... "is local debridement enough to treat these pathogens?"

It is an established fact that periodontal bacteria cause an increase in both local and systemic inflammation. Systemic cytokine levels can be measured to increase and decrease as pathogen concentrations are elevated or mitigated. The distant translocation of these pathogens is creating an inflammatory cascade at the sites they have populated. The overburden of inflammatory markers and pathogens themselves has the effect to kill and or mutate cells distant from the oral cavity. The question mainstream dentistry has to answer... "is local debridement enough to treat these pathogens and their inflammatory impact?"

### **The Medical Model**

When medicine confronts bacterial diseases of the body, antibiotics are prescribed quickly and efficiently in the best interest of the host. Antibiotic use to remedy bacterial pneumonia, meningitis, tetanus, salmonella, gonorrhea, sinusitis, cholera, urinary tract infection, and appendicitis is accomplished without decades of professional dialogue or debate on the risks and benefits. Periodontal disease, perhaps the most prolific human bacterial infectious disease, is seemingly held to a different standard.

### **A Risk-Benefit Discussion**

Opponents of the adjunctive use of systemic antibiotics purport that the risk of contracting *Clostridium difficile* [*Cdiff*] is too great. The death incidence for this event is approximately 11/100,000. Certainly that impact needs careful consideration, but also must be weighed against the very high cardiovascular event numbers. Studies have shown that the incidence of cardiac events increases 50% in the first four weeks following scaling and root planning [invasive dental procedure]. The normal incidence of heart attacks in the 50 to 80 year old population is approximately 560/100,000. Those numbers could potentially go up to 870/100,000 in the four weeks after debridement with about 260/100,000 ending in death. The cardiac numbers are from the 2016 AHA statistics, despite not being adjusted for confounding factors; they depict a perspective of the very large numbers of cardiovascular events compared to *Cdiff* events.

### **Antibiotic Stewardship and Systemic Antibiotics**

The key to antibiotic stewardship is identifying high-risk patients. Patients whose current overall medical history has compromised the body's ability to mitigate pathogens; a compromised immune response because of an ongoing systemic burden of inflammation. In addition, recognize patients who are genetically recessive and are incapable of warding off pathogens or even over reacting to high-risk organisms in a way that enhances any given chronic disease.

The appropriate use of systemic antibiotics in the treatment of periodontal disease is to prescribe them for high-risk patients in which high-risk pathogens have been identified. In the end, perhaps dentistry has been under-prescribing systemic antibiotics and our patients have incurred greater levels of chronic disease directly associated with periodontitis.



## Contributor:

Graduate of Loma Linda University School of Dentistry in 1976 and been engaged in clinical dentistry for almost four decades. In addition to numerous post-graduate continuums in reconstructive dentistry, has completed Dawson Academy's Dental Institute for Systemic Health, the Bale/Doneen method preceptorship for cardio-vascular health, and is a member of AAOSH. As a certified coach and practicing dentist, he promotes leadership development and oral systemic clinical practice within dentistry. Dr. Kempton is engaged at every level helping dentists and dental teams achieve... and become more.