

## Side effects associated with chlorhexidine mouthwashes use

Petrovski Mihajlo<sup>1</sup>, Terzieva-Petrovska Olivera<sup>1</sup>, Tashkov Tamara<sup>2\*</sup>, Papakoca Kiro<sup>1</sup>

<sup>1</sup>Faculty of medical Sciences, Goce Delcev University, Krste Misirkov BB, 2000 Stip, Republic of North Macedonia

<sup>2</sup>Clinical hospital Stip, Ljuben Ivanov BB, 2000, Stip, Republic of North Macedonia

### Introduction

Chlorhexidine, a broad-spectrum antimicrobial cationic bisbiguanide, is used as topical antiseptic for the treatment of inflammatory dental conditions, especially gingivitis. It is approved by the American Dental Association as an antibacterial and anti-inflammatory agent and is one of the most effective antimicrobial agents for reducing the amount of dental plaque and periopathogenic microorganisms over a long period of time. Also, chlorhexidine use shows positive effects after periodontal surgery, participating in healing. However, its efficacy in cases where periodontal disease is present has not yet been established (Lim and Kam, 2008).

Chlorhexidine-containing products are present on the market in the Republic of North Macedonia mostly in the form of mouthwashes or as gels for intraoral use. All mouthwashes present on the market in our country contain 0.12% chlorhexidine and 11.6% alcohol with a pH of 5.5.

Numerous side effects caused by chlorhexidine use have been reported in the literature. The most common side effects include: tooth color modification, reversible desquamation of the oral epithelium, alteration of the sense of taste and increased deposits, especially in the subgingival region (Balagopal and Arjunker, 2013; Flotra et al., 1971).

Based on the aforementioned facts regarding the possibility of side effects when using chlorhexidine, the main goal of this research was to assess the most common complications when using chlorhexidine mouthwashes in everyday dental clinical practice in Republic of North Macedonia.

### Materials and methods

An online survey among dentists was conducted to assess the prevalence of various complications that occur with chlorhexidine use. A total number of 41 dentists, employed in public and private dental health organizations or offices, participated in this study.

The survey consisted of three questions: (1) whether dentists recommend the use of chlorhexidine as an adjunct to the basic activity for oral hygiene maintain among their patients; (2) what are the most common complications encountered in patients using chlorhexidine-containing mouthwashes, and (3) whether these complications are related to the duration of use of chlorhexidine-containing mouthwashes.

Adequate instructions necessary to fulfill the questionnaire were given to all participants of this study. The questions were simple and respondents were given freedom to write answers that are in correlation to their knowledge and attitude.

The collected data was statistically analyzed using SPSS (Statistical Package for Social Sciences) version 17.0. Descriptive statistics was drawn with respective percentages to have a comparative overview.

### Results and discussion

Based on the obtained results, it can be noticed that most of the dentists participating in the study, or more precisely 87.8% recommend mouthwashes to their patients. The most common reason for recommendation of such type of mouthwashes are mouth odor-fetor ex ore (70.7%) and gingival or periodontal diseases (80.5%). Other reasons, in a significantly lower percentage, include the inability to maintain adequate oral hygiene, usage of

orthodontic appliances and fixed prosthodontic appliances.

According to Fiorillo (2019), chlorhexidine, used as a mouthwash, is mostly used in order to reduce oral bacterial flora. Furthermore, this product can be used for prevention and treatment of related plaque diseases and some forms of gingivitis or periodontitis.

The most common side effect the surveyed dentists noticed in patients or the patients had complaints about was: (1) inappropriate taste or taste disturbance (85.4% of dentists noticed it as the most common side effect), (2) xerostomia (78.1%) and (3) tooth discoloration (58.6%). In a smaller percentage, the most common side effects caused by chlorhexidine are: changes in the oral mucosa, occurrence of burning mouth syndrome, allergic reactions, etc. According to Brookes et al. (2020), chlorhexidine as a mouthwash or topical oral gel is not without adverse effects, some of the most common being dry mouth (xerostomia), altered taste sensations (hypogeusia), specifically salt and bitter, and a discolored or coated tongue. The data presented in this study largely coincide with the results obtained in our study.

Based on the answers received from dentists, it can be noticed that most dentists or 80.5% of the surveyed clinicians believe that the side effects caused by chlorhexidine are positively correlated with the duration of use of chlorhexidine mouthwashes. Surveyed dentists believe that this finding implies that people using such mouthwashes for a long time are more likely to develop one or more side effects.

The existence of a link between the duration of treatment with chlorhexidine-containing mouthwashes and the occurrence of side effects has been also confirmed by other published studies (Haraji and Rakhshan, 2015; Slot et al., 2010).

## Conclusion

According to the results obtained in our study, although the application of chlorhexidine mouthwashes has a number of positive effects, it can also be related with numerous side effects, depending on duration of usage.

## References

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