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Diode laser treatment as an alternative to antibiotic premedication: Examining the efficacy of diode laser therapy on periodontal bacteria

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Diode lasers used in the treatment of periodontal therapy are becoming more prevalent in dental offices. Patients with periodontal disease see extensive improvements in their periodontal status and overall health with laser therapy. Studies have shown a decreased prevalence in oral bacteria following these treatments. Dental lasers in the treatment of periodontal disease can reduce significantly the bacterial population in the gingival tissue, theoretically reducing the need for antibiotic premedication. Future research in this area can provide the groundwork for the advancement of laser therapy in all aspects of medicine as well. Dental hygienists treat numerous patients who require antibiotic premedication prior to treatment due to medical issues including prosthetic joint implants (PJI) and certain cardiovascular diseases. The medication is used to prevent or reduce infection at the site of the PJI resulting in replacement of the implant or bacterial invasion into heart tissue resulting in bacterial endocarditis. Such infections can increase both morbidity and mortality of an already medically compromised patient. Patients may acquire resistance to many medications, including antibiotics, if these drugs are needlessly taken and antibiotic premedication protocols have changed over the past three decades in order to prevent strains of antibiotic resistant bacteria. All health care providers including dental hygienists should search for new treatment methods that may reduce need for antibiotic use that present less risk to a patient's health. Research has demonstrated the efficacy of dental lasers' ability to significantly reduce bacterial pathogen level in the oral cavity. Many of the same pathogens responsible for periodontal disease are indirectly responsible for bacterial endocarditis. Further study is needed to provide conclusive evidence related to oral bacteria (mutans streptococci) and PJI infections. Diode laser therapy is a treatment highly recommended for patients regardless of their periodontal status. Laser bacterial reduction or LBR reduces the number of bacterial pathogens present in a patient's mouth from billions to hundreds. Due to the increasing popularity of laser therapy, more research should be conducted regarding the efficacy of laser bacterial reduction and the necessity of antibiotic pre-medication.

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