学 位 論 文 の 要 旨

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学 位 論 文 名	Discrepancy Between Subjective and Objective Postoperative Oral Dysfunction Assessment After Oral Cancer Treatment : A Single-Center Cross-Sectional Study
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論 文 内 容 の 要 旨

INTRODUCTION

The Common Terminology Criteria for Adverse Events (CTCAE), now updated to version 5.0, is a system for medical professionals to evaluate complications and side effects associated with cancer treatment as objective evaluations. With the development of a patient-reported version of its PRO-CTCAE in 2008, patients' subjective assessment of treatment has become easier and more generalized, facilitating better communication between health providers and patients. Despite the potentially increasing importance of subjective evaluations, there are many reports of inconsistent evaluations between subjective and objective evaluations. A study assessing the quality of life (QoL) of patients treated for prostate cancer reported that physician assessment was irrelevant. In a randomized controlled trial of patients undergoing chemotherapy for breast cancer, physicians underestimated patients' subjective assessment of chemotherapy-induced peripheral neuropathy, and a study in which patients and physicians assessed the QoL of patients receiving palliative care concluded that physicians should not make subjective patient assessments. In addition, two studies on physician-patient assessment of adverse effects in chemoradiotherapy of head and neck cancers, including oral cancer, reported that physicians tended to underestimate toxicity assessment. On the other hand, our previous study reported that the swallowing assessment and QoL assessment of patients who underwent surgery for oral cancer were generally associated. Based on the above, the differences between subjective and objective assessments of oral function in oral cancer patients are controversial.

One of the reasons for the difficulty of research on the relationship between subjective and

objective assessments of oral cancer patients is the diversity of oral functions. Although the term "oral cancer" can be summarized as a single term, it includes disorders affecting different parts of the body, such as the tongue, palate, and gingiva, thus inconsistent evaluation methods are used across studies. However, a uniform evaluation method for oral function has been recently established, which our research team applied to patients treated for oral cancer succeeding in classifying their disability after oral cancer treatment into three types as Matsuda-Kanno classification. This oral function measurement and classification of postoperative oral dysfunction can help to provide an objective and comprehensive understanding of oral function and to understand its relationship to the subjective assessment of patients treated for oral cancer.

Therefore, we hypothesized that the agreement between subjective and objective evaluations in assessing postoperative oral dysfunction would differ by category. Thus, this study aimed to verify whether the evaluation of postoperative oral dysfunction following evidence-based oral cancer treatment is consistent between subjective and objective evaluations.

MATERIALS AND METHODS

This cross-sectional study collected background data and evaluated the oral function (microorganisms, oral dryness, occlusal force, tongue pressure, masticatory function and eating assessment tool [EAT-10]) of 75 patients from September 2019 to December 2021. The postoperative oral dysfunction-10 (POD-10) was used for the subjective assessment of dysfunction in oral cancer patients. Also, Matsuda-Kanno classification was used for the objective assessment. The kappa coefficient between POD-10 and oral dysfunction was calculated for the degree of agreement. The relationship between oral function measurements and POD-10 was examined by correlation analysis and multiple regression analysis. The study protocol was approved by the Research Ethics Committee of Shimane University.

RESULTS AND DISCUSSION

The patients' median age was 72.0 (25-75 percentile: 64.0-78.0) and 69.3% were male. Correlation analysis showed a significant association of occlusal force ($r = -0.43$, $P < 0.01$), masticatory function ($r = -0.40$, $P < 0.01$), and EAT-10 ($r = 0.86$, $P < 0.01$) with POD-10. The kappa coefficients indicating the degree of agreement with POD-10 were 0.41 ($P<0.01$) for occlusal force, 0.27 ($P=0.01$) for masticatory function, and 0.59 ($P<0.01$) for EAT-10. Multiple regression analysis showed a significant association of occlusal force ($\beta=-0.33$, $P=0.03$) and EAT-10 ($\beta=0.80$, $P<0.01$) with POD-10.

The major findings of this study are that while there may be agreement between subjective and objective evaluations in postoperative oral dysfunction type III (occlusal type), this might not be the case for type I (transport type) and II (oral hygiene type) postoperative oral dysfunction.

Type III is most likely to occur in tooth loss and defects of maxilla and mandible due to resection of gingival cancer, and oral-maxillofacial prosthetic treatment is often recommended. The correlation and kappa coefficients of type III are high because it is a visible disorder and medical professionals can easily recognize that it is related to treatment.

On the other hand, type I is considered a disorder of continuous motion in stage I transport (pull back motion of the food from the anterior to the molar region of the mouth), processing (mastication and mixing of triturated food with saliva) and stage II transport (squeeze back motion of the processed food from the mouth to the pharynx) phases as described in the process model of swallowing. Although type I, which is a disorder of continuous motion, can be confirmed by swallowing videofluorography, it can only be detected as a fragmented and non-visible disorder by oral function measurements alone. This may explain the discrepancy. Among the three tests in type I, masticatory function and tongue pressure showed low correlation and kappa coefficients and no association in multiple regression analysis, while EAT-10 showed a strong association and concordance in all three tests, suggesting that evaluation using multiple modalities is important for the diagnosis of type I.

Type II also showed a discrepancy between subjective and objective ratings from each analysis. A study of 650 randomly selected healthy individuals reported a discrepancy between the oral hygiene needs considered by healthcare providers and those considered by the subjects, suggesting that patients may overestimate their own oral hygiene in type II, unlike Type I and III. While Type II is rarely a direct problem, it is an important issue because oral hygiene after oral cancer treatment might affect the incidence of aspiration pneumonia and even mortality. The difficulty in dealing with Type II in particular is the need for close oral hygiene evaluation and care even after the acute phase and the transition to community care. In fact, regular dental visits after head and neck, oral cancer treatment are significantly associated with overall survival. Therefore, medical professionals should create an environment that can provide seamless medical cooperation from acute care to community care for patients with type II diagnosis.

CONCLUSION

In case of postoperative oral dysfunction type III (occlusal type), the subjective and objective evaluations tended to be consistent. On the other hand, type I (transport type) and II (oral hygiene type) may be prone to overestimation or underestimation by either the subjective or objective evaluations. Therefore, medical professionals should pay attention to patient complaints following oral cancer treatment.