

PS-013. Efficacy of Antimicrobial Toothbrushes

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Toothbrushes in regular use can become heavily contaminated with microorganisms, which can cause infection or reinfection. Over 700 bacterial species, as well as fungi, viruses, and transient microorganisms, are present in the oral cavity that may or may not cause various diseases. The pathogenic microorganisms may cause oral and systemic diseases, including septicemia; gastrointestinal, cardiovascular, respiratory, and renal problems. This condition is specifically important for children, the elderly, and high-risk patients, including immunosuppressed individuals or those undergoing organ transplantation or chemotherapy. This matter has received little attention by many researchers in the past but in recent studies antimicrobial coated toothbrushes seem to be the solution of this issue however there are contradictory results in researches. In a study determining the efficacy of toothbrushes that advertise self-disinfecting, antimicrobial properties due to the inclusion of silver nanoparticles or chlorhexidine in the bristles compared to regular ones; neither of the antimicrobial toothbrushes delivered the advertised claim of a 99.9% reduction in CFUs with either microorganism (*Streptococcus mutans*, *Candida albicans*). In another study, antimicrobial (Microban) added toothbrush showed lower microbial counts (*Porphyromonas gingivalis*, *Actinobacillus actinomycetemcomitans*, *Prevotella* species) than those without. A study showed no significant reduction in bacteria colonies by silver-coated toothbrushes for all of the microorganisms tested. On the contrary, the colony counts for *S. sanguis* and *C. albicans* were significantly higher on silver-coated toothbrushes compared to the controls. In a study aimed to evaluate the effectiveness of alternative methods for toothbrush disinfection, white vinegar was considered to be effective for tested microorganisms. Similarly, 1% NaOCl was found to be cost-effective, easily accessible, and effective for toothbrush disinfection. Although different methods have been investigated for toothbrush disinfection in the literature, there still is a need for further research about toothbrush disinfection methods, which are rapidly effective, cost-effective, nontoxic, and that can be easily implemented

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