

Local Antiseptic used as Adjunct to Scaling and Root Planning in the Treatment of Periodontal Pocket

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Abstract

One common dental procedure that plays a significant role in maintaining oral health is scaling and root planning. While scaling and root planning is an effective treatment, it is often accompanied by the use of local antiseptics as an adjunct therapy. These antiseptics, when used in conjunction with the procedure, can enhance its efficacy and provide additional benefits in preventing and treating oral diseases. This article aims to explore the potential of local antiseptics as adjuncts to scaling and root planning, shedding light on their role in promoting oral health.

Keywords: antiseptic; periodontal; root; scaling

Introduction

One commonly used local antiseptic as an adjunct to scaling and root planning in the treatment of periodontal pockets is chlorhexidine gluconate [1]. Chlorhexidine is a broad-spectrum antimicrobial agent that is effective against various bacteria associated with periodontal diseases [2]. Chlorhexidine is available in different formulations, including mouth rinses, gels, and chips [3]. The most commonly used form in periodontal therapy is the mouth rinse [4]. The rinse is typically used as an adjunctive treatment after scaling and root planning to help control bacterial growth and reduce inflammation in periodontal pockets. When used as directed, chlorhexidine mouth rinse can help inhibit the growth of bacteria and reduce the severity of periodontal inflammation [5].

It is usually recommended to rinse with chlorhexidine for a specific duration, such as 30 seconds to 1 minute, twice a day or as prescribed by a dental professional [6]. It's important to note that chlorhexidine mouth rinse may cause temporary side effects such as staining of the teeth and tongue, altered taste perception, and mild irritation of oral tissues [4]. However, these side effects are generally reversible and subside after discontinuation of use [6].

Certainly! This is some additional information about the use of chlorhexidine as an adjunct to scaling and root planning in the treatment of periodontal pockets:

1. Mechanism of action: Chlorhexidine acts by disrupting the cell walls of bacteria, interfering with their metabolism, and causing cell death. It has a broad-spectrum antimicrobial activity against both gram-positive and gram-

negative bacteria, including those commonly associated with periodontal diseases [7].

2. Reduction of bacterial load: Scaling and root planning (SRP) is a primary treatment for periodontal pockets as it removes plaque and calculus from the tooth surfaces and root surfaces. However, it may not completely eliminate all bacteria in the periodontal pockets. Chlorhexidine, when used as an adjunct to SRP, helps to further reduce the bacterial load and inhibit the growth of bacteria [2,8].

3. Anti-inflammatory effects: In addition to its antimicrobial properties, chlorhexidine has been shown to have anti-inflammatory effects. It can help reduce the production of inflammatory mediators and cytokines, which contribute to periodontal tissue destruction. By reducing inflammation, chlorhexidine promotes healing and improves the overall health of the periodontal tissues [9].

4. Treatment duration: The duration of chlorhexidine use as an adjunct to SRP can vary depending on the severity of the periodontal disease and the specific treatment plan recommended by the dental professional. Typically, it is used for a limited period, such as 2 to 4 weeks, to aid in the initial healing and control of inflammation. Prolonged or continuous use of chlorhexidine is generally not recommended due to potential side effects [3, 10].

5. Compliance and instructions: It is important to follow the instructions provided by the dental professional regarding the use of chlorhexidine. This

includes the recommended frequency and duration of rinsing or application. It's also essential to maintain good oral hygiene practices, such as regular brushing and flossing, alongside the use of chlorhexidine [11].

6. Side effects: While chlorhexidine is generally considered safe for short-term use, it may cause temporary side effects. The most common side effects include tooth and tongue staining, altered taste sensation, and mild irritation of oral tissues. These effects are generally reversible upon discontinuation of chlorhexidine use [12]. It's important to note that chlorhexidine is a prescription medication, and its use should be under the guidance of a dental professional. They will evaluate your specific condition, determine the appropriate treatment plan, and provide instructions on the use of chlorhexidine or any other adjunctive treatments that may be beneficial in your case. While chlorhexidine is generally considered safe for short-term use, there are potential side effects and risks associated with its use as an adjunct to scaling and root planning. These include:

1. Tooth and tongue staining: One of the most common side effects of chlorhexidine is the potential for tooth and tongue staining. Prolonged use or improper use of chlorhexidine mouth rinse can lead to yellow or brown discoloration of teeth, particularly in areas with plaque or calculus buildup. Staining of the tongue may also occur, causing temporary discoloration [13].

2. Altered taste sensation: Some individuals may experience a temporary alteration in taste perception while using chlorhexidine. This can result in a metallic or bitter taste in the mouth. However, taste disturbances usually resolve once chlorhexidine use is discontinued [14].

3. Oral tissue irritation: In some cases, chlorhexidine may cause mild irritation or sensitivity of the oral tissues, including the gums, cheeks, or palate. This can manifest as redness, soreness, or ulceration. If significant irritation or allergic reactions occur, it's important to discontinue use and consult with a dental professional [15].

4. Allergic reactions: Although rare, some individuals may be allergic or hypersensitive to chlorhexidine. Signs of an allergic reaction may include rash, itching, swelling, or difficulty breathing. If you experience any of these symptoms, seek immediate medical attention [16-17].

5. Calculus formation: Prolonged use of chlorhexidine without proper professional supervision and oral hygiene maintenance may contribute to the development of supra- and subgingival calculus. It's important to follow the instructions provided by your dental professional and maintain regular professional cleanings to prevent excessive calculus buildup [3, 15]. It's worth noting that these side effects are generally reversible and resolve upon discontinuation of chlorhexidine use. However, it's essential to discuss any concerns or potential risks with your dental professional. They can provide personalized guidance, monitor your oral health during treatment, and make any necessary adjustments to minimize side effects and optimize treatment outcomes. There are several alternative adjuncts to scaling and root planning that can be considered in the treatment of periodontal pockets. These adjunctive therapies aim to further reduce bacterial load, control inflammation, and promote healing. Here are a few examples:

1. Local antibiotics: Local antibiotics, such as tetracycline fibers or minocycline microspheres, can be placed into periodontal pockets after scaling and root planning. These antibiotics release slowly over time, effectively targeting and reducing bacteria within the pockets. They are typically used in specific cases where there is evidence of active infection or inadequate response to initial therapy [18].

2. Systemic antibiotics: In certain situations, systemic antibiotics may be prescribed as an adjunct to scaling and root planning. These antibiotics can help combat the bacterial infection and reduce inflammation. The choice of antibiotic and duration of treatment will depend on the specific bacteria involved and the severity of the periodontal disease. Systemic antibiotics are typically used for short periods and under the guidance of a dental professional [19].

3. Laser therapy: Laser-assisted therapy, such as laser bacterial reduction (LBR) or laser-assisted periodontal therapy (LAPT), is an alternative adjunct to scaling and root planning. Dental lasers can be used to target and kill

bacteria in the periodontal pockets, as well as promote tissue healing and reduce inflammation. Laser therapy may be used alone or in combination with scaling and root planning to enhance treatment outcomes [20].

4. Photodynamic therapy: Photodynamic therapy (PDT) involves the use of a photosensitizing agent that is applied to the periodontal pockets, followed by exposure to a specific wavelength of light. This interaction produces a reaction that destroys bacteria and helps reduce inflammation. PDT can be considered as an adjunct to scaling and root planning in certain cases, although further research is needed to establish its long-term effectiveness [21].

5. Host modulation therapy: Host modulation therapies involve the use of medications that target the host response, rather than directly targeting bacteria. These medications, such as sub-antimicrobial dose doxycycline (SDD), help inhibit the destructive enzymes produced by the body in response to periodontal infection, thereby reducing tissue breakdown and promoting healing [22].

Conclusion and recommendation: - It's important to note that the choice of adjunctive therapy will depend on various factors, including the severity of the periodontal disease, the specific needs of the patient, and the professional judgment of the dental provider. A comprehensive evaluation by a dental professional is essential to determine the most appropriate adjunctive therapies for individual cases.

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