



Clinical efficacy of turmeric use in gingivitis: A comprehensive review



Karissa A. Stoyell*, Jennifer L. Mappus, Mona A. Gandhi

St. John Fisher College Wegmans School of Pharmacy, 3690 East Avenue, Rochester NY, 14618, USA

ARTICLE INFO

Article history:

Received 18 July 2016

Accepted 1 August 2016

Keywords:

Turmeric
Gingivitis
Curcumin
Curcuma
Gum inflammation

ABSTRACT

Introduction: Gingivitis affects an estimated 80% of the population, and is characterized as the world's most predominant inflammatory periodontal disease. Without intervention, gingivitis can advance to alveolar bone loss. Therefore, the primary goal in patients suffering with gingivitis is to control plaque buildup and soft tissue inflammation. Current guidelines consider chlorhexidine as the gold standard in the prevention and treatment of gingivitis. However, negative side effects of chlorhexidine, including oral mucosal erosion, discoloration of teeth, and bitter taste, provide an opportunity for alternative medications. Turmeric, a commonly used herb, possesses anti-inflammatory, antioxidant, antibacterial, antiviral, and antifungal properties. By virtue of these properties, multiple controlled trials have been performed to investigate the efficacy of turmeric in gingivitis.

Objectives: The aim of this comprehensive review is to summarize and evaluate the evidence on the efficacy of turmeric as compared to chlorhexidine in the prevention and treatment of gingivitis.

Results: PubMed, MedLine (Web of Science), and EBSCO (academic search complete) were utilized as primary literature search tools. The following search strategy was used: ((turmeric OR curcumin OR curcuma) AND (gingivitis OR "gum inflammation")). Five reviewed studies show that both turmeric and chlorhexidine significantly decrease plaque index (PI) and gingival index (GI), and can therefore be used in the prevention and treatment of gingivitis.

Conclusions: Both chlorhexidine and turmeric can be used as an adjunct to mechanical means in preventing and treating gingivitis. However, trials longer than 21 days with a greater number of patients are necessary to further evaluate the comparison between turmeric and chlorhexidine.

© 2016 Elsevier Ltd. All rights reserved.

Contents

1. Introduction	14
2. Objectives	14
3. Methods	14
3.1. Database and search strategies	14
3.2. Inclusion criteria	14
3.3. Exclusion criteria	14
4. Results	14
4.1. Study selection	14
4.2. Study characteristics	14
4.3. Results of individual studies	15
4.3.1. Prevention	15
4.3.2. Treatment	16
5. Discussion	16
6. Conclusions	16
Financial support and sponsorship	17

* Corresponding author.

E-mail addresses: kas04230@sjfc.edu (K.A. Stoyell), jlm08611@sjfc.edu (J.L. Mappus), mgandhi@sjfc.edu (M.A. Gandhi).

Conflicts of interest	17
References	17

1. Introduction

Gingivitis affects an estimated 80% of the population and is the world's most predominant inflammatory periodontal disease [1]. The disease is initiated with a pathogenic biofilm, or plaque, around the teeth followed by a host immune-inflammatory response that advances the disease [2]. If not treated, gingivitis can escalate to periodontitis, or alveolar bone loss [3]. Thus, the primary goal in the treatment of gingivitis is to limit the plaque buildup and soft tissue inflammation [4]. Both mechanical and chemical techniques can be utilized to control plaque and inflammation. Mechanical methods, including scaling and root planing, are the most effective methods in the management of gingivitis [5]. However, these mechanical approaches are time consuming, resulting in patients neglecting adequate oral hygiene [6]. Therefore, the need for chemical plaque control, in addition to mechanical means, becomes prevalent.

Chlorhexidine is a broad-spectrum antiseptic agent that has been used for over 60 years [7]. Currently, chlorhexidine is considered the gold standard for preventing and treating gingivitis [8]. This is due to its antiseptic properties and antimicrobial effects on gram-negative and gram-positive bacteria, fungi and some viruses [9]. Chlorhexidine also has some negative side effects such as oral mucosal erosion, discoloration of teeth, and bitter taste [10]. The prevalence of these adverse events have identified a need for a relatively safe and economical alternative medicine which would provide similar efficacy results.

Turmeric, also known as haldi, curcumin and *curcuma longa*, is a spice commonly used in southeast Asian cooking. Curcumin is a polyphenol found in the rhizome of turmeric. Curcumin possesses anti-inflammatory, antioxidant, antibacterial, antiviral, antifungal, anti-tumor, antispasmodic, hepato-protective, and wound healing properties [11–13]. Because of these characteristics, multiple controlled clinical trials have been conducted testing the efficacy of turmeric in the use of gingivitis. Thus far, there have not been any comprehensive or systematic reviews published on these controlled trials. Therefore, the aim of this comprehensive review is to summarize and evaluate the evidence on the efficacy of turmeric as compared to chlorhexidine in the prevention and treatment of gingivitis.

2. Objectives

The primary objective of this article is to review current literature, analyze the efficacy and safety of turmeric in the prevention and treatment of gingivitis, and compare it to the current gold standard of care, chlorhexidine.

3. Methods

3.1. Database and search strategies

The authors utilized PubMed, MedLine (Web of Science), and EBSCO (academic search complete) as primary literature search tools. The following search strategy was used: ((turmeric OR curcumin OR *curcuma*) AND (gingivitis OR "gum inflammation")).

3.2. Inclusion criteria

- 1) Controlled trials comparing turmeric with chlorhexidine;
- 2) Patients receiving the above therapies for either the prevention or treatment of gingivitis regardless of age, gender and ethnicity;
- 3) Articles published from 2010 to 2016;
- 4) English language; and
- 5) Primary outcome measures including gingival index (GI) and plaque index (PI).

3.3. Exclusion criteria

- 1) Non-clinical trials; and
- 2) Non-human studies.

4. Results

4.1. Study selection

We identified and screened 79 papers published in the years 2010–2016 by titles and abstracts. Of these, 73 were excluded because they were non-clinical trials, lacked chlorhexidine as a control group, or were studies not focused on the treatment/prevention of gingivitis. An additional article was excluded because the primary outcome measure did not include GI and PI. The remaining five studies were included in this comprehensive review and agreed upon by all authors.

4.2. Study characteristics

A summary of trial designs can be seen in Table 1. All of the five studies were conducted in India and published between 2010 and 2016. Each study was performed in a single center and was available in English. A total of 290 participants were included in the five studies. Two studies did not include patient ages, but in the others ages ranged from 15 to 35. All studies compared turmeric to chlorhexidine. One was a three-group design, while the remaining were two-group parallel design studies. The three-group design had an additional comparison arm in which subjects received only scaling and root planning [14]. Gingival index (GI) by Loe and Silness was used as the unit of measurement in four of the five studies (one study did not include what gingival index was used [14]). Two studies utilized the plaque index by Loe and Silness [15,16], while the other two utilized the Turesky-Gilmore-Glickman modification of Quigley Hein plaque index (TQHP) [17,18].

Chlorhexidine and turmeric mouthwash and a gel formulation was used in three [14,17,18] and two studies [15,16], respectively. Chlorhexidine 0.2% twice daily was used in four studies [14,16–18], while chlorhexidine 2% twice daily was used in one study [15]. Turmeric 0.1% twice daily was used in two studies [17,18], turmeric 20% twice daily was used in one study [14], turmeric (10 mg C. Longa extract) twice daily was used in one study [15], and one study did not include the strength of the turmeric being used twice daily [16]. The duration of all five studies was 21 days. Four studies recorded indices (GI and PI) on days 0, 14, and 21^{15,16,17,18} while one study recorded indices on days 0, 7, 14, 21¹⁴. Two studies reported

Download English Version:

<https://daneshyari.com/en/article/2628659>

Download Persian Version:

<https://daneshyari.com/article/2628659>

[Daneshyari.com](https://daneshyari.com)