Aspects of Mouth Dryness

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Abstract: The purpose of this study is to examine that a boundary range of mouth dryness symptom objectively divided into dry mouth or not. Eighty-six volunteer over 60 years old participated. Questionnaire for dryness and medication were asked. Dentists performed clinical opticular diagnosis. Wet on tongue and moisture of mucous membrane were examined respectively with Saliva Wet Tester and Moisture Checker. The ratio divided into dryness in the subjective symptom, the clinical diagnosis, Saliva Wet Tester, and Moisture Checker was 19.7%, 4.03%, 34.9%, and 68.6% respectively, and the ratio of normal was 65.8%, 57.0%, 24.4%, and 17.4%. A correct classification rate was 77.9% by the discriminial analysis using clinical diagnosis as criterion variable and the score of Saliva Wet Tester and of Moisture Checker as explanatory variable. Distribution of discriminial score suggested that other factor should be joined them for classification in a boundary range.

Introduction

The rapidest aging in the world progresses by now in Japan. Mouth dryness symptom is popular in old population. There are difference between ratio of patient's appeal and that of the doctor's diagnosis, so that some parts of patient were out of treatment. The cause and symptom of mouth dryness is various. Consultation rate in Japan shows that the numbers of patient like cardiovascular disease, increase rapidly near 60 years old1). Medication for old patients often caused dry mouth. The objective inspection value obtained by improvement of the diagnostics, the inspection tools and the classification of mouth dryness need to promoting a correct diagnosis by general dentist. In this study, the difference between patient's appeal and clinical diagnosis, and the relation between each inspection values were discussed.

Materials and methods

Eighty-six of volunteer, who were 60 years old or more (average age, 75.5 years old), were participated. Questionnaire for mouth dryness and medication, an ocular inspection by dentists and mouth wetness and moisture of mouth mucous membrane were performed. When missing data was found, it was excluded from the analysis of item. Subjective dryness symptom were assessed as either no symptom (0), slight dryness or sometimes (1) and continuous dryness (2). A dentist diagnosed clinically as normal (-), boundary (+/-) or dry (+) for dry mouth by ocular inspection of mouth mucous membrane. Mouth wetness on the tongue was measured with Saliva Wet Tester (Elsalivo, The LION Foundation For Dental Health, Japan) for 10sec. They were classified in normal (3mm or more), boundary (from 1mm to less than 3mm), hyposalivation and mouth dryness (from 0 mm to less than 1 mm) according to Kakinoki et al.2) Moisture of mouth mucous membrane of tongue were examined using Moisture Checker for Mucous(Life Ltd, Japan). They were classified in normal (30 or more), boundary (from 29 to less than 30) and dry (29 or less) according to Kakinoki et al. 2)

Results and discussion

The ratio of either categories in the subjective symptom, the clinical diagnosis, Saliva Wet Tester, and Moisture Checker judged dryness respectively were 19.7%, 43.0%, 34.9%, and 68.6%. The ratio of either categories judged it was normal were 65.8%, 57.0%, 24.4%, and 17.4%(Fig. 1). There was difference among the assessment technique of dryness. Especially Moisture Checker assessed as dryness about two-third of participants. Distribution of value of Saliva Wet Tester and Moisture Checker for Mucous shows in Fig. 2.

The relation between patient’s appeal and clinical diagnosis showed Table. It was obviously corresponding to the clinical diagnosis in the person who had a continuous dryness excluding one case. Therefore, the clinical diagnosis is easy for the patient with continuous dryness. However 41% of the person with no subjective dryness symptom in the mouth was classified dryness by the clinical diagnosis. The half of the patient assessed as boundary by clinical diagnosis have dryness symptom. Saliva Wet Tester assessed 67% percents of the person with continuous dryness as dryness. Eighty-seven percents of person with both subjective dryness and boundary symptom could be detected. However, 52% of the person assessed as dryness by Saliva Wet Tester was not appealed subjective symptom. While the person with subjective dryness symptom was almost assessed...
with no subjective symptom assessed as dryness by Moisture checker.

Saliva Wet Tester is useful objective measurement for patients with severe mouth dryness and severe hyposalivation because it is possible to assess for less than 1 minute. A correct classification rate was 77.9% by the discriminant analysis using clinical diagnosis as criterion variable and the score of Saliva Wet Tester and the score of Moisture Checker as explanatory variable (Fig. 3). The discriminant analysis that uses two or more factors overall is complex might be effective to the origin of the mouth dryness feeling.

As the number of taking medicines increased, the ratio of those clinically diagnosed dry mouth increased similar to the results of Narhi et al.3.

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Reference