Original Article

Effectiveness of erythrosine-mediated photodynamic antimicrobial chemotherapy on dental plaque aerobic microorganisms: A randomized controlled trial

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Abstract:

Background: Dental plaque is one of the predominant causes of major oral diseases. Although mechanical and chemical methods are extensively followed to control the development of plaque, plaque-related diseases still persist. Therefore, this necessitates for alternative measures of plaque control, one such alternative is photodynamic antimicrobial chemotherapy (PACT). **Materials and Methods:** Split mouth randomized clinical trial (CTRI/2017/03/008239) was conducted on 30 participants who reported to the hospital. Participants were asked to rinse their mouth for 1 min using 10 ml of 25 μM erythrosine solutions. Same tooth on both quadrants of the same jaw are selected as the test and control. Intervention used was halogen-based composite curing light with wavelength of 500–590 nm. Plaque sample from the control tooth and test tooth was collected before and after exposure, respectively, and sent to microbiological laboratory for colony count. **Results:** Logarithmic mean and standard deviation of control group with 10^2 dilutions of aerobic microbial count were found to be 5.34 ± 0.94, and for experimental group, it was 4.47 ± 1.37. The statistical difference between mean CFU values between aerobic bacterial counts was significant ($P = 0.006$). **Conclusions:** Erythrosine-mediated PACT reduces the extent of dental plaque microbial count and has a potential preventive and therapeutic use in day-to-day life and dental clinics.

Key words:

Dental plaque, erythrosine, photodynamic antimicrobial chemotherapy

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