

Original Research

Comparative study of Management of Xerostomia among Denture Wearer

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ABSTRACT

Background: Xerostomia is most frequently associated with the altered salivary gland function. The present study was conducted to assess management of xerostomia among denture wearer. **Materials & Methods:** The present study was conducted on 120 edentulous patients of both genders. Patients were divided into 2 groups. Group I patients was given Pilocarpine and group II were given bethanechol for a week's course. In all patients, whole resting saliva (WRS) and whole stimulated saliva (WSS) were collected and compared. **Results:** Baseline salivary value was 0.52 mg/min in group I and 0.58 mg/min in group II. Whole resting saliva in group I was 0.76 mg/min and in group II was 0.71 mg/min. Whole stimulated saliva was 1.89 mg/min in group I and 1.54 mg/min in group II. The difference was significant ($P < 0.05$). **Conclusion:** Authors found that Pilocarpine is an effective sialagogue agent that can be safely used in xerostomic edentulous patients.

Key words: Pilocarpine, sialagogue, Xerostomia.

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INTRODUCTION

Saliva is one of the most essential fluids of the body. Patients never realize how important it is until it is missing, and ordinary things, like eating or speaking, become a daily problem. The sensation of dry mouth, or xerostomia, is a common complaint in clinical practice.¹ Xerostomia is defined as "a subjective sensation of dry mouth," which is usually correlated with low salivary flow rates (hyposalivation). Nevertheless, many patients have a dry mouth sensation with normal salivary flow rates; therefore, xerostomia does not necessarily reflect salivary gland hypofunction.²

Although xerostomia is most frequently associated with the altered salivary gland function, there are many other etiologies for this condition. It is important to perform a complete clinical examination and evaluation of the patient with xerostomia to determine the cause of the condition, so that it will be appropriate for implementing the management in a timely manner.³ The patient with xerostomia that is due to salivary gland hypofunction is at risk for many other oral complications, and it is difficult to implement appropriate preventive measures. Xerostomia may also be a due to the association of systemic disease, and only

early recognition may aid in treatment. Xerostomia is more frequent with an increase in age, and over 25% of elders are xerostomic, that is, the percentage is even higher in elders.⁴ The present study was conducted to assess management of xerostomia among denture wearer.

MATERIALS & METHODS

The present study comprised of 120 edentulous patients of both genders. All patients were informed regarding the study and written consent was obtained. Ethical clearance was taken from institute ethical committee.

Data such as name, age, gender etc. was recorded. Patients were divided into 2 groups. Group I patients was given Pilocarpine and group II were given bethanechol for a week’s course. In all patients, whole resting saliva (WRS) and whole stimulated saliva (WSS) were collected for almost 5 minutes by expectoration into a pre-weighed wide-mouth centrifuge tubes, and it was weighed after the collection of the specimen. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Group	Group I	Group II
Drug	Pilocarpine	Bethanechol
Number	60	60

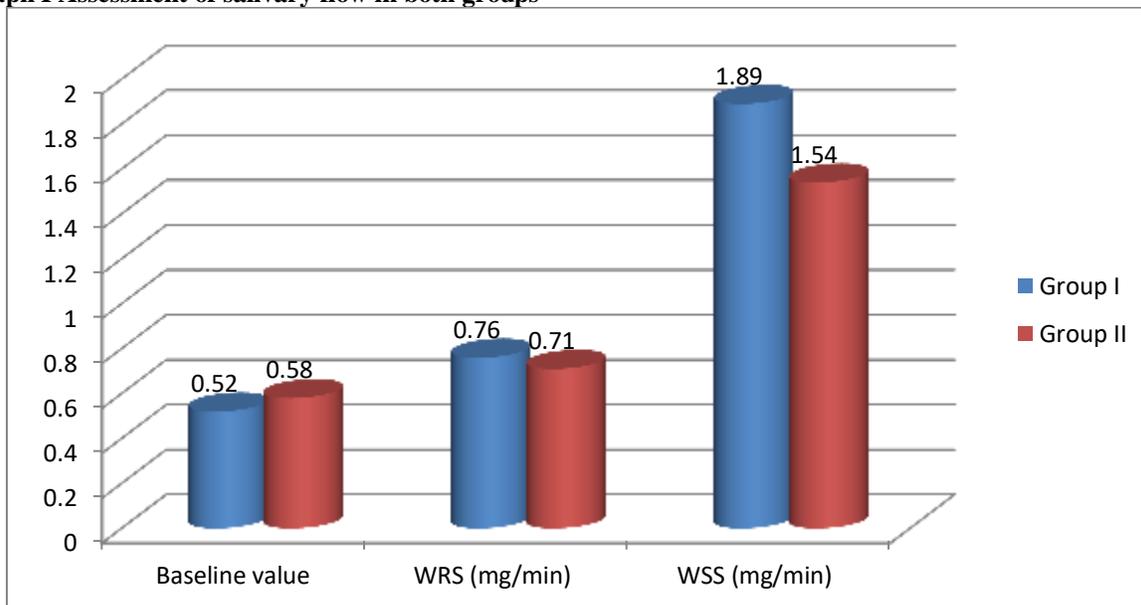
Table I shows that group I patients was given Pilocarpine and group II were given bethanechol. Each group had 60 patients.

Table II Assessment of salivary flow in both groups

Parameters	Group I	Group II	P value
Baseline value	0.52	0.58	0.91
WRS (mg/min)	0.76	0.71	0.12
WSS (mg/min)	1.89	1.54	0.05

Table II, graph I shows that baseline salivary value was 0.52 mg/min in group I and 0.58 mg/min in group II. Whole resting saliva in group I was 0.76 mg/min and in group II was 0.71 mg/min. Whole stimulated saliva was 1.89 mg/min in group I and 1.54 mg/min in group II. The difference was significant (P< 0.05).

Graph I Assessment of salivary flow in both groups



DISCUSSION

Xerostomia is a common problem. Its prevalence is difficult to determine, because it varies between different geographical zones and age groups, and because of differences in the inclusion criteria and methodology of studies. Epidemiological studies have reported its prevalence to be between 0.9% and 64.8%.⁵ Clinical condition caused by a decrease in the production of saliva is termed as xerostomia. It may present itself as a symptom that may be associated with systemic diseases such as diabetes, Sjogren's syndrome, and alcoholism, or as a side effect of any medications, and other conditions such as menopause, following therapeutic radiation and vitamin deficiencies.⁶ A temporary decrease in saliva could be from sialolithiasis or emotional reaction. Edentulous patients who are suffering from xerostomia may present with a complaint of not only of dry mouth but also of difficulty in normal functions such as eating, swallowing, and speaking and this may lead to increased susceptibility to infections and also extreme discomfort and difficulty in wearing dentures is a common complaint.⁷ The present study was conducted to assess management of xerostomia among denture wearer.

In present study, group I patients was given Pilocarpine and group II were given bethanechol. Each group had 60 patients. Epstein et al⁸ conducted a study in which whole resting saliva (WRS) and whole stimulated saliva (WSS) were collected for 2 min in a test tube following which the sialagogue drug is administered for 2–3 weeks course and the results were statistically analyzed. On statistical analysis, there was significant increase in mean salivary production of both the drugs that are pilocarpine and bethanechol, respectively, during the 1st week ($P < 0.001$). On crossover, pilocarpine was found to be more efficient than bethanechol with respect to both WRS and WSS, respectively.

We found that baseline salivary value was 0.52 mg/min in group I and 0.58 mg/min in group II. Whole resting saliva in group I was 0.76 mg/min and in group II was 0.71 mg/min. Whole stimulated saliva was 1.89 mg/min in group I and 1.54 mg/min in group II. Chainani et al⁹ reported that the use of medications and age independently increases the likelihood of developing xerostomia 1.24 times for every 10 years of age. The same authors also reported almost four times greater prevalence of xerostomia in patients taking medications (28%), compared with those not taking any (7.5%). It has been reported that not only the type of drug, but also the number of drugs taken (polypharmacy, or simultaneous, multiple use of drugs) increases the likelihood of developing xerostomia, which is a common feature in elderly patients.

Pilocarpine and bethanechol are the most known sialagogue agent used in the management of xerostomia. Pilocarpine is cholinergic, parasympathetic agonists with the recommended dosage of 5 mg 4 times a day which, in general, contraindicated in patients with glaucoma, uncontrolled asthma, and hypersensitivity. Although it is the most commonly used drug in the management of xerostomia, it has the side effects of primarily sweating, nausea, and rhinitis. Bethanechol which is an analog of acetylcholine that has muscarinic activity with the recommended dosage of 25 mg 4 times a day.¹⁰

CONCLUSION

Authors found that Pilocarpine is an effective sialagogue agent that can be safely used in xerostomic edentulous patients.

REFERENCES

1. Murray Thomson W, Poulton R, Mark Broadbent J, Al-Kubaisy S. Xerostomia and medications among 32-year-olds. *Acta Odontol Scand*. 2006;64(4):249-54.
2. Thomson WM, Brown RH, Williams SM. Medication and perception of dry mouth in a population of institutionalised elderly people. *N Z Med J*. 1993;106(957): 219-21.
3. Gómez-Moreno G, Guardia J, Aguilar-Salvatierra A, Cabrera-Ayala M, Maté-Sánchez de-Val JE, Calvo-Guirado JL. Effectiveness of malic acid 1% in patients with xerostomia induced by antihypertensive drugs. *Med Oral Patol Oral Cir Bucal*. 2013;18(1):49-55.
4. Furness S, Worthington HV, Bryan G, Birchenough S, McMillan R. Interventions for the management of dry mouth: topical therapies. *Cochrane Database Syst Rev*. 2013;9(12):1
5. Davies AN, Daniels C, Pugh R, Sharma K. A comparison of artificial saliva and pilocarpine in the management of xerostomia in patients with advanced cancer. *Palliat Med*. 1998;12(2):105-11.
6. Fox PC, Atkinson JC, Macynski AA, Wolff A, Kung DS, Valdez IH, et al. Pilocarpine treatment of salivary gland hypofunction and dry mouth (xerostomia). *Arch Intern Med* 1991;151:1149-52.
7. Johnson JT, Ferretti GA, Nethery WJ, Valdez IH, Fox PC, Ng D, et al. Oral pilocarpine for post-irradiation xerostomia in patients with head and neck cancer. *N Engl J Med* 1993;329:390-5.
8. Epstein JB, Burchell JL, Emerton S, Le ND, Silverman S. A clinical trial of bethanechol in patients with xerostomia after radiation therapy. A pilot study. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 1994;77:610-4.
9. Chainani-Wu N, Gorsky M, Mayer P, Bostrom A, Epstein JB. Assessment of the use of sialogogues in the clinical management of patients with xerostomia. *Spec Care Dent* 2006;26:164-70.
10. Al-Dwairi ZI, Lynch E. Xerostomia in complete denture wearers: Prevalence, clinical findings and impact on oral functions. *Gerodontology* 2014;31:49-55.