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KNOWLEDGE AND AWARENESS OF XEROSTOMIA AMONG DENTAL PRACTITIONERS

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ABSTRACT

Introduction: Xerostomia is dryness of oral cavity caused due to multiple etiological factors like medications, radiotherapy and certain diseases like Sjogren's syndrome and elderly people. The aim of the present study is to evaluate the awareness of xerostomia among dental practitioners.

Material and methods: It included 100 dentists from various parts of India and a questionnaire of 10 questions were preformed and distributed to them. Responses were collected and assessment has been done accordingly.

Results: Most of the dentist are aware of xerostomia and its clinical signs and management and the adjuvant therapy of treating xerostomia.

Conclusion: Dentists have the opportunity to identify patients with the complaint of xerostomia with effective diagnostic methods and functional tests, and help the patient to prevent secondary effects and improve the overall well being of the patient.

Keywords: Xerostomia, dentist, dry mouth

INTRODUCTION

Xerostomia is referred as dry mouth and it is a subjective complaint **[1]**. Patients complaining of xerostomia mostly do not show any objective sign of hyposalivation and their symptoms may be secondary to changes in the composition of the saliva **[2, 3]**. The average salivary flow rate of stimulated saliva ranges from 1.5–2.0 mL/min while the salivary flow rate is 0.3–0.4 mL/min for unstimulated saliva **[4, 5]**. Diagnosis of xerostomia in patients with objective hyposalivation is made when the salivary flow rate is less than the rate of fluid absorption across the oral mucosa and at the rate of evaporation of from the oral cavity **[6]**. The most common cause is the use of certain systemic medications, which make the elderly at greater risk because they usually use more medications due to systemic diseases. Other causes are radiotherapy and certain diseases like Sjogren's syndrome. Xerostomia is associated with difficulties such as chewing, swallowing, or speaking. This affects the quality of life since it results in poor diet leading to malnutrition and decreased social interaction. A thorough intra-oral and clinical examination is important for diagnosis. Treatment may include the use of salivary substitutes, salivary stimulants such as pilocarpine, caries prevention, and a review of the drug regimen and possible elimination of drugs causing dryness of oral cavity. Therefore, the purpose of this study is to outline the knowledge and awareness about xerostomia among dental practitioners related to the common etiologies, clinical signs and symtoms, and routine treatment modalities available for individuals with xerostomia.

The aim of the study was to assess the knowledge and awareness of xerostomia among dental practitioners.

MATERIALS AND METHOD

Study design and population: The present study included 100 dentists from various parts of India. All the dentist including both BDS and MDS with different speciality participated in the study.

A pre-formulated questionnaire was prepared, consisting of 10 questions each question consisted of four options **(Table 1)**. It was formatted on google forms and circulated through social media. Before starting the questionnaire demographic data (qualification, gender, experience) was collected from the participants. The questions were designed to assess the knowledge and awareness of xerostomia and its management

by the dentists. Data was then recorded and tabulated in excel sheets for assessment.

Statistical analysis

The collected data were tabulated and analysis was done using the Statistical Package for Social Sciences Version 26.0 (SPSS software). Results on categorical data were given as frequency distribution.

Table 1: Questionnaire and Response of Participants

QUESTIONS	FREQUENCY
1. Xerostomia refers to	
a) Change in taste perception	**0**
b) Change in pH of saliva	**0**
c) Dryness of eyes	**0**
d) Dryness of mouth	**100**
2. Which is the method used to measure salivary flow rate	
a) Sialography	**32**
b) Barium swallow method	**6**
c) Sialometry	**62**
d) Ultrasonography	**0**
3. xerostomia patient mostly complaints of	
a) Difficulty in mastication	**0**
b) Difficulty in deglutition	**0**
c) Burning sensation	**28**
d) All of above	**72**
4.Drugs that causes xerostomia	
a) Antihistamines	**20**
b) Anti hypertensive drugs	**6**
c) Antipsychotic drugs	**10**
d) All of above	**64**
5. Clinical signs elicited in xerostomia	
a) Tongue blade sign	**58**
b) Lipstick sign	**0**
c) Both a and b	**2**
d) None of above	**40**
6. Xerostomia, is a major complaints in patiences diagnosed with	
a) Steven johnson syndrome	**24**
b) Sjogren syndrome	**42**
c) Eagles syndrome	**20**
d) None of above	**14**
7. Reduction in salivary flow is generally seen in	
a) Elderly patient	**2**
b) Patient undergoing radiation therapy	**8**
c) Patient under antidepression drugs	**12**
d) All of above	**78**
8. Management of xerostomia symptoms	
a) Frequent and regular sips of water	
b) Artificial saliva	
c) Avoidance of dry, hard, sticky, acidic foods	
d) All of above	

9. Adjuvant therapy of xerostomia	
a) Acupuncture	**8**
b) Tens therapy	**6**
c) Both a and b	**0**
d) none of above	**86**
10. The common dental disease associated with xerostomia	
a) Dental fluorosis	**0**
b) Dental caries	**0**
c) Vertical root fracture	**28**
d) none of the above	**72**
	2
	96
	0
	2

RESULTS

Dentists from different parts of India were selected for the study and a total of 100 dentists participated in the present study. The response in the present study stated that regarding qualification 36% of them were MDS and 64% of them were BDS **(Figure 1)** and in gender distribution 28% were male and 72% were female **(Figure 2)**. Experience of the participants were also recorded which shows 1-5 years (52%), 6- 10 years (18%), 11 & above years (4%) and freshers (26%) **(Figure 3)**. All the dentists (100%) were aware about xerostomia **(Chart 1)**. About 62% of them were aware about the method to measure salivary flow rate **(Chart 2)**. For the awareness of symptoms of xerostomia 72% of them were aware of all the symptoms whereas 28% said only burning sensation **(Chart 3)**. Likewise for drugs causing xerostomia 20% said antihistamines, 6% answered as antihypertensives, 10% answered antipsychotic drugs, 64% of the participant were aware about all the drugs **(Chart 4)**. About 58% responded that tongue blade sign can be elicited in xerostomia, only 2% of the participant responded for both tongue blade and lipstick sign, 40% of them responded for none of the signs. For the question in which syndrome xerostomia is a major complaint 24% responded as Steven Johnson syndrome, 42% responded as Sjogrens syndrome, 20% responded as Eagles syndrome and 14% as none of the above. For the question reduction of salivary flow rate is generally seen in which cases 2% responded as elderly patients, 8% in patients undergoing radiotherapy, 12% as patient under anti depression drugs, 78% responded as all of the above. For management of xerostomia symptoms 8% responded as frequent sips of water, 6% as artificial saliva,

86% responded as all of the above which included avoiding hard and sticky foods. For adjuvant therapy used in xerostomia 28% responded for both acupuncture and tens therapy, and 72% responded as none of the above **(Chart 5)**. For common dental disease associated with xerostomia 2% responded as dental fluorosis 96% as dental caries, none responded for vertical root fracture and 2% responded as none of the above **(Chart 6)**.

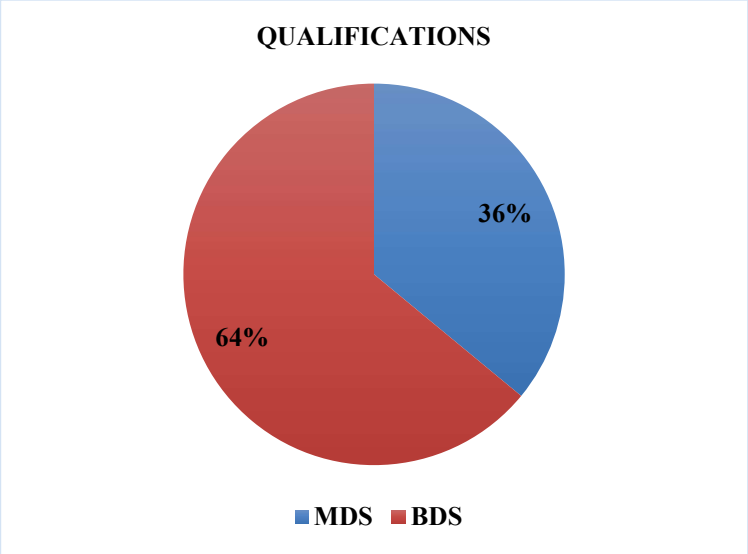


Figure 1

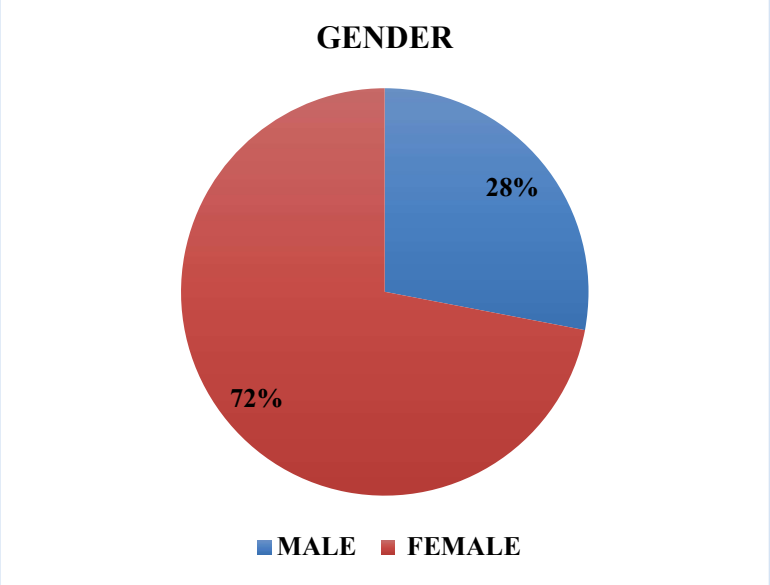


Figure 2

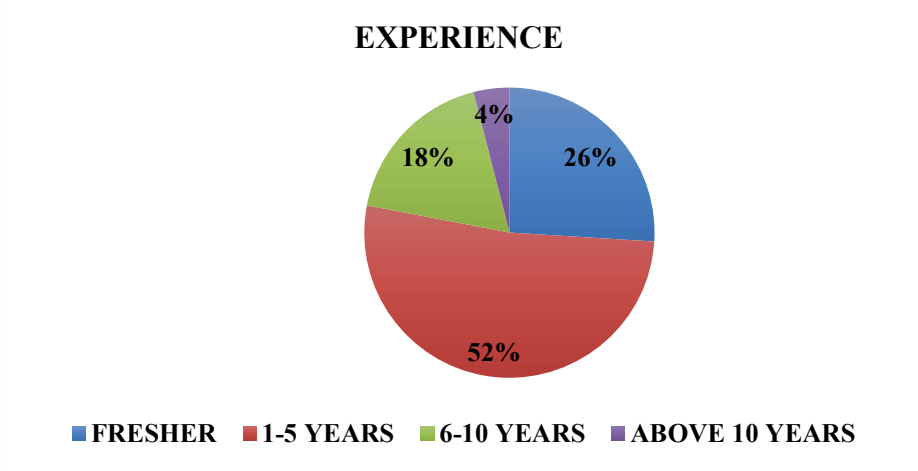


Figure 3

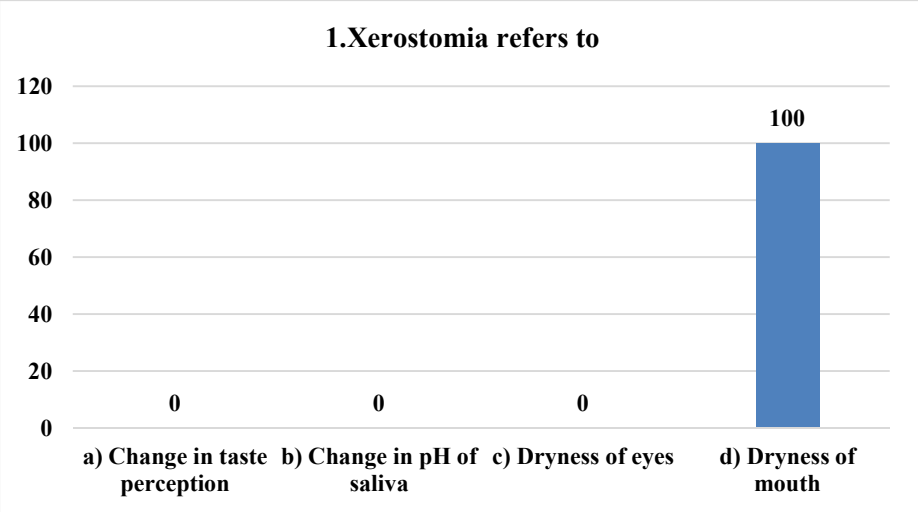


Chart 1

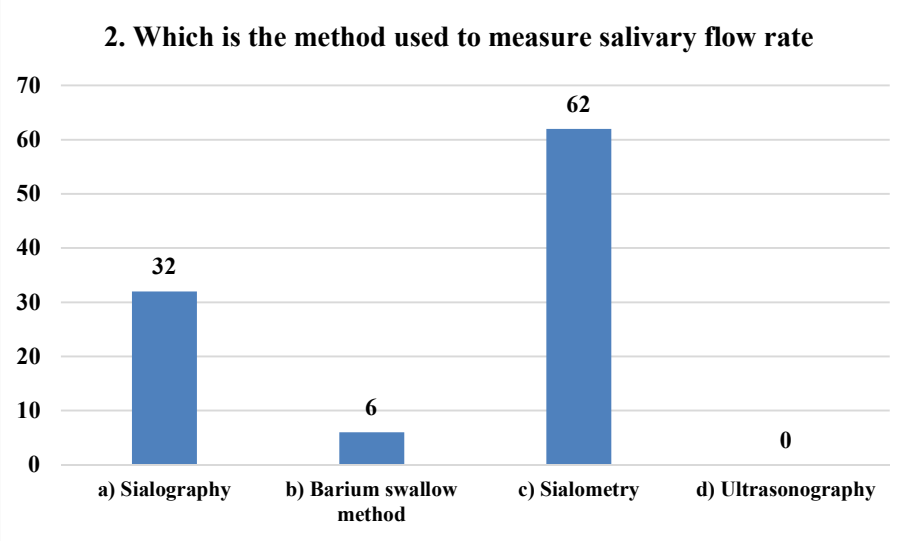
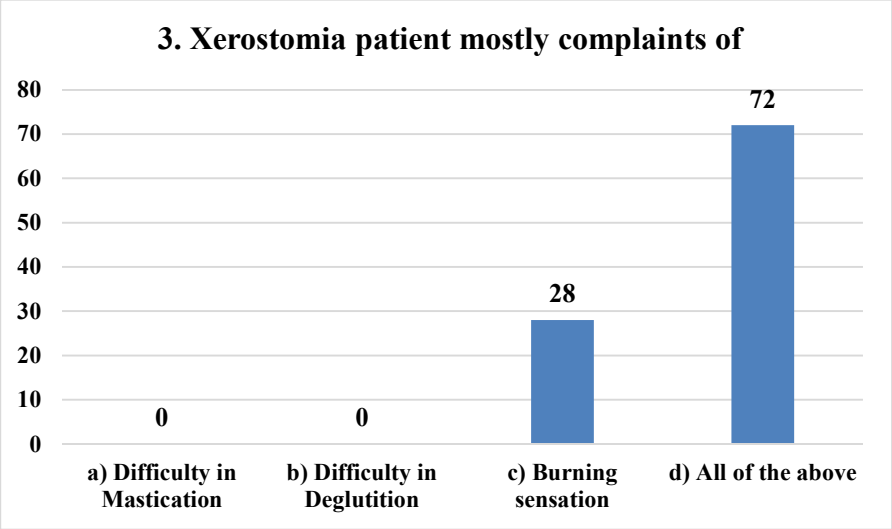


Chart 2



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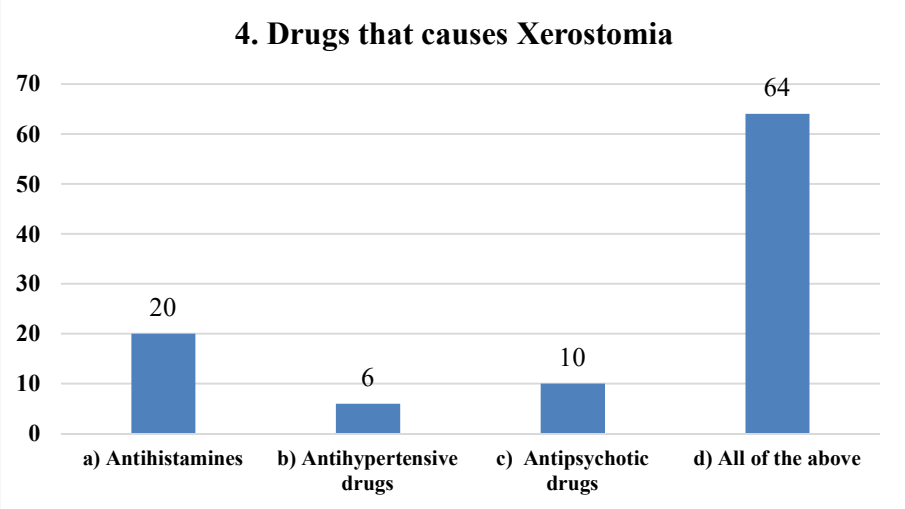

Chart 4

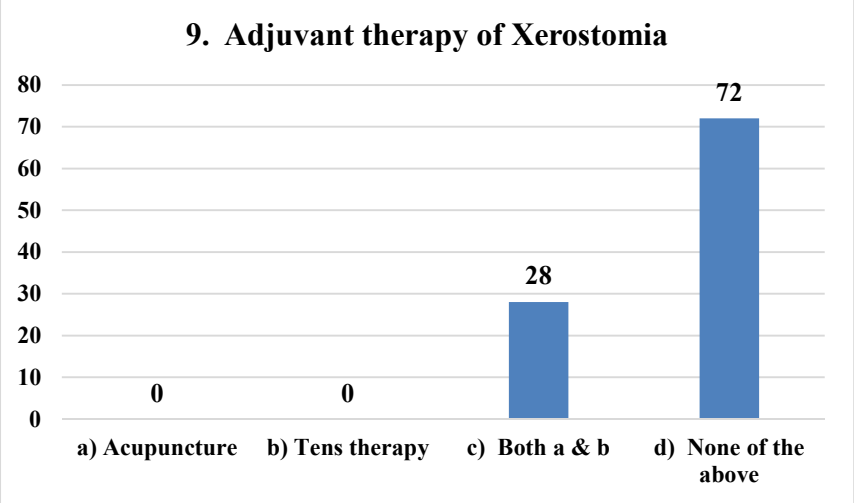

Chart 5

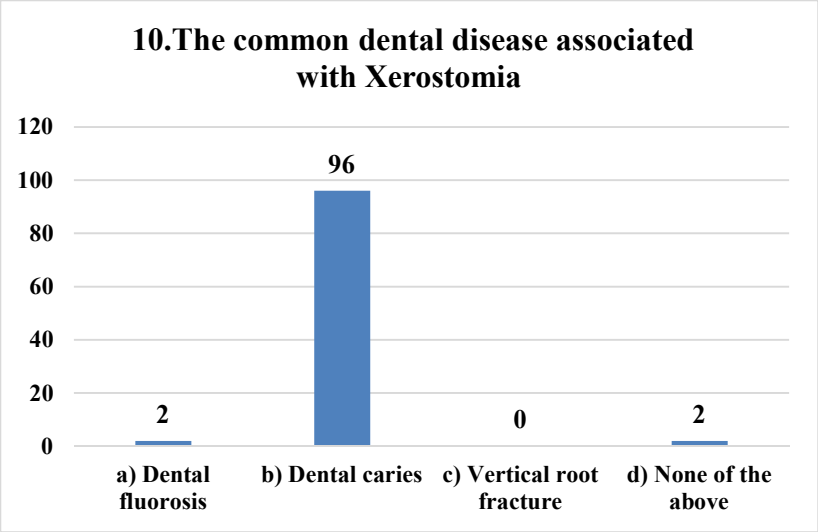

Chart 6

DISCUSSION

Xerostomia when it is chronic remains a significant burden for many patients. Particularly, it affects speech, mastication, deglutition, and generally the well-being **[7]**. In our study more than half of the study population were aware about these symptoms. Xerostomia leads to many oral diseases like dental caries, oral candidiasis, changes in taste perception, halitosis, or burning sensation of the oral cavity **[8, 9]**. In the present study most of the participants were aware of the diseases. The most frequent cause is the use of certain medications (such as antidepressants, antihypertensives, antihistamines). It is one of the major risk factors for xerostomia and in addition, polypharmacy has been shown to significantly influence patients' saliva flow **[8, 10]** followed by patients undergoing radiotherapy to the head and neck region, and next cause is Sjogren's syndrome **[11]**. In our study 64% were aware about drugs causing xerostomia and 96%were aware of dental caries as common dental disease caused due to xerostomia. Studies have shown differences in the prevalence xerostomia appears to increase with increasing age. A possible explanation is that older individuals take several xerogenic drugs for their chronic conditions and this may lead to an overall reduction of the unstimulated salivary flow rate **[1, 8, 11, 12-16]**. Xerostomia remains an unresolved common complaint especially among the geriatric population, despite seeking medical or dental consultation **[17]**. A careful oral examination is fundamental to identify clinical signs pathognomonic for xerostomia. Several helpful signs have been proposed

like sticking of an intraoral mirror to the buccal mucosa or tongue; frothy saliva; no saliva pooling in floor of mouth, cervical caries **[18]**. In our study 58% were aware about tongue blade sign. The other remedies have been proposed for the management of xerostomia. Increase in salivary flow using intraoral electro stimulation has also been tested **[19, 20]**. Reports have shown that intraoral appliances, such as the saliva stimulation device have been effective in xerostomia and increasing the production of saliva **[21]**. Acupuncture may be a useful adjunct for the stimulation of salivary flow in some patients with xerostomia and in patients with irradiation-induced xerostomia. However, additional larger studies are necessary to confirm these findings **[22, 23]**. Likewise in our study 78% of the participants were aware about general management of xerostomia but only 28% were aware about adjuvant therapy for xerostomia.

CONCLUSION

Xerostomia remains as a debilitating condition for several patients although many treatment options exist for the management of xerostomia like topical agents to alleviate and/or prevent xerostomia, systemic therapy, or newer devices. Systemic agents such as pilocarpine or cevimeline have been largely studied, and new medical devices are used which require large well designed clinical trials. However, there is a need for well controlled and an appropriately designed clinical trials of therapies for the treatment of xerostomia. Dentists have the opportunity to identify patients with the complaint of xerostomia with effective diagnostic methods and functional tests, hence they help the patient to prevent secondary effects and improve the overall well being of the patient. Elderly population, and the concomitant increase in people under medication for various systemic diseases, dentists can expect to be presented with xerostomia in an increasing number of patients in the coming years and therefore should be familiar with its diagnosis and treatment.

REFEENCES

[1] Hopcraft MS, Tan C. Xerostomia: an update for clinicians. *Aust Dent J.* 2010; **55**(3): 238–244. quiz 353.

[2] Van der Putten GJ, Brand HS, Schols JM, de Baat C. The diagnostic suitability of a xerostomia questionnaire and the association between xerostomia, hyposalivation and medication use in a group of nursing home residents. *Clin Oral Investig.* 2011; **15**(2): 185–192.

[3] Fox PC, van der Ven PF, Sonies BC, Weiffenbach JM, Baum BJ.

Xerostomia: evaluation of a symptom with increasing significance. *J Am Dent Assoc.* 1985; **110**(4): 519–525.

[4] Humphrey SP, Williamson RT. A review of saliva: normal composition, flow, and function. *J Prosthet Dent.* 2001; **85**(2): 162–169.

[5] Pedersen AM, Bardow A, Jensen SB, Nauntofte B. Saliva and gastrointestinal functions of taste, mastication, swallowing and digestion. *Oral Dis.* 2002; **8**(3): 117–129.

[6] Dawes C. How much saliva is enough for avoidance of xerostomia? *Caries Res.* 2004; **38**(3): 236–240.

[7] Cassolato SF, Turnbull RS. Xerostomia: clinical aspects and treatment. *Gerodontology.* 2003; **20**(2): 64–77.

[8] Villa A, Polimeni A, Strohmenger L, Cicciù D, Gherlone E, Abati S. Dental patients' self-reports of xerostomia and associated risk factors. *J Am Dent Assoc.* 2011; **142**(7): 811–816.

[9] Ekström J, Khosravani N, Castagnola M, Messana I. Saliva and the control of its secretion. In: Ekberg O, editor. *Dysphagia: Diagnosis and Treatment.* Berlin: Springer-Verlag; 2012. pp. 19–47.

[10] Singh ML, Papas A. Oral Implications of Polypharmacy in the Elderly. *Dent Clin North Am.* 2014; **58**(4): 783–796.

[11] Thomson WM. Issues in the epidemiological investigation of dry mouth. *Gerodontology.* 2005; **22**(2): 65–76

[12] Leal SC, Bittar J, Portugal A, Falcão DP, Faber J, Zanotta P. Medication in elderly people: its influence on salivary pattern, signs and symptoms of dry mouth. *Gerodontology.* 2010; **27**(2): 129–133.

[13] Astor FC, Hanft KL, Ciocon JO. Xerostomia: a prevalent condition in the elderly. *Ear Nose Throat J.* 1999; **78**(7): 476–479.

[14] Liu B, Dion MR, Jurasic MM, Gibson G, Jones JA. Xerostomia and salivary hypofunction in vulnerable elders: prevalence and etiology. *Oral Surg Oral Med Oral Pathol Oral Radiol.* 2012; **114**(1): 52–60.

[15] Locker D. Subjective reports of oral dryness in an older adult

population. *Community Dent Oral Epidemiol.* 1993; **21**(3): 165–168.

[16] Thorselius I, Emilson CG, Osterberg T. Salivary conditions and drug consumption in older age groups of elderly Swedish individuals. *Gerodontics.* 1988; **4**(2): 66–70.

[17] Nagler RM. Salivary glands and the aging process: mechanistic aspects, health-status and medicinal-efficacy monitoring. *Biogerontology.* 2004; **5**(4): 223–233.

[18] Osailan S, Pramanik R, Shirodaria S, Challacombe SJ, Proctor GB. Investigating the relationship between hyposalivation and mucosal wetness. *Oral Dis.* 2011; **17**(1): 109–114.

[19] Strietzel FP, Lafaurie GI, Mendoza GR, et al. Efficacy and safety of an intraoral electrostimulation device for xerostomia relief: a multicenter, randomized trial. *Arthritis Rheum.* 2011; **63**(1): 180–190.

[20] Strietzel FP, Martin-Granizo R, Fedele S, *et al*. Electrostimulating device in the management of xerostomia. *Oral Dis.* 2007; **13**(2): 206–213.

[21] Alajbeg I, Falcão DP, Tran SD, *et al*. Intraoral electrostimulator for xerostomia relief: a long-term, multicenter, open-label, uncontrolled, clinical trial. *Oral Surg Oral Med Oral Pathol Oral Radiol.* 2012; **113**(6): 773–781.

[22] Blom M, Dawidson I, Angmar-Månsson B. The effect of acupuncture on salivary flow rates in patients with xerostomia. *Oral Surg Oral Med Oral Pathol.* 1992; **73**(3): 293–298.

[23] O'Sullivan EM, Higginson IJ. Clinical effectiveness and safety of acupuncture in the treatment of irradiation-induced xerostomia in patients with head and neck cancer: a systematic review. *Acupunct Med.* 2010; **28**(4): 191–199.