

Effect of mouth care on patients with muscular dystrophy using a full-faced helmet mask

Kyoko Sumitomo^{#1}, Kahori[#] Morimoto^{#1}, Miyuki Imakura^{#1}, Aki Masuda^{#1}, Chizuko Yamashita^{#1}, Toshimi Aki^{#1}

#1. Department of Nursing department, Tokushima National Hospital, National Hospital Organization, 1354 Shikiji, Kamojima, Yoshinogawa, Tokushima 776-8585 Japan

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Introduction

In muscular dystrophy, the destruction of muscle cells and denaturation and reproduction are repeated. Muscle gradually withers, and muscular strength decreases. Therefore, everyday life is affected, and there are many patients who cannot conduct mouth care themselves. Also, they have difficulty in gargling because of mastication disorder, dysphagia, and trismus. Because of the narrowing of the intraoral field and the risk of aspiration during mouth care, the procedure for mouth care of patients with muscular dystrophy is difficult. In patients with muscular dystrophy using a full-faced helmet mask as a respirator, the oral cavity is drier than other patients. This leads to a decrease in self-purification of the saliva. In their oral cavity, bacteria are in a condition whereby they spread easily and a secretion often attaches. We conduct mouth care using liquid tooth-brushing once a day. The standard method of liquid tooth-brushing cannot be used because of the problem that we cannot flush out the oral cavity with water afterwards. Moisturizing gel brushing involves less drying than conventional mouth care and can be a substitute for the conventional one [1]. It is important to maintain the intraoral environment where intraoral bacterial quantity is controlled [1]. Therefore, it is effective to promote salivary secretion.

We thought that a combination of salivary gland massage and gel for the mouth care might improve intraoral drying and dirt.

Subjects and methods

The subjects were two patients who used a full-faced helmet mask as a respirator. Patient 1 was a woman in her 50s with myotonic muscular dystrophy.

We attached a respirator with a full-faced helmet mask from 16:00 p.m. to 9:00 a.m. There are a lot of teeth to remain in. Patient 2 was a man in his 60s with myotonic muscular dystrophy. We attached a respirator (LTV1200) with a full-faced helmet mask for 24 hours. He was able to take off this artificial respiratory apparatus for one hour a day. There are not the teeth to remain in.

Method

1) We obtained advice from a dentist about methods of the mouth care, and unify care methods. For Patient 1, we brushed the teeth using the corner of the toothbrush.

Since she had teeth which drain, deep pocket and lability, we changed the head of the toothbrush to a smaller one. In patient 2, we took the lump of the back sputum of the throat in a toothbrush, gauze or forceps. We changed the toothbrush to a softer one.

2) We made a manual about methods of tooth brushing and salivary gland massage, conducted a study session, and unified our procedures. We conducted mouth care once a day using mouth care gel (Refreicare®). The procedure was as follows. We applied mouth care gel to the oral cavity. We conducted brushing with the toothbrush and cleaning using a gauze. We applied mouth care gel to the oral cavity. We provided salivary gland massage (the parotid gland, submandibular gland, sublingual gland) ten

times for each gland, once a day.

Evaluation

We evaluated the intraoral state using an intraoral assessment sheet (Eiler's oral cavity assessment guide list) on each Friday. A low level is desirable. Point 1 is normal. We took an oral photograph on the fourth Friday of every month for evaluation.

Ethical considerations

We explained the purpose of the study to the study patients and their families, stating that individuals would not be identified in consideration for the privacy of the patients, that participation was voluntary and could be discontinued at any time, and that we would not use the data for other purposes than this study.

Results

We show the results for Patient 1 in Figure 1. The lips and mouth worsened at one time, but were restored. However, the salivary glands worsened. The patients had much sputum from the 81st day. Because the oxygen concentration fell to an 80% level, we often put on the full-faced helmet mask for the respirator in the daytime. As a result, drying increased. The salivary increase with the salivary gland massage risked inducing aspiration. In Patient 2, there was no change regarding voice, deglutition or teeth. We show the clinical course in figure 2. Through all courses, the lingual state was improved, but a clear improvement was not found in lips and saliva, gingiva, and oral mucosa. Septic shock due to urinary tract infection developed on the 54th day. Drying was increased, exacerbating the state of the patients.

Discussion

The main purpose of conducting mouth care is removal of dental plaque. Bacteria do not decrease by the mouth care leaving dental plaque.

The oral bacteria invade blood vessels, and inflammation may be caused throughout the body. The salivary coefficient of viscosity seemed to decrease in patient 1 but not in patient 2. This might lead to buccal environmental improvement. The limits of this study were as follows. We were not able to exactly ascertain the quantity of saliva and halitosis, or the intraoral bacterial count

with numerical value. In addition, it was difficult to standardize the results because there were few cases.

References

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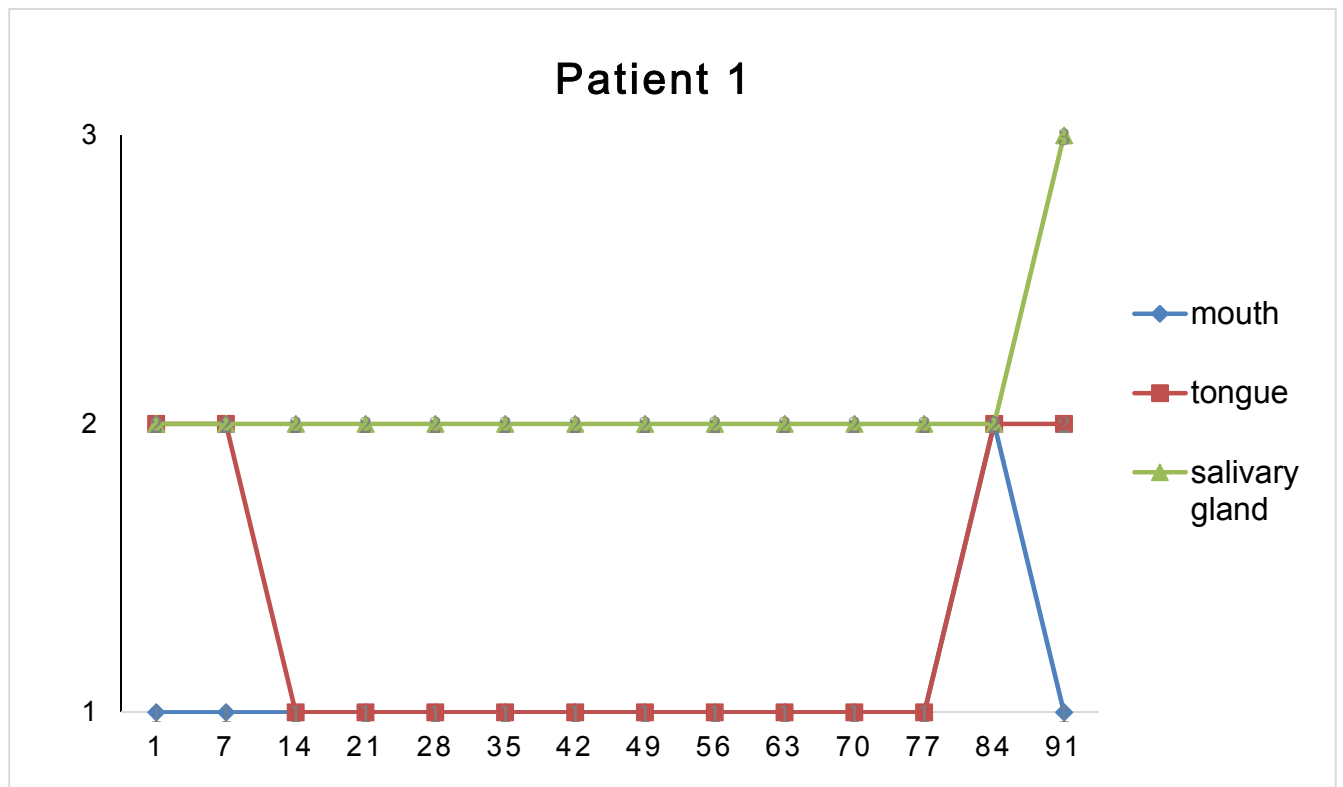


Figure 1. Intraoral assessment scores during the present oral care in patient 1.

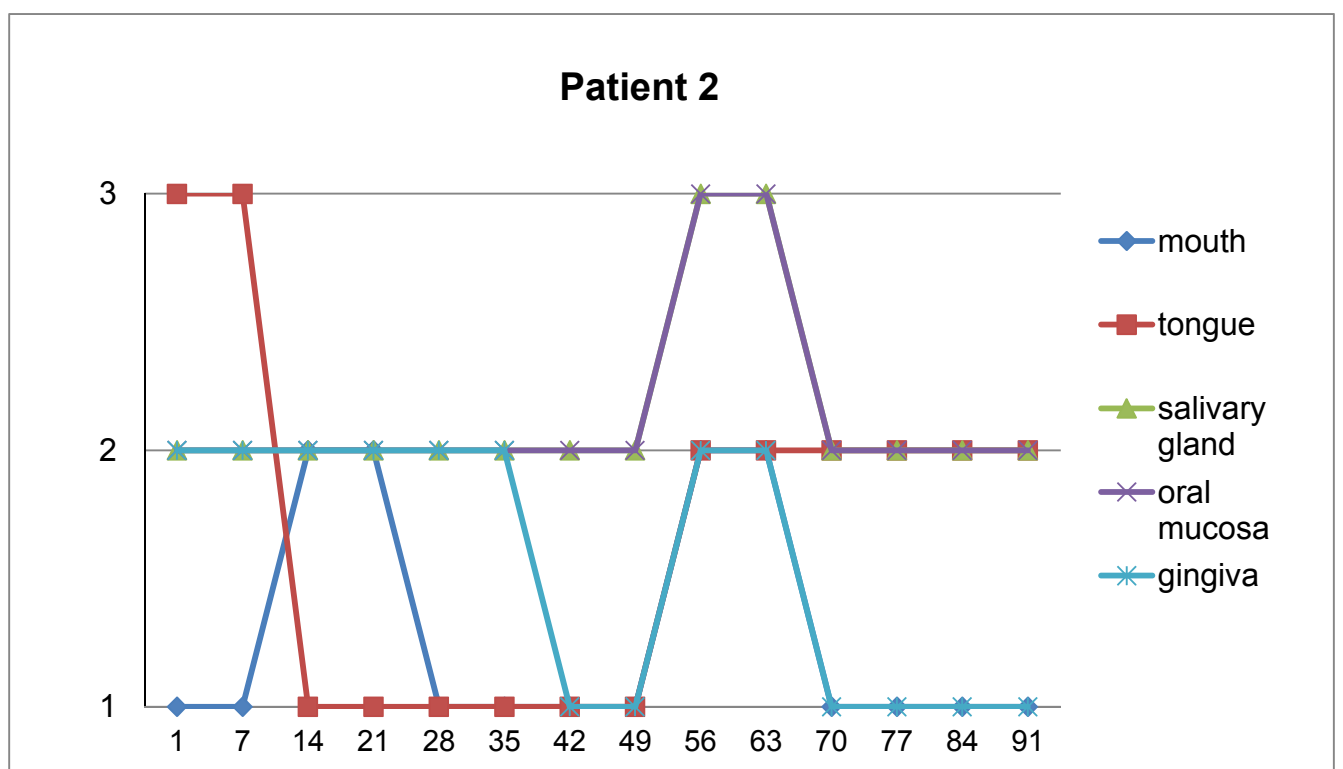


Figure 2. Intraoral assessment scores during the present oral care in patient 2.