Prevalence of oral mucosal status in resident and non-resident nursing home in Isfahan city, Iran: a comparative cross-sectional study

Prevalência da condição da mucosa oral em idosos residente em casas de repouso ou não residente, na cidade de Isfahan, Irã: um estudo transversal comparativo

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ABSTRACT

Objective: The aim of this study was to evaluate the oral mucosal status of residents nursing home and non-resident in Isfahan, Iran and compare them with each other. **Material and Methods:** This was a cross-sectional study comparing 281 elderly in two groups: 141 resident and 140 non-residents nursing homes in Isfahan, Iran. The selection of nursing home and all of elderly was randomly. The non-residents elderly were randomly selected from the public places adjacent to the nursing home. Persons were examining and the relevant information recorded in a checklists. Data were analyzed by SPSS version 24 using t-test, chi square, Mann-Whitney, Fisher exact test. (α =0/05). **Results:** The sample of the case was 281 people, including 135 males (48%) and 146 females (52%). Of all the subjects 153 patients (54.4%) had at least one oral lesion, 78 (55.3%) in resident nursing home and 75 (53.6%) in non-resident. There was no significant difference between two groups based on Chi-Square test (P>0/05). In this study, 25 different types of lesions were recorded, the most common lesion in all participants was epulis fissuratum (12.1%). **Conclusion:** The results showed that the prevalence of mucosal lesions is high in the elderly living in the centers and in the non-resident. Therefore, maintaining dentures is necessary to prevent and control lesions.

KEYWORDS

Lesion; Mouth mucosa; Elderly; Nursing home; Cross-sectional study.

RESUMO

Objetivos: O objetivo deste estudo foi avaliar a condição da mucosa oral de residentes em casas de repouso e não residentes em Isfahan, Irã, e compará-los entre si. **Material e Métodos:** Estudo transversal que comparou 281 idosos em dois grupos: 141 casas de repouso residentes e 140 não residentes em em casas de repouso na cidade de Isfahan, Irã. A seleção da casa de repouso de idosos e todos os idosos envolvidos foi aleatória. Os idosos não residentes foram selecionados aleatoriamente nos locais públicos adjacentes ao lar de idosos. As pessoas foram examinadas e as informações relevantes registradas. Os dados foram analisados pelo SPSS versão 24, utilizando o teste t, Qui-quadrado, Mann-Whitney, teste exato de Fisher (α = 0/05). **Resultados:** A amostra do estudo constou de 281 pessoas, incluindo 135 homens (48%) e 146 mulheres (52%). Do total geral, 153 pacientes (54,4%) apresentaram pelo menos uma lesão oral, sendo 78 (55,3%) em idosos residentes na casa de repouso e 75 (53,6%) em idosos não-residentes. Não houve diferença significativa entre os dois grupos com base no teste do Qui-quadrado (p>0.05). Neste estudo, foram registrados 25 tipos diferentes de lesões, sendo que a lesão mais comum em todos os participantes foi a epulis fissuratum (12,1%). **Conclusão:** Os resultados mostraram que a prevalência de lesões nas mucosas é alta nos idosos residentes nas casas de repouso e também em não residentes. Portanto, a manutenção da prótese é necessária para prevenir e controlar as lesões.

PALAVRAS-CHAVE

Lesão; Mucosa bucal; Idosos; Lar de idosos; Estudo transversal.

INTRODUCTION

Oral mucosal lesions include a very wide range of benign, pre-cancerous and malignant lesions. Oral health plays an important role in people's quality of life. Oral lesions can lead to discomfort, pain, interference with the functions of chewing, swallowing and speaking. In addition, they can cause to bad smell and dry mouth, which may interfere with the daily activities of patients [1]. The prevalence of oral mucosal lesion in general population globally varies significantly across different countries and areas, ranging from 4.9% to 64.7% [1,2]. According to the World Health Organization (WHO) statement in 1984, the elderly population is over 60 years of age. Due to an increase in the average age of humans, an important part of the population is made up of elderly, and need to receive more dental care [3].

Many lesions and oral conditions are associated with age, and can have significant effects on quality of life [4]. As periodontal diseases and dental problems, oral mucosal diseases are also seen in the elderly. Endodontics and followed by use of removable prosthesis, can cause some mucosal lesions such as prosthetic osteoarthritis, lumbar puncture, epulis fissuratum, and traumatic ulcer. Also, some vascular lesions (varicose veins), pre-cancerous lesions (such as leukoplakia and erythropoelacia) are more common in the elderly than non-elderly people [2]. In large cities of Iran, elderly people are maintained at the elderly care centers, and it seems that oral lesions are more prevalent due to the use of dentures, smoking, and systemic diseases [5].

Several studies have shown that elderly people living with their families are healthier due to the social and emotional support of family members and useful social relationships [6,7]. In contrast, living in elderly care center has benefits such as contact with same age people and access to nursing, health and medical facilities. On the other hand, because lack of specialized services to address all needs of elderly, these centers are not considered as comfortable living centers for the elderly [6]. Several studies have also shown that the nutritional status of residents nursing home care center is lower [6]. Malnutrition in elderly has a significant impact on their health and quality of life, including dental, oral and language health [8].

One of the first steps to plan for prevention and treatment of diseases is to determine the prevalence of various diseases in different societies. The incidence of oral lesions can be different in people resident nursing home and non-resident care centers [6]. Therefore, the aim of present study was to evaluation prevalence of oral pathological lesion in resident nursing home and non-resident in Isfahan-Iran.

MATERIAL AND METHODS

Study subjects

The study was approved in the medical ethics committee of Isfahan University of Medical Sciences, Isfahan, Iran. This cross-sectional study conducted on elderly people in Isfahan city, Iran in 1996. Inclusion criteria were people over 60 years old and have ability to perform the minimum daily activities and experience at least one year of residence nursing home. Exclusion criteria were elderly people who were not willing to cooperate, elderly people with Alzheimer's or other mental disease, as well as elderly people under special care. The non-residents were randomly selected from nearby areas of the nursing home with invitation. Therefore, 300 elderly people were selected randomly. However, several numbers of elderlies were excluded due to inaccurate and incomplete information in the questionnaires data. Finally, 281 elderly people, including 141 resident and 140 non-resident nursing home, were examined.

Evaluation of oral lesions

Data collection was performed through examination, interview and completion of the questionnaire. The collected data include demographic information (age, sex, duration of resident nursing home), health history (consumption of tobacco and alcohol, systemic diseases and drugs), oral hygiene, denture use (type and duration of use) and existing oral lesions type. In this study, natural structure diversity such

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as plicata tongue, sublingual varices, granular friedeys, lecudom, and thoros were not considered. The soft tissue lesions such as vesiculobulose lesions, exophytic lesions, white and red lesions, and pigmentation were investigated.

Statistical analysis

The data analysis was performed using SPSS version 24 (IBM Corporation, New York, USA) software. The T-test, Chi square, Mann-Whitney and Fisher's exact test were used to analyze the obtained data. P-values less than 0.05 were taken to be statistically significant.

RESULTS

The studied subjects were 281 elderly include 135 men (48%) and 146 women (52%), aged 60 to 95 years old. The mean age of the subjects was 69.73 ± 8.70 years. The mean age in resident nursing home was 71.9 ± 5.70 and in non-resident was 67.91 ± 7.15 years.

The obtained results showed that there was no significant difference in age and sex between two studied groups. The Chi square test showed that occupation and marital status were significantly different between two groups (P<0.001). The Mann Whitney test also showed that two groups did not have any significant difference in terms of economic and education level (P>0.429 vs P>0.474). The distribution of lesions in terms of demographic characteristics is shown in Table 1.

The most common place of mouth lesions nursing home was related to tongue. In general, 234 (84.2%) subjects include 118 (85.5%) resident nursing home and 116 (82.9%) non-resident were diagnosed with at least one systemic disease. According to chi square test, there was no significant difference between two groups (Table 2).

Also, 249 (89.6%) subjects include 127 (92.0%) resident nursing home and 122 (87.1%) non-resident were used at least one type of medicine. According to chi square test, there was no significant difference between two groups (p>0.183).

153 (54.4%) subjects include 78 (55.3%) resident nursing home and 75 (53.6%) non-resident were diagnosed with at least one oral lesion. According to chi square test, there was no significant difference between two groups (p>0.769).

In this study, 25 different types of lesions were observed which most common lesions were epulis fissuratum (12.1%), dancharostomyitis (11.7%), candidiasis (11.1%). The most abundant lesions were related to white and red lesions (Table 3).

In average 1.01 lesions were observed in studied elderly, which was 1.09 lesions in resident nursing home and 1.07 lesions in non-resident. According to Mann-Whitney test, there was no significant difference between two groups (p>0.639).

In the present study, 146 (52.1%) elderly used denture. At least one lesion was observed in 93 (63.7%) elderly with denture versus in 60 (44.8%) elderly without denture. The Chi-Square test showed a significant difference in prevalence of lesions between elderly with denture and elderly without denture (P=0.001) (Table 4).

The Chi square test showed that smoking is significantly higher in residents nursing home (29.2%) than non-resident (15.2%) (P=0.022). Also, there is a significant relationship between smoking and prevalence of lesions (P=0.014). The relationship between smoking and lesions such as melanosis induced by cigarette and hairy tongue was statistically significant (P=0.001).

The Chi square test showed that there was no significant difference in prevalence of lesions between men (57.8%) and women (51.4%) (P=0.281). However, the prevalence of hairy tongue (P=0.044) and melanosis induced cigarette (P=0.001) in men, and tattooed amalgam (P=0.025) in women were significant.

The t-test showed that the mean age in elderly with lesion (70.73±9.48 years) was significantly higher than elderly without lesion (68.5±8.70 years) (P=0.035). Also, we showed that prevalence of lesions was not related to drug use (P=0.446), systematic disease (P=0.358) and duration of resident nursing home (P=0.312).

The Mann Whitney's test showed that hygiene is significantly lower in resident nursing home than in non-resident (P=0.020).

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Table 1 - The demographic characteristics of studied elderly and prevalence of oral lesions

Demographic characteristics		Resident	Non-resident	Total	Presence of lesions	p-value
Sexuality	woman man	75 (2٪/53) 66 (8٪/46)	71 (7٪/50) 69 (3٪/49)	146 (0٪/52) 135 (0٪/48)	76 (1٪/52) 82 (7٪/60)	0.143a
Age	60-70 years 70-80 years Over 80 years	80 (0٪/58) 35 (4٪/25) 23 (7٪/16)	96 (1٪/70) 28 (4٪/20) 13 (5٪/9)	176 (0٪/64) 63 (9٪/22) 36 (1٪/13)	114 (8٪/64) 42 (7٪/66) 31 (1٪/86)	0.066b
Marital status	Single Married Wife died Others	42 (8٪/29) 11 (8٪/7) 66 (8٪/46) 22 (15.6%)	7 (3٪/14) 107 (5٪/77) 21 (2٪/15) 3 (2٪/2)	49 (6٪/17) 118 (3٪/42) 87 (2٪/31) 25 (0٪/9)	27 (1٪/55) 65 (1٪/55) 49 (3٪/56) 17 (0٪/68)	0.687a
Educational status	Illiterate Elementary Guidance Diploma Higher education	40 (9٪/29) 38 (4٪/28) 14 (4٪/10) 34 (4٪/25) 7 (2٪/5)	34 (9٪/45) 50 (7٪/35) 12 (6٪/8) 25 (9٪/17) 19 (6٪/13)	74 (0٪/27) 88 (1٪/32) 26 (5٪/9) 59 (5٪/21) 26 (5٪/9)	46 (2٪/62) 48 (5٪/54) 10 (5٪/38) 32 (2٪/54) 17 (4٪/65)	0.205b
Job status	Unemployed Housewife Retired Employee Worker Free job Other	69 (4٪/50) 4 (9٪/2) 45 (5٪/13) 0 (0٪/0) 0 (0٪/0) 0 (0٪/0) 19 (8٪/13)	10 (1٪/7) 53 (9٪/37) 49 (0٪/35) 10 (1٪/7) 4 (9٪/2) 13 (3٪/9) 1 (7٪/0)	79 (5٪/28) 57 (6٪/20) 94 (9٪/33) 10 (6٪/3) 4 (4٪/1) 13 (7٪/4) 20 (2٪/7)	41 (9٪/51) 30 (6٪/52) 52 (3٪/55) 7 (0٪/70) 3 (0٪/75) 7 (8٪/53) 18 (9٪/88)	0.127a
Economic status	Good Medium Weak	25 (0٪/18) 53 (1٪/38) 61 (9٪/43)	20 (4٪/14) 70 (4٪/50) 49 (3٪/35)	45 (2٪/16) 123 (2٪/44) 110 (6٪/39)	27 (0٪/60) 68 (3٪/55) 63 (3٪/57)	0.872b

a: chi square test; b: mann-whitney test

Table 2 - The demographic characteristics of studied elderly and prevalence of oral lesions

Systemic diseases	Resident	Non-resident	Total	p-value
Any systemic disease	118 (5٪/85)	116 (9٪/82)	234 (2٪/84)	a545/0
Cardiovascular disease	28 (1٪/20)	37 (4٪/26)	65 (25٪/23)	a214/0
Musculoskeletal disorders	13 (4٪/9)	12 (6٪/8)	25 (0٪/9)	a819/0
kidney Diseases	8 (8٪/5)	9 (4٪/6)	17 (1٪/6)	a814/0
Infection	0 (0٪/0)	1 (7٪/0)	1 (35٪/0)	b000/1
Sight and hearing problems	25 (7٪/17)	18 (9٪/12)	43 (3٪/15)	a257/0
Endocrine diseases	4 (9٪/2)	7 (0٪/5)	11 (95٪/3)	a362/0
Respiratory diseases	7 (0٪/5)	9 (4٪/6)	16 (8٪/5)	a617/0
Blood diseases	0 (0٪/0)	3 (1٪/2)	3 (05٪/1)	b247/0
Cancer	2 (4٪/1)	3 (1٪/2)	5 (75٪/1)	b000/1
Blood pressure	51 (7٪/36)	55 (0٪/40)	106 (35٪/38)	a570/0
Immunological disease	3 (2٪/2)	2 (4٪/1)	5 (8٪/1)	b684/0
Diabetes	18 (9٪/12)	35 (0٪/25)	53 (95٪/18)	a010/0*
Mental illness and dementia	39 (0٪/38)	11 (8٪/7)	50 (95٪/17)	a000/0*
Alzheimer	22 (80٪/15)	4 (9٪/2)	26 (30٪/9)	a000/0*
Digestive disease	9 (5٪/6)	16 (4٪/11)	25 (95٪/8)	a147/0
Allergy	0 (0٪/0)	2 (4٪/1)	2 (7٪/0)	b498/0
Blood fat	8 (8٪/5)	26 (6٪/18)	34 (2٪/12)	a001/0*
Rheumatoid Arthritis	5 (6٪/3)	7 (0٪/5)	12 (2٪/4)	a564/0
Epilepsy	6 (3٪/4)	2 (4٪/1)	8 (85٪/2)	b173/0
Addiction	2 (4٪/1)	0 (0٪/0)	2 (7٪/0)	b247/0
Other	6 (3٪/4)	1 (7٪/0)	7 (5٪/2)	b066/0

a: chi square test; b: Fisher exact test

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Table 3 - The prevalence of oral lesions in the studied elderly

Lesions type	Resident	Non-resident	Total	p-value
Vesiculobullous lesions	10(6٪/7)	15(7٪/10)	25(4٪/9)	286/0a
1. Herpes	1(7٪/0)	2(4٪/1)	3(0٪/1)	622/0b
2. Traumatic wound	8(7٪/5)	11(9٪/7)	19(8٪/6)	466/0a
3. Aphthous	1(7٪/0)	3(1٪/2)	4(4٪/1)	371/0b
Exophytic lesions (tumor-like)	18 (8٪/12)	30(4٪/21)	48(1٪/17)	074/0a
1. Epulis fissuratum	14(9٪/9)	20(3٪/14)	34(1٪/12)	263/0a
2. Fibroma	5(5٪/3)	7(5٪)	12(2٪/4)	a547/0
3. Mucocell	0(0%)	1(7٪/0)	1(3٪/0)	0.745b
White and red waste	61(3٪/43)	40(6٪/28)	101(9٪/35)	010/0*a
1. Danchestomatite	22 (6٪/15)	11 (9٪/7)	33(7٪/11)	044/0*a
2. Angular Chiliitis	15 (6٪/10)	4 (9٪/2)	19 (7٪/6)	009/0*a
3. Candida pseudomembranus	10 (1٪/7)	11 (9٪/7)	21 (5٪/7)	807/0a
4. Candida erythematosus	6 (3٪/4)	4 (9٪/2)	10 (6٪/3)	749/0a
5. Hairy tongue	1(7٪/0)	14 (9٪/9)	15 (3٪/5)	001/0*a
6. Language Atrophy	6 (3٪/4)	9 (4٪/6)	15 (3٪/5)	418/0b
7. Likinoid reaction	1(7٪/0)	1(7٪/0)	2(7٪/0)	000/1a
8. Plane	0 (0٪/0)	1(7٪/0)	1(3٪/0)	498/0b
9. Leukoplakia	0 (0٪/0)	3 (1٪/2)	3 (0٪/1)	122/0b
10. keratose fescue	0 (0%)	3 (1٪/2)	3 (0٪/1)	247/0b
11. Actinic Chylates	0 (0٪/0)	2 (4٪/1)	2 (7٪/0)	247/0b
12. Geographic languages	5 (5٪/3)	9 (4٪/6)	14 (0٪/5)	267/0a
Pigmented waste	19 (5٪/13)	32(5٪/22)	51(0٪/18)	041/0*a
1. Physiological pigmentation	2 (4٪/1)	8 (7٪/5)	10 (6٪/3)	060/0a
2. Pulmonation caused by the drug	1(7٪/0)	0 (0٪/0)	1(3٪/0)	000/1b
3. Melanosis caused by cigarettes	14 (9٪/9)	6 (3٪/4)	20 (1٪/7)	066/0a
4. Tattoo amalgam	0 (0٪/0)	15 (7٪/10)	15 (3٪/5)	000/0*b
5. Petya	0 (0٪/0)	7 (0٪/5)	7 (5٪/2)	074/0b
6. Oral melanocytic macula	1(7٪/0)	1(7٪/0)	2(7٪/0)	000/1b
7. Other	1(7٪/0)	1(7٪/0)	2(7٪/0)	000/1

a: chi square test; b: Fisher exact test

Table 4 - The prevalence of oral lesions and denture information of the studied elderly

Denture information	Resident	Non-resident	Total	p-value	Lesions	p-value
Denture type	5 (6٪/3)	24 (1٪/17)	29 (4٪/10)	a000/0*	14 (3٪/48)	a000/0*
1. Without tooth	60 (9٪/42)	62 (3٪/44)	122 (6٪/43)		83 (0٪/68)	
2. Complete denture	27 (3٪/19)	36 (7٪/25)	63 (5٪/22)		22 (9٪/34)	
3. With tooth/without partial denture	14 (0٪/10)	6 (3٪/4)	20 (1٪/7)		7 (0٪/35)	
4. With partial denture	31 (1٪/22)	11 (9٪/7)	42 (0٪/15)		24 (0٪/57)	
5. More than 20 natural teeth	3 (1٪/2)	1 (7٪/0)	4 (4٪/1)		3 (0٪/75)	
6. Other type of prosthesis						
Duration of denture use	15 (4٪/22)	25 (1٪/32)	40 (6٪/27)	126/0*c	26 (0٪/65)	228/0c
1. Less than 5 years	9 (4٪/13)	14 (9٪/17)	23 (9٪/15)		12 (2٪/52)	
2. 5-10 years	18 (9٪/26)	16 (5٪/20)	34 (4٪/23)		26 (5٪/76)	
3. 10-15 years	25 (3٪/37)	23 (5٪/29)	48 (1٪/33)		28 (3٪/58)	
4. Over 15 years						
Denture wash	18 (3٪/27)	3 (9٪/3)	21 (7٪/14)	000/0*a	19 (5٪/90)	020/0*a
1. Failure to wash	26 (4٪/39)	33 (9٪/42)	59 (3٪/41)		39 (1٪/66)	
2. Wash with water	22 (3٪/33)	41 (2٪/53)	63 (1٪/44)		36 (1٪/57)	
3. Wash with toothbrush						

a: chi square test; b: mann-whitney test

Table 5 - The prevalence of oral lesions and hygienics of the studied elderly

Denture information	Resident	Non-resident	Total	p-value	Lesions	p-value
Brushing times						
1. Irregular or never	92 (1%/68)	75 (3%/54)	167 (2%/61)		97 (0%/58)	
2. Once a week	8 (9%/5)	4 (9%/2)	12 (6%/43)		3 (0%/25)	
3. 2-3 times a week	5 (7%/3)	14 (1%/10)	19 (0%/7)	c020/0*	6 (5%/31)	c238/0
4. Once a day	22 (3%/16)	35 (4%/25)	57 (9%/20)		28 (1%/49)	
5. More than once a day	8 (9%/5)	10 (6%/6)	18 (6%/6)		12 (6%/66)	
Wash mouth in overnight						
1. Never	15 (6%/10)	12 (6%/8)	27 (6%/9)		18 (6%/66)	
2. Once	31 (0%/22)	28 (0%/20)	59 (0%/21)		26 (0%/44)	
3. Twice	41 (1%/29)	22 (7%/15)	63 (4%/22)	000/0*c	39 (9%/61)	838/0c
4. Three times	40 (4%/28)	51 (4%/36)	91 (4%/32)		48 (7%/52)	
5. More than three times	14 (9%/9)	27 (3%/19)	41 (6%/14)		22 (6%/53)	
Last visit to dentist						
1. In past year	33 (7%/23)	47 (6%/33)	80 (7%/28)		41(2%/51)	
2. In past two years	9 (5%/6)	23 (4%/16)	32 (5%/11)		12 (5%/37)	
3. In last 5 years	16 (5%/11)	26 (6%/18)	42 (1%/15)	000/0*c	24 (1%/57)	250/0c
4. Over last 5 years	48 (5%/34)	38 (1%/27)	86 (8%/30)		58 (4%/67)	
5. I do not know	32 (0%/23)	6 (3%/4)	38 (6%/13)		17 (7%/44)	
Cause of last visit to dentist						
1. The pain	36 (9%/25)	22 (8%/15)	58 (9%/20)		32 (1%/55)	
2. Normal treatments	54 (8%/38)	101 (7%/72)	155 (8%/55)		90 (0%/58)	
3. Periodic examination	11 (9%/7)	2 (4%/1)	13 (7%/4)	000/0*a	5 (4%/38)	389/0a
4. I do not know	38 (3%/27)	14 (1%/10)	52 (7%/18)		25 (0%/48)	

a: chi square test; b: mann-whitney test

DISCUSSION

Health and oral lesions information of elderly can be a good guide to creating comprehensive plans for solving problems and improving oral health and quality of life in elderly. Therefore, many studies have been conducted to determine the prevalence of oral lesions in the elderly [9,10].

The results of this study showed that 55.3% resident nursing home and 53.6% non-resident were diagnosed with at least one oral lesion. The prevalence of lesions in the resident nursing home was higher than non-residents, but their difference was not significant. In a study by Saintrain et a., the prevalence of oral lesions in elderly was reported 47%, which in resident nursing home was more than non-resident, but no significant difference was observed [11]. These results may reflect our misconception about low level of oral lesions of non-resident. The high prevalence of oral lesions in elderly can be due to involvement of elderly in daily work, and ignorance and neglect

to oral health. In several studies by Molania et al. [5], Maleki et al. [10] and Motalebnezhad et al. [12] in Iran, the prevalence of oral lesion was reported 100%, 77% and 84%, respectively. The lower incidence of lesions in present study than other can be due to difference in place of sampling; so that sampling was performed in some studies in dental clinics. Also, in some studies sublingual varices and fissured tongue have been considered as oral lesions, while these cases are oral anatomical norms and have not been evaluated in our study. The cultural differences, oral habits, educational level, and even genetic differences can be the cause of these differences [13].

The most common lesions of oral mucosa in the present study were related to epulis ficuratum (12.1%), dancharostomyitis (11.9%) and candidiasis (11.2%). The more prevalence of lesions, such as epulis ficuratum, denture stomatitis and candidiasis are due to inappropriate dentures, unsatisfactory health and irregular oral examination [11, 14]. These results are consistent with studies conducted

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in many countries such as Brazil, Germany, Taiwan. The higher and significant incidence of denture stomatitis in residents nursing home (15.6%) than non-resident (7.9%) can indicate unsatisfactory health in the resident nursing home. In contrast, with regard to higher incidence of epulis fissuratum in the non-resident (14.3%) compared to the elderly (9.9%), it can be concluded that inappropriate dentures are also high in the non-resident. In general, according to obtained results, due to low level of health in the resident nursing home, denture stomatitis has a high prevalence. On the other hand, the presence of inappropriate dentures in the non-resident causes an increase in the epididymis fissuretoma.

The most frequent oral lesions in residents and non-residents was related to white and red lesions (35.9%). Also, in Babae et al. study, the most common lesions were related to white and red lesions (36.3%) [15]. Also, in present study the prevalence of white and red lesions was significantly higher in residents nursing home. In contrast, the prevalence of pigmented lesions was significantly higher in non-resident, which may be due to higher incidence of tattooed amalgam.

In the present study, there was a significant correlation between age and prevalence of lesions, which was consistent with Ferreira et al. and Babae et al. studies [15,16]. This relationship seems logical, because the prevalence of malignant and pre-malignant lesions increases with age increasing. Also, many oral lesions are associated with drug use, various prostheses and systemic diseases in elderly [17].

In this study, there was no relationship between gender and frequency of oral lesions. In some studies, a higher incidence of lesions was reported in men [5,18]; but in the Mosqueda study, more lesions were showed in women [17]. However, in present study, there was a higher incidence of specific lesions in men and women. Therefore, oral lesions such as angular cheilitis, ulcers, herpes, peptic, tattoo amalgams were more in women, and lesions such as denture stomatitis, apolipse, candida, hairy tongue and melanosis were more men.

High consumption of cigarettes by men can be due to the prevalence of hairy tongue and melanosis caused by cigarettes. Also, prevalence of hair loss, candida, denture stomatitis and epilepsy fissuratum in men can be due to poor health in men and lack of attention to oral health. Whereas the higher prevalence of tattooed amalgam in women may be due to women's greater importance to oral health.

In the present study, 54.0% of the elderly were without teeth (61.4% in resident nursing home vs 46.5% in non-resident), which 80.7% had complete dentures. The levels of toothlessness in this study was more than that observed in Sri Lanka (17%) and Zagreb (45.3%) [19,20]. Although health education policies and dental care promotion programs have been carried out in elderly in recent years, but tooth lessens in elderly population also is very common. According to the WHO statement, half of elderly with 65-75-year-old, should have more than 20 natural teeth [11], while in our study it is 6.8%.

Blood pressure (38.3%) was the most common systemic disorder in both elderly groups. Also, cardiovascular disease (23.2%) and diabetes (18.9%) had a high prevalence in the studied elderly. The most commonly used drug in the elderly was related to antihypertensive drugs. These types of drugs can have side effects such as oral ulcers, swelling or salivary gland pain, gum hyperplasia and angioedema. The psychological disorders such as dementia were the second most commonly disease in the residents nursing home. Psychological interventions can affect on oral hygiene behaviors. Therefore, the higher prevalence of psychological disease in residents nursing home can be explained the lower health in them.

Strength and limitations of this study

One of the limitations in the present study was high age of the participants, which made it difficult to communicate and receive accurate answers. Also, the impossibility of biopsy of

suspected lesions caused uncertainty about separation and classification of some lesions, especially white plates.

CONCLUSION

In general, our study showed that prevalence of oral mucosal lesions in resident nursing home is slightly higher than non-resident. The presence of agents such as inappropriate dentures and poor oral hygiene in resident nursing home caused a lot of oral lesions, such as denture stomatitis. Therefore, proper maintenance and sanitation of dentures is essential for prevention and control of lesions, especially in resident nursing home. In addition, regular examination can play a prominent role in early diagnosis and better prevention of oral lesions In elderly.

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