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Case Reports

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Photodynamic Therapy as Novel Treatment for Halitosis in Adolescents: A Case Series Study

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Abstract

Introduction: Halitosis is a common problem that affects a large portion of the population worldwide. The origin of this condition is oral in 90% of cases and systemic in 10% of cases. The foul odor is caused mainly by volatile sulfur compounds produced by Gram-negative bacteria. However, it has recently been found that anaerobic Gram-positive bacteria also produce hydrogen sulfide (H₂S) in the presence of amino acids, such as cysteine. Light with and without the combination of chemical agents has been used to induce therapeutic and antimicrobial effects. In photodynamic therapy, the antimicrobial effect is confined to areas covered by the photosensitizing dye. The aim of the present case series study was to evaluate the antimicrobial effect of photodynamic therapy on halitosis in adolescents through the analysis of volatile sulfur compounds measured using a sulfide meter (Halimeter®).

Methods: Five adolescents aged 14 to 16 years were evaluated using a sulfide meter before and one hour after photodynamic therapy, which involved the use of methylene blue 0.005% on the middle third and posterior thirds of the dorsum of the tongue and nine points of laser irradiation in the red band (660 nm) with an energy dose of 9 J, power output of 100 mW and 90-seconds exposure time.

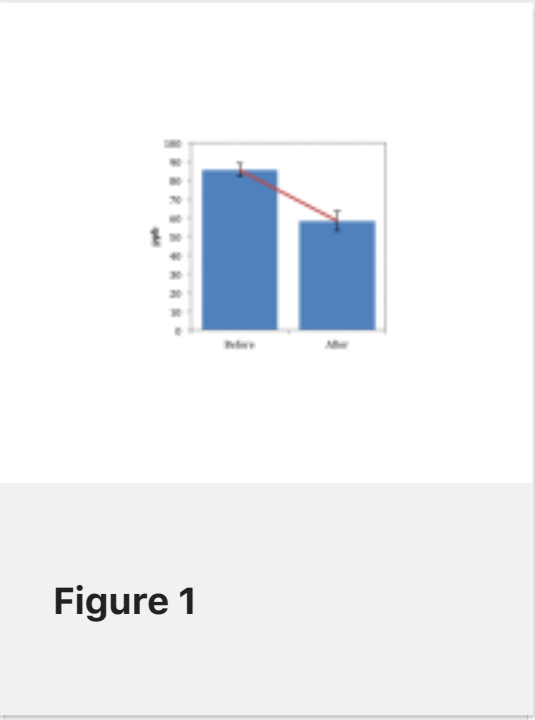
Results: A 31.8% reduction in the concentration of volatile sulfur compounds was found in the comparison of the initial and final readings. The statistically significant reduction (p = 0.0091) led to an absence of halitosis following treatment (mean: 58.2 ppb).

Conclusion: Photodynamic therapy seems to be effective on reduction the concentration of volatile sulfur compounds. Considering the positive effects of photodynamic therapy in this case

series, further studies involving microbiological analyses should be conducted to allow comparisons of the results.

Keywords: adolescent; laser; photodynamic therapy.

Figures



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