The efficacy of combined low intensity laser therapy and medication on xerostomia

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_Abstract

Xerostomia causes patient suffering from the limitation of daily life activities. Still, there has been no definite treatment for this, particularly its variant induced by aging. This case report presents the method of treating xerostomia using low intensity laser therapy and medication.

_Introduction

Xerostomia is an oral symptom of dry mouth, which is a major complaint of many elderly individuals. It results in impaired food and beverage intake, altered taste, difficulties in eating, chewing and swallowing, which can affect the quality of a person's life. Although suffering patients seek medical help, it usually provides no adequate relief.[1] Not many patients were able to tolerate the strange taste of artificial saliva or the side effect of sweating from taking pilocarpine; a medication for activating salivation. Symptomatic treatment by using saliva substitute for moistening and lubrication of the oral mucosa was the only management for this condition. But is there a different, the non-invasive method that could be used for treating xerostomia?

In 2010, Kato et al. conducted a pilot study proving a significant and lasting reduction in burning mouth symptoms from the group treated by low intensity laser therapy (LILT).[2] In the same year, Vidovic Juras et al. reported an application of LILT to xerostomia patients' major salivary glands to stimulate salivation.[3] This report presents a combined medication and LILT for treating xerostomia with satisfactory results.

Fig. 1_Dry buccal mucosa observed in the first visit.
Fig. 2_Dried floor of the mouth observed in the first visit.
Fig. 3_After the first episode of LILT, still some erythematous areas in vermillion border of the lower lip are observed in the first visit.
Fig.4_LILT irradiating to the vermillion border of lower lip.


Fig. 1


Fig. 2


Fig. 3


Fig. 4

_Case report

A 60-year-old woman had suffered from oral dryness interfering with her life style daily for three years. There had been no therapy including vitamin supplement and more water intake to relief these symptoms.

Past medical history

The patient suffered from anaemia due to nutritional deficiency. She was treated by taking ferrous sulphate and folic acid. Her menopause had started about ten years ago. She was allergic to penicillin, pollen and adverse weather. The patient took an antihistamine agent, Zyrtec, one tablet per day.

Oral examination

Extraoral examination showed a dry and cracked lower lip. Intraoral examination found dryness of


Fig. 5


Fig. 6


Fig. 7


Fig. 8

Fig. 5_After ten LILT sessions; remarkably less erythematous areas are observed in the vermillion border of lower lip.
Fig. 6_Moist buccal mucosa observed during the tenth visit.
Fig. 7_Moist floor of the mouth observed in the tenth visit.
Fig. 8_LILT irradiation of the skin above the parotid gland area.

the oral mucosa (Fig. 1), including the floor the of mouth (Fig. 2), atrophic tongue and erythematous at the vermillion border of the lower lip with biting from the lower anterior teeth (Fig. 3).

Treatments and their results

The first visit:

Treatment: Zyrtec was limited. The patient was advised to sip water as necessary.

Result: Two weeks later, the patient could sense moisture in the oral cavity and dysphagia less pronounced. Intraoral examination found a significant amount of saliva in comparison to the last visit.

Impression: Drug-induced xerostomia.

The second to the tenth visits (one treatment session per week): Erythematous sections at the vermillion border of the lower lip were treated with low intensity laser (Fig. 4), 820 nm, 100 mW, 2 J, 20 seconds, continuous wave for 18 points. Vitamin C and B complexes were prescribed.

Result: The patient was more satisfied with the result after the second treatment session with LILT. The moist lip (Fig. 5), oral mucosa (Fig. 6) and floor of mouth (Fig. 7) were observed. Less erythematous areas were noticed at the vermillion border of the lower lip after the second time of treatment with LILT. They disappeared after the tenth visit.

The sixth to eleventh visits: Low intensity laser therapy 820 nm, 100 mW, 2 J, 20 seconds, continuous wave for 22 points in the left and right parotid gland area (Fig. 8).

Result: There was an increase in the whole stimulated salivary flow rate from 0.06 ml/min in the first visit to 0.08 ml/min after the second treatment and 0.10 ml/min after the fourth treatment.

_Discussion

The satisfying clinical outcome of treating xerostomia and atrophic mucosa caused by aging and side effects of drugs was found by using combined medications and LILT. LILT can be used to reduce burning mouth symptoms and to stimulate major salivary glands to produce more saliva. This can be explained by the effect of LILT for biomodulation in terms of initiating healing mechanism and immune response.[4]

_Conclusion

This case report has shown that using vitamin C and B complex supplements combined with low intensity laser therapy can improve the clinical impairment of xerostomia and can also increase saliva secretion in elderly patients._

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