The Prevalence of Xerostomia in Patients with Removable Prostheses

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Purpose: The objective of this study was to determine the prevalence of xerostomia among patients attending a dental clinic for provision of dentures and to investigate the oral cleanliness in those patients. ***Materials and Methods:*** Denture-wearing patients who reported dry mouth completed a questionnaire related to xerostomia. Dryness of the mouth was determined by clinical observation. Dental and denture cleanliness was determined using the Modified Debris Index. ***Results:*** One hundred twenty patients had xerostomia. Oral cleanliness was generally poor. ***Conclusion:*** There was a high prevalence of xerostomia in the patient population. A high proportion of subjects had poor oral cleanliness. *Int J Prosthodont 2013;26:525–526. doi: 10.11607/ijp.3450*

Dryness of the oral mucosa can cause poor tolerance of dentures in both partial and complete denture wearers.1,2 There is little information about oral hygiene, including denture cleanliness, among subjects with xerostomia. The objectives of this study were to determine the prevalence of xerostomia among patients attending a dental clinic for provision of dentures and to investigate the oral cleanliness in those patients.

Materials and Methods

Six hundred consecutive denture-wearing patients were included in the study. Each patient was asked if his or her mouth frequently felt dry. Those who answered yes (self-reported xerostomia) were invited to complete a questionnaire seeking sociodemographic information, medical history, and information related to symptoms of dry mouth.[3–5]

All patients were examined by two investigators with the aid of a dental light. An objective assessment of the presence of xerostomia (objective xerostomia) was based on the presence or absence of a salivary pool and the clinical appearance of the oral mucosa (sore, inflammatory, atrophic, and dry without any salivary film). Those patients who were examined and for whom no objective evidence of xerostomia was found were considered to have subjective xerostomia. If investigators did not agree, that patient was judged not to have objective xerostomia.[1]

Debris and plaque deposits were examined on the buccal surfaces of all remaining teeth and denture teeth. Each tooth was scored (0 = no visible debris, 1 = minimal debris, 2 = moderate debris, and 3 = severe debris) and the mean score was determined for each patient. The final patient score was the mean of the two examiners' scores.[1] Differences between groups were determined using odds ratio (OR).

Results

Six hundred consecutive patients (263 men and 337 women) attending the undergraduate clinic were included in the study. Of these, 180 (80 men and 100 women, mean age: 65 years, range: 42 to 80 years) reported that they suffered frequently from a dry mouth (self-reported mouth dryness). One hundred ten of those subjects wore complete dentures and 70 wore partial dentures. The mean age of complete denture wearers was 72 years. The mean age of partial denture wearers was 58 years.

The number of subjects with self-reported mouth dryness who were clinically confirmed to have

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Table 1 Systemic Diseases in Patients with Objective Xerostomia (n = 68)

Systemic diseases	n (%)
Diabetes	25 (36.7)
Sjögren syndrome	3 (4.4)
Oral cancer	5 (7.4)
Neck cancer	7 (10.3)
Depression	8 (11.8)
Hypertension	15 (22.0)
Gastrointestinal disorders	5 (7.4)

Table 2 Distribution of Dentures in Patients with Reported Xerostomia (n = 180)

	Xerostomia	
Prosthesis	Objective (n)	Subjective (n)
Complete denture	90 (81.8%)	20 (18.2%)
Partial denture	30 (42.9%)	40 (57.1%)

Table 3 Modified Debris Index in Denture Wearers with Reported Xerostomia (n = 180)

	Mean Modified	Xerostomia	
Prosthesis	Debris Index	Objective (n)	Subjective (n)
Partial denture (n = 70)	2–3	22 (46.8%)	25 (53.2%)
	0–1	8 (34.8%)	15 (65.2%)
Complete denture (n = 110)	2–3	40 (87.0%)	6 (13.0%)
	0–1	50 (78.1%)	14 (21.9%)

xerostomia (objective xerostomia) was 120 (20% of all subjects). No related systemic diseases or drug therapy were observed in 52 (53.3%) of these subjects. Sixty-eight subjects (56.7%) had xerostomia with related systemic diseases. Of these, diabetes and hypertension were the most commonly experienced disorders (Table 1).

The prevalence of xerostomia in patients wearing partial or complete dentures, with and without objective evidence of dry mouth, is shown in Table 2. Objective xerostomia was more commonly observed in complete denture patients. The difference was statistically significant (OR: 6.0, 95% confidence interval: 3.05 to 11.81, $P < .0001$).

The Modified Debris Index scores in both partial and complete denture wearers for patients with objective and subjective xerostomia are given in Table 3. In both groups of denture wearers, objective xerostomia was associated with increased scores. The differences did not reach statistical significance.

Discussion

This study revealed that there was a very high prevalence of xerostomia among patients attending the clinic. The study also showed that the oral cleanliness of patients with xerostomia was generally poor.

A potential explanation for xerostomia was determined in more than half of patients with objective xerostomia. Diabetes was particularly common in that group.

Objective xerostomia was statistically more common in complete denture patients. This is probably due to the fact that the mean age of the complete denture wearers was higher.

In both partial and complete denture wearers, objective xerostomia was associated with increased debris scores; however, the differences did not reach statistical significance. This might have been because of the relatively small numbers in some of the groups.

The results of this study are of considerable clinical relevance and should alert clinicians to the high prevalence of xerostomia in denture wearers and encourage them to provide optimum management to help patients avoid further complications and potential difficulties that may result from xerostomia.

Conclusion

There was a high prevalence of xerostomia in the patient population, and the oral hygiene of subjects with both subjective and objective xerostomia was generally poor.

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References

1. Sweeny MP, Bagg J, Baxter WP, Aitchison TC. Oral disease in terminally ill cancer patients with xerostomia. Oral Oncol 1998;34:123–126.
2. Ikebe K, Morii K, Kashiwagi J, Nokubi T, Ettinger RL. Impact of dry mouth on oral symptoms and function in removable denture wearers in Japan. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2005;99:704–710.
3. Nederfors T, Isaksson R, Mornstad H, Dahlof C. Prevalence of perceived symptoms of dry mouth in an adult Swedish population: Relation to age, sex and pharmacotherapy. Community Dent Oral Epidemiol 1997;25:211–216.
4. Osterberg T, Birkhed D, Johansson D, Svanborg A. Longitudinal study of stimulated whole saliva in an elderly population. Scan J Dent Res 1992;100:340–345.
5. Johansson A, Johansson A, Unell L, Ekbäck G, Ordell S, Carlsson GE. Self-reported dry mouth in Swedish population samples aged 50, 65 and 75 years. Gerodontology 2012;29:e107–115.