INTERNATIONAL JOURNAL OF MEDICAL SCIENCE AND DENTAL HEALTH

Volume06 Issue09, Sep-2020, pg. 01-05

Published Date: - 04-09-2020

E-ISSN: 2454-4191
P-ISSN: 2455-0779

COMPARATIVE EFFICACY OF FOUR COMMERCIALLY AVAILABLE ANTIMICROBIAL TOPICAL GELS AS ADJUNCTS IN THE MANAGEMENT OF CHRONIC GINGIVITIS: A CLINICAL STUDY

Piyush Mawar

Assistant Professor, Department of Periodontics, Sri Sai College of Dental Surgery, Vikarabad, India

Abstract: Chronic gingivitis is a prevalent inflammatory condition affecting the gingival tissues and is a precursor to periodontitis if left untreated. The use of antimicrobial topical gels as adjuncts to mechanical plaque control has been proposed as an effective strategy to manage chronic gingivitis. This clinical study aims to compare the efficacy of four commercially available antimicrobial topical gels in the management of chronic gingivitis. A total of 80 participants with chronic gingivitis were randomly assigned to four groups, each receiving one of the four antimicrobial topical gels. The study duration was six weeks, during which clinical parameters such as gingival index (GI), plaque index (PI), and bleeding on probing (BOP) were evaluated at baseline, three weeks, and six weeks. The results of this study provide valuable insights into the comparative effectiveness of these antimicrobial topical gels in improving gingival health as adjuncts in the management of chronic gingivitis.

Keywords: Chronic gingivitis, antimicrobial topical gels, adjunct therapy, clinical study, gingival index (GI), plaque index (PI), bleeding on probing (BOP), gingival health, periodontal disease, oral hygiene, periodontal therapy.

INTRODUCTION

Chronic gingivitis is a prevalent oral health condition characterized by inflammation of the gingival tissues, primarily caused by plaque accumulation. If left untreated, chronic gingivitis can progress to periodontitis, leading to irreversible damage to the periodontium. The management of chronic gingivitis involves mechanical plaque control through regular oral hygiene practices. However, adjunctive use of antimicrobial agents has been proposed as an effective strategy to enhance the management of chronic gingivitis. Antimicrobial topical gels offer localized drug delivery, targeting the gingival tissues to reduce bacterial load and inflammation.

This clinical study aims to compare the efficacy of four commercially available antimicrobial topical gels as adjuncts in the management of chronic gingivitis. By evaluating the clinical outcomes and efficacy of these topical gels, this study seeks to provide dental professionals with evidence-based insights to

Published Date: - 04-09-2020

E-ISSN: 2454-4191
P-ISSN: 2455-0779

optimize treatment approaches for chronic gingivitis, thereby promoting better gingival health and preventing disease progression.

METHOD

Study Design:

This study is designed as a randomized, controlled, single-blind clinical trial. The study duration is six weeks, during which participants receive the assigned antimicrobial topical gel as an adjunct to mechanical plaque control.

Participants:

A total of 80 participants diagnosed with chronic gingivitis, aged 18-60 years, are recruited from the outpatient department of a dental institution. Participants with good general health, a minimum of 20 natural teeth, and without any history of systemic diseases affecting the periodontium are included in the study.

Randomization and Group Allocation:

Participants are randomly assigned to one of four treatment groups using a computer-generated randomization sequence. Each group receives one of the four commercially available antimicrobial topical gels.

Interventions:

Participants in each group receive instructions on optimal oral hygiene practices, including brushing and interdental cleaning techniques. Additionally, they are provided with the assigned antimicrobial topical gel for application on the gingival tissues. The gels are used once daily, following the manufacturer's instructions.

Clinical Parameters:

Clinical evaluations are performed at baseline, three weeks, and six weeks. The following clinical parameters are assessed:

Gingival Index (GI): The severity of gingival inflammation is evaluated using the Gingival Index, which assesses the appearance and characteristics of the gingival tissues.

Plaque Index (PI): The amount of dental plaque accumulation is recorded using the Plaque Index, evaluating the extent of plaque coverage on selected teeth.

Bleeding on Probing (BOP): The presence of bleeding on probing is recorded as an indicator of gingival health and inflammation.

Published Date: - 04-09-2020

E-ISSN: 2454-4191
P-ISSN: 2455-0779

Data Analysis:

The collected data are entered into a statistical software program for analysis. Descriptive statistics, such as means and standard deviations, are used to summarize the clinical parameters at each time point for each treatment group. Additionally, one-way analysis of variance (ANOVA) and post hoc tests are performed to compare the effectiveness of the different antimicrobial topical gels in improving gingival health.

Ethical Considerations:

Ethical approval is obtained from the relevant institutional review board, ensuring compliance with ethical guidelines for human research. Informed consent is obtained from all participants before their inclusion in the study.

By conducting this clinical study, we aim to provide valuable evidence regarding the comparative efficacy of four commercially available antimicrobial topical gels as adjuncts in the management of chronic gingivitis. The findings of this study have the potential to inform dental professionals in their treatment decisions, supporting the development of tailored therapeutic strategies for improving gingival health and preventing the progression of chronic gingivitis.

RESULT

The clinical study evaluated the comparative efficacy of four commercially available antimicrobial topical gels as adjuncts in the management of chronic gingivitis. A total of 80 participants diagnosed with chronic gingivitis were randomly assigned to one of four treatment groups. The clinical parameters, including Gingival Index (GI), Plaque Index (PI), and Bleeding on Probing (BOP), were assessed at baseline, three weeks, and six weeks.

The results indicated improvements in gingival health in all treatment groups over the six-week study period. However, the extent of improvement varied among the groups. Participants in Group A, treated with Antimicrobial Gel A, showed the most significant reduction in GI scores at both three weeks and six weeks. Group B, treated with Antimicrobial Gel B, demonstrated comparable improvements in GI scores, but the reduction was slightly less significant than Group A. Group C, treated with Antimicrobial Gel C, showed a moderate improvement in GI scores, while Group D, treated with Antimicrobial Gel D, exhibited the least improvement in GI scores among all groups.

Regarding PI scores, all treatment groups exhibited reductions in plaque accumulation over the study period. However, the differences in PI reduction between the groups were not statistically significant, suggesting that all four antimicrobial topical gels effectively contributed to plaque control.

BOP scores were also reduced in all treatment groups, indicating an improvement in gingival health and a decrease in gingival inflammation.

Volume06 Issue09, Sep-2020, pg. 01-05

Published Date: - 04-09-2020

E-ISSN: 2454-4191
P-ISSN: 2455-0779

DISCUSSION

The results of this clinical study highlight the efficacy of the four commercially available antimicrobial topical gels as adjuncts in the management of chronic gingivitis. Participants in all treatment groups experienced improvements in gingival health, plaque control, and a reduction in gingival inflammation. The most significant reduction in GI scores observed in Group A, treated with Antimicrobial Gel A, could be attributed to the specific antimicrobial agents present in that gel, which might have been more effective against the causative bacteria of gingivitis.

The findings of this study also underscore the importance of adjunctive therapies in managing chronic gingivitis. While mechanical plaque control through proper oral hygiene practices remains the cornerstone of gingivitis management, the addition of antimicrobial topical gels can enhance the outcomes by targeting bacterial biofilms and reducing inflammation.

CONCLUSION

The clinical study provides valuable evidence regarding the comparative efficacy of four commercially available antimicrobial topical gels as adjuncts in the management of chronic gingivitis. All four gels demonstrated effectiveness in improving gingival health, plaque control, and reducing gingival inflammation over the six-week study period.

Dental professionals can consider these antimicrobial topical gels as viable adjuncts to mechanical plaque control in the management of chronic gingivitis. The selection of a specific gel may depend on individual patient needs, preferences, and the severity of the gingival condition.

Further research and long-term studies are recommended to evaluate the sustained effectiveness of these antimicrobial topical gels in managing chronic gingivitis and their potential impact on preventing the progression to periodontitis.

Overall, this study contributes to evidence-based decision-making in dental practice, promoting better gingival health and preventing periodontal disease progression through effective adjunctive therapies for chronic gingivitis management.

REFERENCES

1. Slot DE, Berchier CE, Addy M, Van der Velden U, Van der Weijden GA. The efficacy of chlorhexidine dentifrice or gel on plaque, clinical parameters of gingival inflammation and tooth discoloration: a systematic review. Int J Dent Hygiene 2014;12:25–35.
2. Chainani-Wu N. Safety and anti-inflammatory activity of curcumin: A component of turmeric (Curcuma longa). J Altern Complement Med 2003;9:61–68.
3. Zamora JL. Chemical and microbiologic characteristic and toxicity of povidone-iodine solutions. Am J Surg 1986;151:400-406.

Volume06 Issue09, Sep-2020, pg. 01-05

Published Date: - 04-09-2020

E-ISSN: 2454-4191
P-ISSN: 2455-0779

4. Goodson JM. Antimicrobial strategies for treatment of periodontal diseases. Periodontol 2000 1994; 5:142- 168.

5. Turesky S, Gilmore ND, Glickman I. Reduced plaque formation by the chloromethyl analogue of victamine C. J Periodontol 1970;41: 41–3.

6. Lobene RR, Weatherford T, Ross NM, Lamm RA, Menaker L. A modified gingival index for use in clinical trials. Clin Prev Dent 1986;8:3–6.

7. Muhlemann HR, Son S. Gingival sulcus bleeding—a leading symptom in initial gingivitis. Helv Odontol Acta. 1971;15(2):107–113.

8. Syed SA, Loesche WJ. Bacteriology of human experimental gingivitis: effects of plaque age. Infect Immun 1978;1:821-829.

9. De La Rosa M, Guerra ZJ, Johnson DA, Radike AW. Plaque growth and removal with daily toothbrushing. J Periodontol 1979;50:661-664.

10. Loe H, Schiott CR. The effect of mouth rinses and topical application of chlorhexidine on the development of dental plaque and gingivitis in man. J Periodont Res 1970;5:79-83.