The effectiveness of oral antiseptic on biofilm of opportunistic bacteria isolated from the oral cavity of patients with head and cervico-thoracic cancer

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The oral cavity may be the main reservoir of opportunistic microorganisms, commonly associated with metastatic infections in immunocompromised patients as well as individuals submitted to radiochemotherapic treatment in the head and neck area. Then, this study evaluated the production of biofilms by opportunistic bacteria and their respective resistance to different antiseptics. **Methods**: A total 21 *Pseudomonas aeruginosa, 20 Staphylococcus* spp. and 20 *Enterobacteriaceae* species were isolated from oral cavity of patients before, during or after cervical-thoracic cancer treatment. To test the formation of biofilm, about 10^5 $UFCmL^{-1}$ of each isolate were inoculated into BHI with 0.5 % sucrose in polystyrene U-bottom microplates and incubated at 37 °C for 48h. The biofilm growth was revelead and quantified by staining with crystal violet (1%). Crystal violet absorbance was determined with a plaque reader at 630 nm. To test the effectiveness of the antiseptic, the biofilms preformed were treated with 0.12 % chlorhexidine, 0,2% triclosan 0.2 % or 0,05% cetylpyridinium chloride. Surviving cells were quantified by comparing with the control group (biofilms treated with sterile saline). All tests were performed in quadruplicate. **Results:** *Pseudomonas aeruginosa's* biofilms were more resistant to antiseptics than *Staphylococcus* and *Enterobacteriaceae*. Chlorexidine, triclosan and cetylpyridinium inhibited completely about 45%, 37% and 25% of tested strains, respectively. Although, on average 64% (39/61) of bacterial biofilms approved circumstantial resistant to one or more antiseptics (Student T test, $p < 5\%$), and the number of viable cells did not decreased comparing to control, after antiseptic treatment. **Conclusion:** The biofilm lifestyle may present a circumstantial resistance and, therefore, the use of mouthwash may be an inefficient practice in antimicrobial control of opportunistic pathogens in the oral cavity. This study emphasizes the importance of mechanical removal of dental biofilm before treating it chemically, aiming to better prevention of possible metastatic infections by oral cavity source.

Keywords: Biofilm, antiseptics and metastatic infections, prevention, antimicrobial control

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