Expert Recommendations for Prevention, Treatment and Care of Oral Ulcers and Other Mucosal Diseases during the Coronavirus Outbreak

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In December 2019, some new and unexplained cases of pneumonia were found in Wuhan, Hubei province, China, and were later named as coronavirus disease 2019 by the World Health Organisation. The number of cases increased rapidly, and the virus spread continuously. Tens of thousands of medical staff throughout the country have since rushed to Wuhan to provide intensive medical treatment. Due to high levels of stress and work intensity, insufficient sleep and a lack of access to water after entering the isolation ward, staff may suffer from oral mucosal ulcers and other oral mucosal diseases. Police officers, community workers, family members in quarantine and even patients with mild coronavirus 2019, as well as those who have previously had oral mucosal disease, have also reported experiencing discomfort as a result of stress-induced oral mucosal disorders, such as recurrent aphthous ulcers, chronic cheilitis and oral lichen planus. This article will offer some suggestions for the prevention, treatment and care of the above-mentioned oral mucosal diseases during the fight against coronavirus 2019, focusing on measures to deal with the oral mucosal damage caused in response to stress.

Key words: *cheilitis, coronavirus disease 2019 (COVID-19), oral lichen planus, recurrent aphthous ulcers, stress response*

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Recurrent aphthous ulcers

Clinical characteristics of recurrent aphthous ulcers

Recurrent aphthous ulcers (RAUs), also called recurrent oral ulcers (ROUs) and commonly known as aphthous ulcers, are the most frequent form of oral ulceration, and are periodic, recurrent and self-limiting. The prevalence of RAUs is around 20% of the population. Their occurrence is linked to psychological stress, emotional fluctuations, poor sleep, nutritional deficiencies caused by a lack of fruit and vegetables, genetic factors, hormonal fluctuations such as menstruation, immune disorders, digestive diseases and other factors[1-3]. During the fight against coronavirus disease 2019 (COVID-19), psychological stress and poor sleep undoubtedly become the main inducing factors[4], and when these are in conjunction with other susceptibility factors, incidence of the disease will increase.

RAUs can be divided into three types: minor aphthous ulcers, herpetiform aphthous ulcers and major aphthous ulcers. 80% of RAUs are minor aphthae, the clinical characteristics of which are as follows:

- They can appear in any part of the oral mucosa (hard palate and gingiva are rare).
- They can be single or multiple, round or ovoid, widely distributed and the size of a needle tip, rice grain, mung bean or soybean.
- They have a light yellow or grey surface, surrounded by an erythematous halo.

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- They cause obvious pain.
- They can heal within 1–2 weeks, usually 7–10 days.

If dozens of oral ulcers are present at the same time, they are referred to as herpetiform ulcers. If the diameter of a single ulcer is greater than 1 cm, it is a major aphthous ulcer.

The three types of aphthous ulcers can recur several days or months after healing. The period during which no ulcers occur is called the interval period. Some interval periods are not obvious and can occur one after another. The location of recurrent aphthous ulcers is generally different from the previous one[1,2,5].

Treatment principles and drug selection for RAUs

Topical therapies

The main principles for treatment of RAUs are anti-inflammation, pain relief and promotion of healing[5,6]. These principles are also applicable to the topical treatment of most oral mucosal ulcerations.

- Anti-inflammation: Chlorhexidine solution, compound chlorhexidine compound, povidone-iodine, ethacridine lactate, cetylpyridinium chloride, borax and so on can be used as a mouthrinse. Lozenges containing cetylpyridinium chloride, dequalinium chloride or cydiodine can also be taken.
- Pain relief: Chamomile compound and lidocaine hydrochloride gel can be applied to the ulcer area.
- Promotion of healing: Any anti-ulcer powder, ointment, film, patch, paste, gel and so on can be used topically.

Systemic therapies

In order to shorten the duration of ulcer outbreaks and prolong the interval period[5,7], thalidomide, total glucosides of paeony capsule, levamisole and Kouyanqing granules (editor's note: a Chinese proprietary medicine) can be taken orally for weeks or months as appropriate[5,8,9].

Care for RAUs

- Topical painkillers should be used on the ulcer surface before eating and applying topical medication.
- Firstly, systemic medication should be taken after meals.
- Secondly, the mouth should be rinsed for 1–3 minutes so that the solution can penetrate the submucosa and play an anti-inflammatory role.
- Thirdly, oral ulcer powder should be applied on the ulcer surface, and eating, drinking and speaking should then be avoided for 15–20 minutes in order to let the medication take effect and promote healing.
- If lozenges are selected, they should be given 20 minutes after use of topical healing medication.
- Topical medication should be applied three times a day, before or after meals.
- It is essential to follow the doctor's advice for systemic medication.

Prevention of RAUs

For front-line anti-epidemic personnel, maintaining a good balance between work and rest can help to relieve stress. Getting adequate sleep, consuming enough fruit and vegetables, taking vitamin supplements and keeping the mouth moist are essential for slowing and preventing the onset of RAUs.

Chronic cheilitis

Clinical characteristics of chronic cheilitis

Chronic cheilitis is a common chronic non-specific inflammatory condition that affects the lips. It is mainly caused by long-term, sustained exposure to a variety of irritants such as dry, windy or cold environmental conditions, mechanical or chemical factors, medication, smoking, alcohol consumption, licking or biting the lips and other bad habits. It is also related to mental stress.

The clinical manifestations are swelling, dryness, congestion of the labial mucosa, desquamation, chapping, scabbing and exudation on the vermilion border of the lips. The condition is recurrent and causes chronic lesions on the lips[1,2].

Treatment principles and drug selection for chronic cheilitis

Most of the treatments for chronic cheilitis are local, and the principles of treatment are anti-inflammation and removal of irritants[1,2,10]. In order to eradicate irritants, environmental conditions such as wind and cold should be avoided, and bad habits such as biting and licking the lips should be broken. Spicy food should also be avoided. To reduce inflammation, a compress soaked in 0.1% ethacridine lactate solution, aureomycin solution or chlorhexidine solution can be applied. After this, anti-inflammatory (such as erythromycin eye ointment) or steroid ointment with aureomycin glycerine can also be applied.

Care for chronic cheilitis

Regardless of the severity of chronic cheilitis, it should be treated first with anti-inflammatories and then with moisturising treatments. Treatment involves use of a wet compress and local application of ointment. Many patients with chronic cheilitis find that it persists and does not heal, and this is because they fail to apply a wet compress. This is the simplest and most effective way to treat chronic cheilitis; only using ointment will not have a good effect.

The procedure and steps for application of a wet compress and ointment are as follows:

- Cut the sterilised cotton into strips the same size as the lip lesion, then soak them in the wet compress solution. Pick up each cotton strip with tweezers and use them without letting any of the liquid drop.
- Apply the soaked compress to the lip lesion and cover its entire surface.
- During the 20 minutes of application, the compress may become dry due to volatilisation of the solution. Add a small amount of solution to the compress every 3–5 minutes to keep it saturated.
- Increase or decrease the duration of application of the compress according to the thickness of the scab. After the scab becomes soft and painless, the compress can be applied for a few minutes to consolidate the anti-inflammatory effect of the solution penetrating into the lip tissue, or it can be removed immediately.
- Immediately apply a medicated ointment to the surface of the lip tissue to keep it moist and achieve a long-term anti-inflammatory effect until the next application of a compress.

Medication is usually effective for chronic cheilitis in 1 to 2 weeks. However, moisturising care should be continued; patients can use a clean water compress or apply vaseline (available in supermarkets) to protect the lips.

Prevention of chronic cheilitis

For front-line anti-epidemic personnel, maintaining a good balance between work and rest, alleviating stress and keeping the lips moist are all very important to slow and prevent chronic cheilitis.

Oral lichen planus

Clinical characteristics of oral lichen planus

Oral lichen planus is a chronic inflammatory disease that can affect the skin and mucosa, and is generally believed to be the second most common oral mucosal disease after RAUs, with a prevalence of less than 1%. The disease tends to be chronic and recurrent, and can last for months or years. Its etiology is still unclear and is related to many factors; stress, anxiety and depression are some of the main causes that result in immune dysfunction.

The clinical characteristics of oral lichen planus are grey-white keratinised lines or plaques on the oral mucosa. The patient usually feels no pain, only a sensation of roughness. When congestion, erosion, ulceration, atrophy and blisters occur in the oral mucosa, irritation pain or spontaneous pain will occur. Oral mucosal lesions can also be accompanied by skin lesions[1,2]. When the patient is experiencing stress or high pressure, the oral lichen planus is more likely to manifest as congestion, erosion and ulceration of the oral mucosa, leading to pain when eating or spontaneous pain.

Treatment principles for oral lichen planus

Treatment for oral lichen planus can be systemic or local. If the white lines are not accompanied by congestion, erosion, ulcers, etc., and there is no pain, the patient can temporarily observe the condition and see a doctor at a later date.

The principles of local treatment are removal of causes of irritation, anti-inflammation, analgesia and promotion of healing. Systemic treatment is mainly immunomodulatory therapy, following a doctor‘s advice. Psychological counselling can also help to relieve stress and pressure[1,2,11,12].

Care for oral lichen planus

Patients with stress-induced oral lichen planus are prone to manifestations such as congestion, erosion and ulceration of the mucosa, which require active treatment and care. The range of topical therapies is essentially the same as for RAUs, and oral lichen planus can be treated in the same way as RAUs. Topical medication should be used three times daily. After each meal, the mouth should be rinsed with water and then medication should be applied topically to promote healing.

Prevention of oral lichen planus

All patients with oral lichen planus need to manage the emotional factors that may cause the condition to occur. Front-line anti-epidemic personnel affected by the condition need to alleviate tension and anxiety, achieve a balance between work and rest and reduce their stress levels as much as possible.

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