



Aridity In Senior Citizens

Harshada Ragunathan*, Krithika C, Divya G, Nishanthi L, Priya Ramani, Gayathri P S

Department of Oral Medicine and Radiology, Thai moogambigai Dental college and Hospital, Dr MGR Educational and Research Institute, Chennai – 600107, Tamil Nadu, India

Article History:

Received on: 20 Sep 2020

Revised on: 10 Oct 2020

Accepted on: 22 Oct 2020

Keywords:

Drugs,
Dry mouth,
older people,
Hyposalivation,
Saliva,
Xerostomia

ABSTRACT

Hyposalivation contributes to several health problems. It can produce serious adverse effects on one's quality of life. The prevalence of dry mouth increases with age, and approximately 30% of those aged 60 years and old are being affected. Ageing and medication are the salient causes of hyposalivation / Xerostomia. The study aims to analyse the salivary flow rate of senior citizens by a questionnaire method & to confirm through clinical evaluation. The objective of the study is to show the importance of clinical evaluation of the oral cavity in estimating the salivary flow. The study was conducted among 40 senior citizens of age 60 & above. The assessment of dry mouth was done by questioner method and by collecting unstimulated saliva. The collected data were subjected to statistical analysis, and chi-square test was performed. It showed that patients who believed that they were pretty fine also had hyposalivation clinically. 57.5% of total participants had less salivary flow rate. Also, 67.5% of participants showed oral manifestation of periodontitis with 7.5% mirror stick appearance. 32.5% of participants had dry-mouth out of which most of them were females and had no drug history. Even though there are many signs and symptoms for oral dryness, clinical evaluation always stands first in diagnosis. Patient under drug therapy and elderly patient's routine dental checkup can help them to know about their dental and general health status.



*Corresponding Author

Name: Harshada Ragunathan

Phone: 9442532241

Email: harshada.sragu@gmail.com

ISSN: 0975-7538

DOI: <https://doi.org/10.26452/ijrps.v11iSPL4.4481>

Production and Hosted by

IJRPS | <https://ijrps.com>

© 2020 | All rights reserved.

INTRODUCTION

Saliva is the most valuable biochemical fluid which can be collected easily in a non-invasive method. Sialometry is the study of evaluation of salivary flow rate. Saliva can be collected in different forms like

unstimulated whole saliva, stimulated whole saliva, glandular saliva (mainly parotid) - with or without stimulation, sub-mandibular/ sub-lingual saliva, palatine saliva ([Rantonen and Helsinki, 2003](#)).

The unstimulated salivary flow rate is approximately 0.3–0.4 mL/min ([Humphrey and Williamson, 2001](#)). A diagnosis of hyposalivation is made when the stimulated salivary flow rate is ≤ 0.5 –0.7 mL/min, and the unstimulated salivary flow rate is ≤ 0.1 mL/min ([Pedersen et al., 2002](#)). The xerostomia denotes the subjective feeling, the symptom of dry mouth, whereas hyposalivation denotes the sign, a decreased saliva flow rate ([Nederfors, 2000](#)). The term “dry mouth” has been used to describe both conditions ([Liu et al., 2012](#)). The prevalence of dry mouth increases with age, and approximately 30% of those aged 60 years and old are being affected ([Ship et al., 2002](#)). Hyposalivation contribute to serious negative effects on the patient's

quality of life by affecting dietary habits, nutritional status, speech, taste and tolerance to a dental prosthesis and increases the risk of oral infection (Gupta *et al.*, 2006).

The present study aims to analyse the salivary flow rate of senior citizens by a questioner method and to confirm through clinical evaluation. The objective of the study is to prove the importance of clinical evaluation and to educate the importance of general Oral Health in senior citizens.

MATERIALS AND METHODS

A cross-sectional study was conducted in the Out-Patient Department of Oral Medicine and Radiology. The study consists of 40 participants aged 60 and above. Participants who were willing to participate in the study were selected. Patient's who were under hormonal therapy, treatment for xerostomia, a habit of alcohol or tobacco, neurological disorders, history of radiotherapy or chemotherapy and Hysterectomy were excluded from the study.

After thoroughly explaining the study and obtaining the written consent, A set of 11 self-structured questions which was vetted by experts opinion were formed both in English, and regional language (Tamil) and were given to the participants. The demographic details inclusive of drug history was also obtained after which oral examination and collection of saliva proceeded.

For analysing the flow rate, participants were asked to rinse the mouth with water and open the mouth without swallowing saliva for 5 min. Accumulated saliva was collected by spitting method, and the flow rate was measured. The data obtained were subjected to statistical analysis.

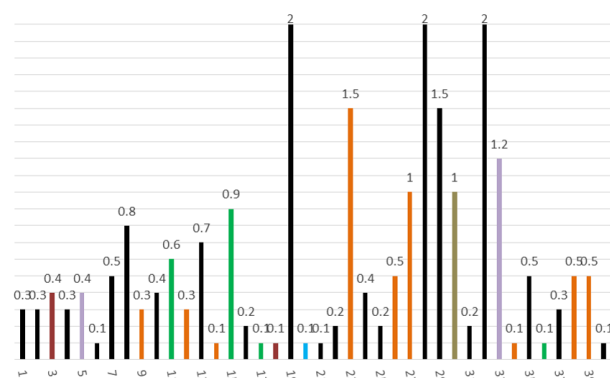


Figure 1: Salivary Flow rate and Drug History

RESULTS AND DISCUSSION

Among the 40 participants who were selected based on the inclusion and exclusion criteria, 20 were

males, and 20 were females. The age of the study participants ranged from 60 to 78 Years. 48% of the total population had a history of systemic diseases.

During the clinical evaluation, it is seen that 57.5% of the participants had less salivary flow rate. From Table 1, it is seen that 42.5% of the population reported dryness of mouth at night or on awakening. Table 2 shows that 67.5% of the participants had an oral manifestation of periodontitis, and 7.5% showed mirror stick appearance. Also, from Table 3 it is evident that dry mouth was seen in 32.5% of participants with no drug history. The salivary flow rate of participants with and without drug history is shown in Figure 1.

32.5% of participants with no drug history and 7.5% of our participants who were in combination drugs suffered from dry mouth.

The X-axis denotes the participant number, and Y-axis denotes the salivary flow rate (ml/5min). Black colour represents the patient with no drug history, Maroon for patients who are under antidiabetic drug, Lavender for cardiovascular drugs, Orange for antihypertensive drug, green for the combination of antidiabetic and hypertensive drug, blue for the combination of antihypertensive, antidiabetic and cardiovascular drugs and beige for the combination of antidiabetic and cardiovascular drugs.

Saliva plays a vital role in the human body. A decrease in the level of saliva leads to dental caries, periodontal problems, ill-fitting denture, mucositis, dysphagia, oral infection and many other problems. Patients with severe xerostomia are 2.3 to 4.9 times more likely to have a negative experience & negative impact on the quality of life (Hopcraft and Tan, 2010). Prevalence of dry mouth was considerably high among elderly patients.

It is always believed that females have increased risk of dry mouth than males which was spotted in our study, where 70% of the females had dry mouth. This was in accordance to (Nederfors *et al.*, 1997; Niklander *et al.*, 2017) and (Locker, 1995) who showed high prevalences of subjective perception of dry mouth in women in their studies.

Medications may act on CNS and neuroglandular junction that are involved in the initiation of salivary secretion (Villa *et al.*, 2016). Sven Niklander *et al.* in his study showed that 82% patients with xerostomia had a systemic disease and 70.5% were in combination drugs at the time of the study (Niklander *et al.*, 2017). In our study, 7.5% of our participants who were in combination drugs had dry-mouth.

There are many studies which have proved that dryness of mouth is more common among patients who

Table 1: Response of participants.

Sl. no	Questions	Yes%	No%	Chi-square Value	P-Value
1.	Does your mouth feel dry while eating?	7.5	92.5	3.243	0.072
2.	Do you have difficulties in swallowing in any kind of food?	20	80	0.625	0.429
3.	Do you need to sip liquids to aid in swallowing dry foods?	37.5	62.5	0.960	0.327
4.	Does the amount of saliva in your mouth seem to be reduced most of the time?	25	75	0.533	0.465
5.	Do you feel the dryness of mouth at night or on awakening?	42.5	57.5	0.921	0.337
6.	Does your mouth feel dry during the daytime?	5	95	2.105	0.147
7.	Do you chew gum or use candy to relieve oral dryness?	2.5	97.5	1.026	0.311
8.	Do you usually wake up thirsty at night?	45	55	0	1
9.	Do you have problems with tasting food?	17.5	82.5	4.329	0.037
10.	Do you have a burning sensation in the mouth?	2.5	97.5	1.026	0.311

Table 2: Oral Manifestations of Senior Citizens.

S.No	Percentage of Participants	Oral Manifestation
1	67.5%	Periodontitis
2	7.5%	Mirror Stick Appearance
3	10%	Edentulous
4	27.5%	Gingivitis

Table 3: Correlation between drug intake and salivary flow rate.

		Medications					Total
		Antidiabetic drugs	Anti-hypertensives	Cardiac drugs	Combination Drugs	Nil	
Dry mouth	No	0	5	1	3	8	17
	Count	0.0%	12.5%	2.5%	7.5%	20.0%	42.5%
mouth	Yes	2	4	1	3	13	23
	Count	5.0%	10.0%	2.5%	7.5%	32.5%	57.5%
Total	Count	2	9	2	6	21	40
	% of Total	5.0%	22.5%	5.0%	15.0%	52.5%	100.0%

are under medication. The frequency of xerostomia is mostly related to the dose and number of medications (Aliko *et al.*, 2015). But in our study patients who were not under any medication also had decreased salivary flow rate.

Womanhood experience an upsurge in oral symptoms that may result from reduced estrogen level, calcium, vitamin deficiency, and several psychological issues throughout menopausal years. The most substantial oral symptom found in the menopausal women is oral dryness (Bhat *et al.*, 2010).

The patient usually complains of dry mouth or burning mouth in case of any decrease of saliva flow. But

according to our study, not all self-reported information is right and as asking patients if his or her mouth is dry are insufficient measures for clinicians to use to determine if the patient has hyposalivation (Wiener *et al.*, 2010).

Prevention programs and treatment of hyposalivation & xerostomia can improve the patient's quality of life (Turner *et al.*, 2008). Treatment includes replacing oral fluids with water; avoiding caffeinated, sweet or acidic drinks; stimulating the salivary glands with sugarless gums & candies; using systemic sialogogic agents such as pilocarpine & cevimeline (Närhi, 1994).

The limitations of this study are that it was carried in a smaller sample size for a shorter duration of time and the probability of patient's honesty is questionable.

CONCLUSIONS

It is imperative from our study that, dryness of mouth is strongly seen in elderly females and in people who are under a combination of drugs. Obtaining routine unstimulated salivary flow rates in addition to self-reported information may increase early detection of oral dryness, which would assist in implementing early interventions.

Funding Support

The authors declare that they have no funding support for this study.

Conflict Of Interest

The authors declare that they have no conflict of interest for this study.

REFERENCES

- Aliko, A., Wolff, A., Dawes, C., Aframian, D., Proctor, G., Ekström, J. 2015. World Workshop on Oral Medicine VI: clinical implications of medication-induced salivary gland dysfunction. *Oral Surgery, Oral Medicine, Oral Pathology and Oral Radiology*, 120:185–206.
- Bhat, S., Hegde, S., Sujatha, D. 2010. A study on evaluation of the effect of menopause on saliva and dental health. *Journal of Advanced Oral Research*, 1(1):33–36.
- Gupta, A., Epstein, J. B., Sroussi, H. 2006. Hyposalivation in elderly patients. *Journal of the Canadian Dental Association*, (9):72–72.
- Hopcraft, M. S., Tan, C. 2010. Xerostomia: an update for clinicians. *Australian Dental Journal*, 55(3):238–244.
- Humphrey, S. P., Williamson, R. T. 2001. A review of saliva: Normal composition, flow, and function. *The Journal of Prosthetic Dentistry*, 85:162–169.
- Liu, B., Dion, M. R., Jurasic, M. M., Gibson, G., Jones, J. A. 2012. Xerostomia and salivary hypofunction in vulnerable elders: prevalence and etiology. *Oral Surgery, Oral Medicine, Oral Pathology and Oral Radiology*, 114:52–60.
- Locker, D. 1995. Xerostomia in older adults: a longitudinal study. *Gerodontology*, 12(1):18–25.
- Närhi, T. O. 1994. Prevalence of Subjective Feelings of Dry Mouth in the Elderly. *Journal of Dental Research*, 73(1):20–25.
- Nederfors, T. 2000. Xerostomia and Hyposalivation. *Advances in Dental Research*, 14(1):48–56.
- Nederfors, T., Isaksson, R., Mornstad, H., Dahlof, C. 1997. Prevalence of perceived symptoms of dry mouth in an adult Swedish population - relation to age, sex and pharmacotherapy. *Community Dentistry and Oral Epidemiology*, 25:211–216.
- Niklander, S., Veas, L., Barrera, C., Fuentes, F., Chiappini, G., Marshall, M. 2017. Risk factors, hyposalivation and impact of xerostomia on oral health-related quality of life. *Brazilian Oral Research*, 31(0).
- Pedersen, A. M., Bardow, A., Jensen, S. B., Nauntofte, B. 2002. Saliva and gastrointestinal functions of taste, mastication, swallowing and digestion. *Oral Diseases*, 8(3):117–129.
- Rantonen, P., Helsinki 2003. Salivary flow and composition in healthy and diseased adults.
- Ship, J. A., Pillemer, S. R., Baum, B. J. 2002. Xerostomia and the Geriatric Patient. *Journal of the American Geriatrics Society*, 50(3):535–543.
- Turner, M., Jahangiri, L., Ship, J. A. 2008. Hyposalivation, xerostomia and the complete denture. *The Journal of the American Dental Association*, 139(2):146–150.
- Villa, A., Wolff, A., Narayana, N., Dawes, C., Aframian, D. J., Pedersen, A. L. 2016. World Workshop on Oral Medicine VI: a systematic review of medication-induced salivary gland dysfunction. *Oral Diseases*, 22(5):365–382.
- Wiener, R. C., Wu, B., Crout, R., Wiener, M., Plassman, B., Kao, E. 2010. Hyposalivation and Xerostomia in Dentate Older Adults. *The Journal of the American Dental Association*, 141(3):279–284.