

Curative effect of oral ulcer powder on the treatment of recurrent aphthous ulcer

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Abstract: Recurrent aphthous ulcer (RAU) is a common and frequently occurring disease in the Department of Stomatology. The clinical manifestations are localized ulcer of oral mucosa, and the ulcer mask is self limiting and easy to recur. In this paper, by adopting the randomized study method, the author study the effect of oral ulcer powder combined with traditional Chinese drugs on patients with recurrent aphthous ulcer, and analyze its effect on inflammatory factor. Kangfuxin liquid combined with oral ulcer powder helps reduce recurrent aphthous ulcer patients the levels of inflammatory factors, improve the symptoms of pain. The recurrence rate of the patients in the observation group for 6 months was 12.8%, which was significantly lower than that of the control group (31.42%). The difference was statistically significant ($P < 0.05$). At the same time, the average TNF- α , IL-1 and IL-6 water in the observation group were significantly lower than that of the control group, proving that the treatment regimen could reduce the inflammatory response.

Keywords: Inflammatory factors, ulcer dispersal, recurrent aphthous ulcer, drug effect.

INTRODUCTION

Recurrent aphthous ulcer (RAU) is a common and frequently occurring disease in the Department of Stomatology (Bozkurt *et al.*, 2015; Dobson *et al.*, 2015). The clinical manifestations are localized ulcer of oral mucosa, and the ulcer mask is self limiting and easy to recur (Cahill *et al.*, 2015). Recurrent aphthous ulcer attack, drinking, eating, talking and other stimulation can cause mucosal wound burning, seriously affecting the quality of life of patients (Bulut *et al.*, 2015). Tumornecrosis (TNF- α), Interleukin (IL-1) and so on are expressed in RAU patients, which can be used as an indicator for monitoring the occurrence of RAU (Cahill *et al.*, 2015). In view of this, the author adopts the method of randomized studies, to investigate the influence on patients with recurrent aphthous ulcer inflammatory factors and curative effect of "Kangfuxin Liquid" (a traditional Chinese medicine) Combined with oral ulcer powder.

At present, the pathogenesis of recurrent aphthous ulcer is not clear (Hsuan *et al.*, 2016), but the virus infection, nutrition, endocrine, immune system, genetic and other factors may lead to recurrent aphthous ulcer, clinical use of Western medicine to cure the disease, patients with recurrent phenomenon (Liu *et al.*, 2017). TCM treatment by doctors and patients gradually recognized and accepted, although Chinese medicine can not completely cure recurrent aphthous ulcer, but can significantly reduce the severity of the disease in patients with prolonged ulcer recurrence time, to effectively prevent the effect of the first half will relapse as the standard of curative effect evaluation (Nayir *et al.*, 2015). The drug treatment used in

this article takes the synthetic medicine of Chinese medicine (Fuu *et al.*, 2017). Kangfuxin Liquid for traditional Chinese medicine, the main ingredient is alcohol extract of *Periplaneta americana*, containing polyols, sticky sugar amino acid, epidermal growth factor and other active substances (Murat *et al.*, 2015). The drug components can promote the growth of granulation tissue and angiogenesis, eliminate inflammatory edema, accelerate the abscission of necrotic tissue, and quickly repair ulcers and wounds (Luo, 2015; Ghoneum *et al.*, 2015). The main component of oral ulcer powder is indigo, alum, borneol, has the effect of treatment of ulcer and pain, which it has antibacterial anti-inflammatory and anticorrosive effect (Balasubramaniam *et al.*, 2014; Santarelli *et al.*, 2016), can effectively inhibit and kill a variety of pathogenic bacteria, while high concentrations of alum on larger body irritation, but strict control of drug content, will not bring adverse reactions to the patient (Ozgur *et al.*, 2015). The effect of borneol is to reduce swelling and relieve pain, especially for oral ulcers. The bacteriostatic effect of Indigo is relatively strong; especially for the inhibition of fungal skin disease is more significant. These 3 kinds of drugs to relieve pain, heat clearing and convergence effect, has obvious effect in the treatment of recurrent aphthous ulcer.

MATERIALS AND METHODS

Research object

After approval by the medical ethics committee of the hospital, the program is approved by the medical ethics committee of the hospital. We choose 140 cases of recurrent aphthous ulcer patients as the research object,

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from June 2015 to December 2016 in our hospital department of stomatology. The random digital table was used to divide into the observation group and the control group, each with 70 cases. Among them, there were 37 males and 33 females in the observation group, with an average age of 15~56 years (38.24 ± 7.25 years), a duration of 0.5 to 9 years, and an average duration of (4.42 ± 2.67) years. In the control group, there were 38 males and 32 females, the average age was 16~58 years, the average age was (40.14 ± 8.03) years, the course of disease was 0.6 to 10 years, and the average course of disease was (5.17 ± 2.86) years. The difference of sex, age, course of disease and initial level of inflammatory factors in the two groups was not statistically significant ($P > 0.05$), which was comparable. All patients were approved by Ethics Committee of our hospital and signed on the informed consent.

Inclusion and exclusion criteria

Inclusion criteria: (1) have recurrent aphthous ulcer (recurrent oral ulcer) and related diagnostic criteria; (2) The patient has a history of oral mucosa erosion, ulcers and pain. (3) The ulcer recurred and the course lasted for half a year or more. (4) The patients were informed and signed the informed consent. Exclusion criteria: (1) oral ulcer was first issued by authors; (2) some drug users who could cause oral ulcers were being accepted; (3) patients with poor compliance.

Therapeutic method

Two groups of patients were given routine treatment, including oral vitamin B, vitamin C, zinc gluconate and so on. On the basis of routine treatment, the patients in the control group were sprinkled with oral ulcer and sprinkled on the mouth ulcer. Patients in the observation group in the control group treated with Kangfuxin Liquid, 10 ml each time, mouth gargle after 5~10 min slow swallow. The two groups were 7 d. During the period of treatment, the patients are ordered to eat spicy food, avoid drinking and drink more water to promote the excretion of toxins.

Observation index

Inflammatory factors were collected 1 days before treatment and 7 d after treatment and 4ml of fasting venous blood was collected from the morning. After 30 min, after 30min, the centrifugation radius was 3cm, rotating speed 3000r/min and centrifugation 10min. Serum TNF- α , IL-1 and IL-6 contents were detected by enzyme-linked immunosorbent assay. The operation and quality control should be carried out in strict accordance with the kit instructions. The clinical symptoms include the duration of ulceration and the degree of pain. The visual analogue scale (VAS) was used to assess the degree of pain in patients. The score was 0~10 points, the greater the score, the more intense the pain.

Cure: oral mucosa ulcer healed completely, the pain

disappeared; oral mucosal ulcer: markedly decreased obviously, significantly reduce pain; effective oral mucosal ulcer: reduced pain eased; invalid: no improvement in oral mucosa ulcer and pain, even worse.

STATISTICAL ANALYSIS

The data were recorded by SPSS 19 software and analyzed statistically. Serum inflammatory factors, VAS score and other quantitative data were expressed as $x + s$. T test was used. The data of treatment effect and recurrence rate were expressed by [n (%)]. Chi square test was used, $P < 0.05$ indicated that the difference was statistically significant.

RESULTS

Comparison of two groups of patients

After 7 d treatment, the total effective rate of the patients in the observation group was 94.3%, which was significantly higher than that of the control group (78.5%), and the difference was statistically significant ($P < 0.05$). The comparison of the efficacy of the two groups was shown in table 1. Before treatment, there was no significant difference in the levels of TNF- α , IL-1 and IL-6 between the two groups ($P > 0.05$). After treatment, the levels of TNF- α , IL-1 and IL-6 in the two groups were significantly lower than those before treatment, the difference was statistically significant ($P < 0.05$), and the TNF- α , IL-1 and IL-6 water in the observation group were significantly lower than those in the control group, the difference was statistically significant ($P < 0.05$). The levels of serum inflammatory factors before and after treatment in the two groups were compared to table 2.

Clinical symptoms

After treatment, the duration of ulcer in the observation group was significantly shorter than that in the control group, and the VAS score was significantly lower than that in the control group, the difference was statistically significant ($P < 0.05$).

The duration of ulceration in the two groups was compared with the VAS score in table 3. During and after treatment, there was no serious adverse reaction in the two groups. Follow up for 6 months, 9 cases in the observation group, 22 cases in the control group, the recurrence rate in the observation group (12.8%) was significantly lower than that in the control group (31.42%), the difference was statistically significant ($\chi^2 = 7.437$, $P < 0.05$).

DISCUSSION

Recurrent aphthous ulcer is also known as recurrent oral ulcers, early showed acute onset characteristics for oral mucosal swelling, pain, limitation of necrotic inflammatory reaction (Pistevou *et al.*, 2015). The disease

Table 1: Comparison of two groups of patients

Group	Recovery	Obviously effective	Partial effective	Invalid	Total effectiveness
Observation group (n=70)	37(52.8%)	16(22.8%)	13(18.5%)	4(5.7%)	66(94.3%)
Control group (n=70)	25(35.7%)	14(20.0%)	16(22.8%)	15(21.4%)	55(78.5%)
χ^2					5.126
P					0.017

Table 2: Comparison of levels of inflammatory factors

Group	Period	TNF- α	IL-1	IL-6
Observation group	Before treatment	263.5 \pm 32.7	1.55 \pm 0.37	162.8 \pm 15.2
	After treatment	129.8 \pm 19.6	0.62 \pm 0.15	72.3 \pm 6.9
	t	25.03	21.46	42.1
	p	0.004	0.022	0.000
Control group	period	278.4 \pm 31.5	1.36 \pm 0.28	155.7 \pm 12.3
	Before treatment	164.2 \pm 22.8	0.54 \pm 0.19	107.2 \pm 8.4
	After treatment	17.64	10.25	22.5
	t	0.000	0.004	0.000

Table 3: Comparison of the duration of ulceration and VAS score

Group	Duration of ulcers, day	VAS score
Observation group (n=70)	3.42 \pm 0.42	2.15 \pm 0.42
Control group (n=70)	4.83 \pm 1.34	2.46 \pm 0.71
t	4.262	3.265
P	0.027	0.015

is characterized by erosion after mucous membrane rupture, severe infection and even infection. The disease often recurs for many years (Sheng *et al.*, 2015; Vekov *et al.*, 2015). In particular, eating cold, hot, acid and irritant foods often causes severe pain, which seriously affects the quality of life. Generally speaking, oral ulcer is a non-specific inflammatory reaction of oral mucosa (Tural *et al.*, 2015). Because oral epithelial cells have self repair function and drug therapy, the ulcer surface can be self healed or after treatment, the ulcer site can be quickly controlled and healed. However, recurrent aphthous ulcer can be recurrent, and currently there is no effective drug treatment.

The main component of oral ulcer powder is indigo, alum, borneol, has efficacy of eliminating ulceration and relieving pain (Wojtukiewicz *et al.*, 2015). The combined application of the two, in improving oral ulcer wound microcirculation and can promote ulcer surface repair, relieve pain symptoms (Zhu *et al.*, 2015). In this study, the effective rate of the patients in the treatment group was significantly higher than that in the control group, and the duration of the ulcer was significantly shorter than that in the control group and the VAS score was significantly lower than that of the control group (Shi *et al.*, 2015). It proved that Kangfuxin Liquid Combined with oral ulcer powder can effectively improve the treatment of patients with recurrent aphthous ulcer of oral

pain symptoms, shorten treatment time and improve the therapeutic effect (Wang *et al.*, 2016). To maintain the normal state of body organs and tissues of anti-inflammatory balance and proinflammatory cytokine dynamics, when the body environment changes, oral mucosal inflammation and anti inflammation factor of the dynamic imbalance can lead to oral inflammation, oral ulcer etc. Synthesis of active peptides in Kangfuxin Liquid can inhibit bacterial RNA, and inhibit bacterial growth, reduce the inflammatory response. Modern pharmacological studies confirmed that Kangfuxin Liquid ammonia can inhibit group mice induced by skin pigment exudation and inhibit xylene induced ear swelling, anti-inflammatory, eliminate inflammatory edema effect (Yung *et al.*, 2015). Kangfuxin Liquid can inhibit protein and nucleic acid synthesis, reduce inflammatory reaction, but also increase the number and activity of T lymphocytes, and enhance immune function. TNF-, IL-1, IL-6 alpha produced by macrophage activation, high expression in oral mucosal inflammation, oral ulcers, can be used to determine the incidence of recurrent aphthous ulcer and curative effect evaluation index. In this study, patients in the observation group were TNF- α , IL-1 and IL-6 alpha were significantly lower than the control group, suggesting that the inflammatory reaction of Kangfuxin Liquid Combined with oral ulcer powder can reduce recurrent aphthous ulcer patients.

CONCLUSION

Recurrent aphthous ulcer relapse has been the cause of dentists to headache. Previous studies have shown that topical ulcer powder combined with Kangfuxin Liquid in treatment of recurrent oral ulcer recurrence rate is high, in this study, the patients in the observation group were followed up for 6 months, and the recurrence rate was 12.8%. This study can prove that Kangfuxin liquid drugs combined with oral ulcer powder has obvious effect. Kangfuxin Liquid Combined with oral ulcer powder helps to reduce recurrent aphthous ulcer, patients with inflammatory factors, improve symptoms, improve the therapeutic effect. However, due to the limitation of sample sources and quantity, there is a lack of dynamic research on the expression level of inflammatory factors, and the reason for the recurrence is not likely to be analyzed. It may cause bias to the conclusion, so we need further research on expanded samples in the future.

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