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The Impact of Mucosal Bio-Adhesive on Oral Aphthous Ulcer Pain and Duration

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ABSTRACT

Oral plaque is one of the most common oral lesions that occur in the form of recurrent ulcers. Various factors are effective in the etiology of oral plague, including immune disorders, blood defects, and mental stress. Various methods are recommended to treat these lesions, including the use of steroids. In this study, a type of mucosal adhesive was introduced that was examined alone as well as a steroid carrier for the treatment of aphthous ulcers. ***Aim:*** *The purpose of the studies in this piece of research work is to focus on mucosal bioadhesive on oral aphthous ulcer pain how it affected the human body and it will give information to research scholars, doctors, and the public to explore their knowledge.* ***Materials and Methods:*** *This study was an experimental and double-blind study with simple random sampling. Two groups were studied: the first group (pre-test), including 20 people, who received drug-free adhesive to determine the degree of adhesion and other side effects of mucosal adhesive. The second group, including 20 people, was selected as case and control with a history of minor aphthous ulcer and during two periods of aphthous ulcer, once treated with drug-free mucosal adhesive (control) and again with drug-containing mucosal adhesive (case) was located. Statistical analysis was performed using a student t-test.* ***Results:*** *In the pre-test group, the duration of adhesion in all subjects was at least 20 minutes, and no specific taste or odor, or side effects, not reported. In the case and control groups, the time to analgesia and the time to complete recovery were almost the same. Recovery time was shorter after treatment than in pre-treatment patients.* ***Conclusion:*** *Since aphthous ulcer pain is usually due to secondary infection or mechanical and chemical irritation, the use of mucous adhesive as a covering and protective material can cause analgesia and accelerate the healing time. Mouth sores. The presence or absence of triamcinolone in the mucosal adhesive also affects reducing pain and accelerating the duration. There is no healing of aphthous ulcers.*

Keywords: Recurrent aphthous ulcer, Mucosal adhesive, Corticosteroid, Triamcinolone acetonide, Minor aphid

INTRODUCTION

Oral plagues are among the most frequent types of recurring oral lesions. Oral aphthous ulcer is a frequent oral lesion that's still generally referred to as recurring lesions upon this face, and its frequency in the population is high [1-3]. It accounts for 20-60 percent on average of the variables that contribute to oral aphthous ulceration. Immunological diseases, blood abnormalities, stress, as well as other factors are all involved [4,5]. Several therapies are recommended to improve or avoid these lesions [6]. To date, the much more appropriate cure for oral aphthous ulceration seems to have been which involves steroids in a variety of pharmacological formulations, incorporating or as a basis [7-9]. Touch adhesive has indeed been applied as a refereeing technique in recent research and as a therapeutic technique on its own [10-12]. Contact adhesive has been utilized as a refereeing system in the new study, and it has also been used as a therapeutic approach on its own. Studies by Kutcher, all in the face Jasmin and Ludlow, use cyanoacrylate (2-O-C) 2-octyle adhesive mucosa was gone [11-13]. In all these studies the amount of pain and the duration of recovery and also the size of the wound, due to the use of this type of mucous adhesive, showed a significant decrease. Also, a study by Michele was performed as a mucosal adhesive one, carrier of anesthetic in pain relief, during surgery scaling planning root used [10]. In the above studies, the mucosal adhesive used from cyanoacrylates, and since the preparation of adhesives mucus, with these materials requires a high cost, in this study A type of mucous adhesive has been introduced in which the material used from The selected natural elements are present in traditional Iranian

medicine and the effect Its treatment as a drug delivery system as well as a method independent therapy has been studied in the healing of aphthous ulcers.

The research aims to study the factors that may affect the effectiveness of treatment in patients, suffering from oral aphthous ulcer pain and duration.

MATERIALS AND METHODS

It is a hospital-based cross-sectional prospective study carried out in the Department of Laboratory and Microbiology Medical University of Tehran, over one year from June 2020 to May 2021. Ethics Committee permission was granted for the study from Institutional Ethics Committee, F. M. Medical College & Hospital, Tehran vide Ref. no-15/IEC Dated 21/06/2020.

This experimental study was performed on two blinds. Sampling was done by simple random method. In this study, initially 20 people, healthy person without oral aphthous ulcer, without mucous adhesive They used the drug to determine the side effects of the adhesive (previous group test) then 20 women, 18 to 24 years old, with a history of minor oral plague Buccal and labial mucosa among volunteer students of the University of Science Babylonian medicine were selected and under two periods of aphthous ulcer attack, under were treated (case and control groups). These people were asked, that refer no later than 48 hours after the onset of the aphthous ulcer. The base of the desired mucosal adhesive included tragacanthin, alcohol, distilled water, and sodium benzoate and triamcinolone-containing mucosal adhesives also contain a mucosal adhesive base the active ingredient in the drug is triamcinolone acetonide. All adhesives Mucus size 2 cm × 1 cm with rounded edges were prepared and in Triple packs were packed with plastic wrap. First, the group pre-test to determine adhesion, allergenicity, and other side effects of mucosal adhesive were examined. In them from drug-free mucosal adhesive was used once. In the next step, Therapeutic groups underwent two pest infestations were treated. The Bioethics Commission did not find any violations of moral and ethical standards during research work (protocol No. 1 dated 28/06/2020). In a period for them, containing mucous adhesive Triamcinolone (as the case group) and in another period, mucosal adhesive No triamcinolone was administered (as a control group). Then people Treated, according to the instructions, for 5 days, three times a day and At equal intervals, each time for 20 minutes of mucus adhesive They used the patients' subsequent visits, one day, three days, and five days After the first session, performed in the clinic and oral plague in terms of extent Pain and recovery status were assessed. All findings in the file were collected and analyzed by student t-test.

RESULTS

In the pre-test group, the duration of adhesion was longer in all individuals it was 20 minutes and the mucous adhesive was studied, no odor or taste there was nothing special. Time of aphthous ulcer stability before treatment the mean was 9 days (with a minimum of 4 days and a maximum of 14 days). Period achieve analgesia in case and control subjects after adhesive treatment the mucosa was virtually identical.

Also, the recovery time in case patients is shorter than in individuals was a witness. In data analysis, one important statistical approach is used: descriptive statistics, which are inferential statistics t-test, which concludes the data using statistical tests such as the Student t-test. The result of aphthous ulcer examinations in the first, third and fifth days after mucosal adhesive treatment are listed in Table 1. The period of recovery in subjects after treatment was shorter than before treatment (Figure 1). Patients and the bio-adhesive are shown in Figure 2.

Table 1 Evaluation of aphthous ulcer status in the first, third, and fifth days after mucosal adhesive treatment

Profile of Aphthous Ulcer	Wound condition after one day		Wound condition after three days		Wound condition after five days	
	Witness	Case	Witness	Case	Witness	Case
The pain felt removed	2	2	10	14	18	18
Elimination of the inflammatory aura	–	–	3	10	18	19
Loss of the necrotic part	–	–	3	5	14	19

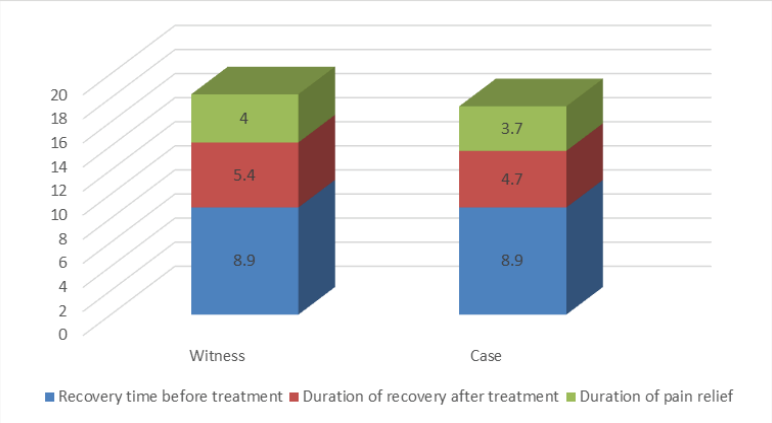

Figure 1 Comparison of recovery time and achievement time Analgesia in two treatment groups

Figure 2 Patients and mucosal bioadhesive on the oral aphthous ulcer

DISCUSSION

For the topical treatment of oral lesions or anesthesia topical oral tissue from various drug delivery systems such as gels, creams and ointments are used. Since the duration of the adhesion of these drug delivery systems to the oral

mucosa is short more recent studies have used a type of carrier called a mucosal adhesive. Examined, due to its longer contact with the lesions oral and its greater adhesion to the oral mucosa, is of interest has been. In Michele's 2015 study of mucosal adhesive as a drug delivery system to induce local anesthesia before surgery scaling was used [10]. The mucosal adhesive contains lidocaine and gels containing benzocaine were compared. The amount of pain during scaling in the group that used the mucosal adhesive containing lidocaine, in comparison to the group that used benzocaine gel, significantly showed considerable reduction [10]. The use of directional mucosal adhesive Treatment of oral plague, in research, also as the drug delivery system is also considered as an independent treatment is located. In a study conducted by Moghaddamnia, et al., a type of mucous adhesive was introduced that could last for some time remains in the mouth and has a soothing effect on oral lesions [14]. The mucosal adhesive was used as an independent treatment in recovery of oral aphthous ulcers in the Kutcher study, a type of mucosal adhesive with the cyano octyl-2 acrylate formulation is used in the treatment of the pest and it was found that C.O.2 caused a significant reduction in the amount patients were in pain [11]. In another study by Ludlow and Kutcher was performed, also from C.O.2 as a tissue adhesive in the treatment of aphthous ulcers oral, was used in this study areas of accumulation of aphthous ulcers in individuals under treatment, they showed a significant reduction and recovery time as well decreased to 1.9 days [12]. In a study by Jasmin on children with aphthous ulcers were also assessed, the amount of pain and the duration of recovery by using a type of thirty acrylates as an adhesive Mucus were significantly reduced [13].

Study Limitations

The research Because of some materials and participant data sets, the study had several limitations.

Prospects for Further Research

The research should be carried out on a wider percentage of participants to help develop therapy and evaluation approaches.

CONCLUSION

Although aphthous ulcer pain is generally caused by secondary infection or mechanical and chemical irritation, using mucous adhesive as a covering and protective substance can provide analgesia and hasten to heal. The presence of triamcinolone in the mucosal adhesive or its absence also affects the healing process. In the present study, similar to the above studies of mucosal adhesive as an independent treatment (in the control group), in the treatment of oral plague was used and the recovery time and pain rate in these patients underwent, it was examined, which according to the results, both parameters in these patients showed a marked reduction. The advantage of this study over the above studies is the use of the elements was natural in making the mucous adhesive. In most studies in the field of using mucosal adhesives, the material used in the preparation of the adhesive was cyanoacrylate, which was expensive to make it is also high as a synthetic and chemical substance it can be, that its construction in our country will face many restrictions. But in the present study, the material used in mucosal adhesives, in medicine traditional of our country is available and easily accessible, and to because it is natural, it will be more compatible with the oral mucosa. In this study, the mucosal adhesive as a drug delivery system was also used (in the case group). Since the difference in meaning you have to reduce the amount of pain and speed up the recovery time, between the two group therapy was not observed, therefore, mucosal adhesive with natural formula alone and not as a steroid-containing drug delivery system or other drugs are effective in treating oral plague. Since aphthous ulcer pain is usually due to secondary infection and due to mechanical and chemical stimuli, Therefore it can be said that the use of mucous adhesive as a covering and protective agent, can cause premature analgesia and accelerate recovery time in people with an oral plague.

DECLARATIONS

Conflicts of Interest

The authors declared no potential conflicts of interest concerning the research, authorship, and/or publication of this article.

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