Clinical evaluation of the topical use of propolis in recurrent minor aphthous ulceration

Avaliação clínica do uso da própolis em úlceras aftosas recorrentes do tipo minor

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Abstract

Our purpose was to evaluate the therapeutic effects of a natural product (propolis) on recurrent aphthous ulceration (RAU) of the minor type regarding the number of lesions, their duration and frequency of recurrence. Seventy patients with RAU composed the study group who were examined according to pre-established criteria. Forty patients presenting with RAU (mean age 38.5 years; 25 women and 15 men) were selected and medicated during the recurrence of their lesions using a purified propolis solution in a 5% propyleneglycol vehicle. Patients applied the topical solution three times a day from the first premonitory sign of RAU appearance and also during episodes of recurrence for a period of one year. A statistically significant reduction was observed in the number, frequency and duration of the lesions ($p \leq 0.01$). The natural propolis product utilized in this study for RAU therapy was without any adverse effects and proved beneficial.

Key Words

Stomatitis, aphthous; oral ulcer; propolis

Introduction

Recurrent aphthous ulceration (RAU) is one of the most frequently encountered pathologic conditions in the oral cavity and does not have a well established etiology or treatment. The mechanisms that have been implicated in its etiopathogenicity include local or systemic factors, associated with microbial, nutritional, immunologic or genetic activity. Other triggering factors such as allergy, stress and anxiety have also been reported[1,18,20]. Many topical preparations have been employed for the treatment of RAU with varying effectiveness regarding reduction in the number of ulcers occuring, their duration and the frequency of recurrence of episodes of ulceration. Topical agents, such as anti-inflammatories, antimicrobials, immunomodulative drugs and analgesics are among topical agents that have been used to manage RAU[11-12,16-17,21]. Topical corticosteroids, such as fluocionomide or triamcinolone in orabase, have been utilized in RAU treatment with some reports of a reduction in the duration and number of lesions, but with no reduction in recurrence rates[6,19].

Mouthrinses based on chlorhexidine or benzidamide have been shown to relieve symptoms and ulcer duration but with no beneficial effect in the reduc-

tion of the frequency of recurrences or the number of lesions occurring during each recurrence [4-6]. With occlusive agents used alone or in association with antimicrobial agents a reduction in the symptomatology has been observed [4].

Propolis in a 10% alcoholic solution has already been employed to manage patients with RAU and presented good results with a reduction in symptomatology and duration of lesions, without any side-effects [2-3,8-9]. One hundred and sixty substances have identified in its composition, demonstrating high chemical diversity [13,15]. The phenyilic acid found in propolis, for example, has powerful antimicrobial activity. Flavonoids present a spectrum of greater activity, specially represented by antiinflammatory and anesthetic actions, among other properties. The observed absence of toxicity allows its use for humans [2,7,14].

Taking all these aspects into consideration, as well as the difficulty in establishing a suitable treatment for RAU, we aimed to evaluate the use of propolis as an alternative therapy due to its actions as an antimicrobial, anti-inflammatory, healing and immunologic stimulating agent and to identify any side-effects.

Materials And Methods

Our study was approved by the Ethics Committee of São Paulo University. The criterion of not using a placebo for a preparation that had already been tested in patients without any adverse effect, was adopted.

Out of seventy patients with a history of RAU, forty of them with the minor type RAU, were recruited. All patients had been previously submitted to several therapies without satisfactory results. Patients with systemic, endocrine, metabolic or rheumatoid diseases, pregnant women and those with hormonal disturbances, immunosuppression or those having received any corticosteroid therapy within the previous three months were excluded from the study. Moreover, patients with partial or complete dentures, restorations or teeth presenting sharp edges were also excluded.

Patients were prescribed a propolis solution and were regularly evaluated during the period of treatment, with a mean of ten follow-up appointments during the year. The test group consisted of 25 women and 15 men, aged between 15 and sixty years, with a mean age of 38.5 years (S.D. ±13.10). All clinical data related to RAU, such as symptomatology, recurrences, number of lesions per recurrence, the mean period of ulcer duration, any triggering factors, a family history of RAU and previous therapies were recorded at their first visit.

Patients were divided into two groups according to the frequency of recurrences of RAU. Group 1 comprised patients that had the appearance of the disease at intervals from seven to 21 days, totaling ten patients (25%). Group 2 consisted of patients with a recurrence period of RAU between thirty and ninety days, with a total of thirty patients (75%) being recruited. The number of ulcers reported by the patients in previous experiences varied from one to six lesions, with a minimum duration of seven days to a maximum of twenty days.

The propolis solution was obtained after purification 12.5g of brute propolis (Minas Gerais State, Brazil), which was dissolved in 20% ethanol, 5% propyleneglicol and deionized water. A final solution of propolis in 5% propylenegycol was obtained and stored in dark vials of 10ml.

Swabs adequately soaked in the propolis solution were applied to the ulcers, at any phase of development, for a maximum of one minute. The solution was applied three times a day, preferably at the first premonitory sign of RAU, although it could also be applied to any pre-existing ulcers. Follow-up visits were made for seven days after the first propolis application and subsequently every 15 days. The therapeutic effects of propolis were evaluated over a period of one year regarding the frequency of recurrences as well as the number and duration of the ulcers per recurrence. The results were compared with the previous history of each patient.

The statistical test selected was based upon this study being a longitudinal study of patients using the same medicine during a one-year period of treatment evaluation. Thus, the χ^2 (chi-squared) test was employed for the statistical analysis. The level of rejection of the null hypothesis was fixed at 1% ($p \leq 0.01$).

Results

All patients complete the trial without any absences or withdrawals.

Regarding any predisposing factors, we found that 75% (28/40) of the patients reported a variety of initiating factors with emphasis on food (75%; 28/40), trauma (25%; 10/40) and stress (25%; 10/40). 58% reported more than one triggering factor. Only one case correlated the appearance of RAU during the premenstrual period. 15% (6/40) were unable to identify any associated factors.

A great variety of previous therapies had been tried previously of which use of topical corticosteroids in 55% (22/40) was the most common. Antimicrobial mouth rinses had been used by 12.5% (5/40). 85% (34/40) of the patients had used more than one type of therapy.

In Group 1, all the tem patients that had experienced RAU recurrences from seven to 21 days had reduced the recurrence rate to zero, with propolis treatment. Group 2 patients, with a history of recurrences between 30 and 90 days, similarly showed some reduction in recurrence frequency. Thus, in both Groups 1 and 2 (Table 1), over the test period of one-year, patients showed that the ulcer-free intervals between recurrences increased, reaching more than ninety days in 45% (18/40) of the patients ($p \leq 0.01$).

Comparing the number of RAU during each recurrence period before and after treatment, the propolis solution appears to have induced a reduction in the mean number of ulcers that developed. Patients who previously had 4-6 ulcers per episode had fewer (1-3 ulcers) after propolis treatment (Figure 1). This was statistically significant at the level of $p \leq 0.01$.

The duration of RAU before and after the treatment with propolis was also shortened. The results were statistically significant at the level of $p \leq 0.01$ (Figure 2). The number of patients, with ulcer duration of five days or less, increased after treatment representing a shortening of those that had previously experienced ulcer duration of 6-20 days (Figure 2).

Discussion

Faced with the prevalence of RAU in the dental clinic, their recurrence and distribution over a wide range of ages, the difficulty in obtaining an effective therapy is still a clinical dilemma [10,16,20-1].

Earlier studies using a propolis solution for RAU treatment demonstrated its effectiveness, showing a quick regression, favoring tissue healing, with consequent reduction in the symptomatology [6,12,19]. However, the difficulty in analyzing patients' symptomatology should be kept in mind, due to the variable personal subjectivity of patients when reporting these symptoms.

The results of the use of propolis for patients with RAU in this study have demonstrated a beneficial reduction in the number and duration of lesions with longer ulcer-free periods in 45% of the cases (18/40) after treatment.

Patients with a family history of RAU had at least one other predisposing factor, generally represented by food, with emphasis on citrus fruits, followed by trauma and stress [1,5,11,18]. The possible hormonal action of one case in our sample was attributed to menstruation with associated ingestion of citrus food. Such an association has been reported previously [17].

A representative number (22/40) of patients had previously been prescribed topical corticosteroids with a reduction in symptomatology only. The number of RAU, the recurrence rate and duration in these patients, did not present any positive answer as to efficacy. Similar limited beneficial effects were reported by patients who had been prescribed antimicrobial or anti-inflammatory agents previously.

Conclusions

We conclude that the use of propolis for patients with RAU reduces the number of lesions, their period of duration, and the frequency of recurrences. No allergic reaction or any other side effects were observed with its use. Furthermore, propolis appears to be an innocuous, cheap, natural medicine that is a useful management option for patients suffering from minor recurrent aphthous ulceration.

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RESUMO

Nosso objetivo foi avaliar os efeitos terapêuticos da própolis em ulcerações aftosas recorrente (UAR) do tipo minor em relação ao número de lesões, duração e freqüência das lesões. Setenta pacientes com UAR compuseram o grupo estudado que foi examinado conforme critério de inclusão pré-estabelecido. Quarenta pacientes que apresentavam UAR (idade média de 38,5 anos; 25 mulheres e 15 homens) foram selecionados e medicados durante os episódios recorrentes de UAR utilizando-se uma solução de própolis a 5% tendo o propilenoglicol como veículo. Os pacientes foram orientados a aplicar topicamente a solução três vezes ao dia, a partir dos primeiros sinais clínicos de UAR pelo período de um ano. Foi observada uma redução estatisticamente significante no número, freqüência e duração das lesões (p≤ 0,01). A solução de própolis utilizada como terapia das UAR nesse estudo não apresentou efeitos adversos e se mostrou benéfica no tratamento das ulcerações aftosas recorrentes.

PALAVRAS CHAVE

Estomatite aftosa; úlcera aftosa; úlcera bucal; própolis

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