

RESEARCH ARTICLE

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Knowledge of Oral Precancerous Lesions Considering Years Since Graduation Among Dentists in the Capital City of Iran: a Pathway to Early Oral Cancer Diagnosis and Referral?

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Abstract

Background: Late diagnosis and improper treatment lead to many avoidable deaths in patients suffering from oral cancer. This study evaluated the knowledge and perceptions of general dentists regarding oral precancerous lesions and oral cancer risk factors with reference to early diagnosis and referral. **Materials and Methods:** In this descriptive study, 200 private general dental practitioners were randomly selected in Tehran, Iran. Demographic information and years since graduation were recorded; knowledge levels were evaluated with a standardized questionnaire consisting of 15 closed-response item questions about precancerous lesions and oral cavity cancer. Each correct answer got one point. **Results:** Out of 200 selected dentists, 153 returned completed questionnaires. The average age of participants was 36 and the average achieved score was 7.96 out of 15 (Min 3, Max 13). Most (64.7%) of participants were in the group that graduated within the previous 10 years, 23.5% between 10 and 20 years since graduation, and 11.8% more than 20 years previously. There was a statistically significant difference between the most recently graduated group (< 10 years) and the other two groups. The dentists' awareness was also significantly dependent on age. There was no statistically significant difference in awareness between male and female dentists. **Conclusion:** As professional oral health care providers, dentists should be aware of all aspects regarding precancerous lesions in order to optimize early diagnosis and referral of oral cancer patients. Training courses and continuing education seem to be an essential strategy to increase and maintain knowledge of this group.

Keywords: Knowledge- malignant- oral- dentist- diagnosis- precancerous

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Introduction

Cancer is one of the greatest threats to public health in developed countries and a growing factor in developing societies, presenting as one of the five most important causes of morbidity and mortality of all nations (Razavi et al., 2013). It is also the third leading cause of death in Iran. Five per cent of all cancers are diagnosed in the head and neck region, and almost half of these are in the oral cavity (Delavarian et al., 2009). Recent global research estimated more than half a million new cases of head and neck cancer in 2012, and more than 300 000 deaths attributed to these types of cancers in the same year (Ferlay et al., 2015). Oral cancer includes all malignant tumors that are derived from the tissues of the mouth, involving the lip and oral cavity, pharynx, and larynx (Attar et al., 2010). Almost 94% of these

lesions are oral squamous cell carcinoma [SCC]. The incidence of this type of oral cancer is age-related, especially in males (Jamshidi, et al., 2012). Although this carcinoma is one of the most threatening cancers, it is preventable. Limiting exposure to the most important risk factors [smoking and drinking] can significantly reduce the incidence risk from 5 to 10 years (Jamshidi et al., 2012).

Early detection of cancerous and precancerous lesions, especially leukoplakia and erythroplakia, (which carries high probability to cancer transformation) can significantly improve outcomes and prognosis, and allowing patients to enjoy a normal life with limited complications of cancer and its treatment. Also, treatment in the early stages of cancer improve patients' quality of life, is associated with lower financial costs, with fewer side effects, and minimizes defects and deformity in patients (Attar et al., 2010).

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A variety of factors are involved in late or advanced stage diagnosis and treatment of oral cancer. Most people are not aware of oral cancer signs and symptoms, and because this disease is usually painless and symptom-free in early stages, patients do not feel any necessity to pay attention to changes (Jamshidi et al., 2012).

On the other hand, dentists who are in a position to detect early signs of cancer, or diagnose oral cancer, might be unaware of the importance of their role, and some do not include complete head and neck examinations as part of routine examinations. Previous studies demonstrated that dentists might be unable to diagnose precancerous lesions due to a lack of knowledge about the risk factors, signs and symptoms of squamous cell carcinoma (Jamshidi et al., 2012).

Early diagnosis could be achieved through proper training of oral cancer detection custodians in the theory and practice, including knowledge about cancerous and pre-cancerous lesions, its etiological factors and careful examination of all patients, especially those who are over 40 years (Motalebnejad and Hedayati, 2006). Since patients visit general dentists regularly, sufficient knowledge of precancerous lesions is essential as these primary dental care providers find themselves in a position to detect early lesions, thereby reducing oral cancer incidence (Motalebnejad and Hedayati, 2006).

Although previous studies evaluated the knowledge of dentists and dental students about oral cancer⁶, there are few studies focusing on awareness and knowledge of precancerous lesions, especially in a developing country. Also, to best of our knowledge there is not any study in Tehran. This study assessed the knowledge of general dental practitioners in the capital city of Iran, about oral precancerous lesions and oral cancer risk factors as this can contribute to early diagnosis and referral.

Materials and Methods

Participants

In this cross-sectional study, based on a previous study in Iran (Borhan-Mojabi et al., 2012) 200 private general dental practitioners were randomly selected from attendees at a local dental congress in the capital city of Iran, Tehran, in 2014. Comprehensive and adequate explanations about the purpose of the study were carried out by a senior dental student, participants were invited and if willing to take part, signed the consent form for

participation.

Ethics

This study has been approved by Shahid Beheshti University of Medical Sciences, Tehran, Iran.

Questionnaire

Out of 200 questionnaires distributed, 153 was answered and returned. The anonymous questionnaire consisted of questions related to demographic information, including gender, age and time span since graduation, and 15 closed-response item questions about precancerous lesions such as leukoplakia, erythroplakia, lichen planus and mucous fibrosis [Box 1]. Two oral medicine specialists designed the questions based on previous studies and textbooks (Jahanbani and Salarpour, 1999; Greenberg et al., 2008; Neville et al., 2009; Aghbali et al., 2012; Baabae et al., 2013; Vosough Hosseini et al., 2013). Content validity and face validity were evaluated with the help of a panel of experts in oral medicine prior to the study.

Study Protocol

During three days, the Witten self-administered questionnaire were handed to participants and on the same day they were collected. Adequate time and facilities were provided to the participants to answer the questions. Participants were asked to answer questions alone and without consulting with others. A score of one was allocated for each correct answer, and for every wrong or lack of answer, zero was assigned. At the end, a score of between 0 to 15 was assigned to each participant.

Statistics

After describing the qualitative and quantitative variables, [through SPSS Version 20 software] the significant differences between the different subsets in the sample were assessed. The statistical difference in awareness between the sexes were determined by using independent t-tests, and graduation time span groups' mutual comparisons used Taki and Dunnett additional tests.

Results

A total of 153 general dentists participated in this study [response rate=76%] with the average age of 36.8. There were 73 male participants and 80 were female. The average

Table 1. Comparison of Two-graduation Time Span Group

	(I)	(J)	Mean Difference (I-J)	P.value	95% Confidence Interval	
	Graduation Time Categories	Graduation Time Categories			Lower Bound	Upper Bound
Tukey HSD	Less than 10 years	10 to 20 years	1.247*	.006	.31	2.19
		More than 20 years	2.303*	.001	1.06	3.54
	10 to 20 years	Less than 10 years	-1.247*	.006	-2.19	-.31
		More than 20 years	1.056	.177	-.34	2.45
	More than 20 years	Less than 10 years	-2.303*	.001	-3.45	-1.06
		10 to 20 years	-1.056	.177	-2.45	.34
Dunnet t (2-sided) a	10 to 20 years	Less than 10 years	-1.247*	.004	-2.14	-.35
	More than 20 years	Less than 10 years	-2.303*	.001	-3.48	-1.12

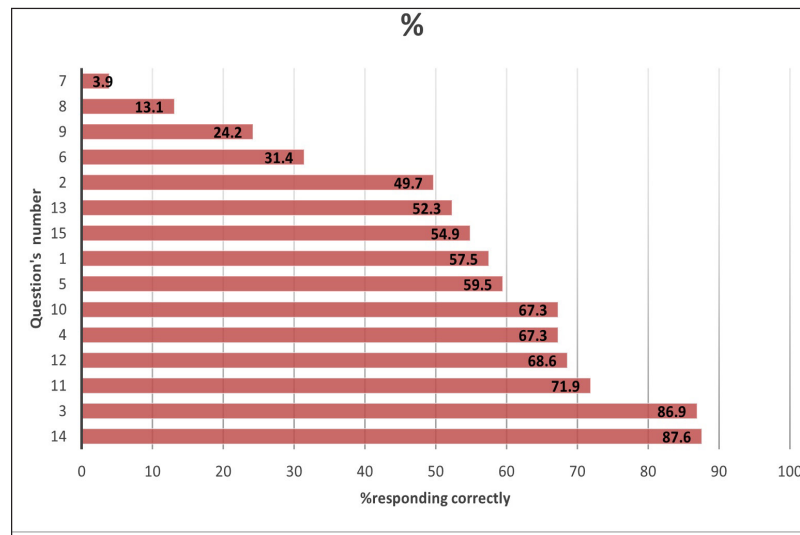


Figure 1. Dentists' Correct Answer of Each Question about Precancerous Lesion Awareness. Red and white lesions of the oral mucosa

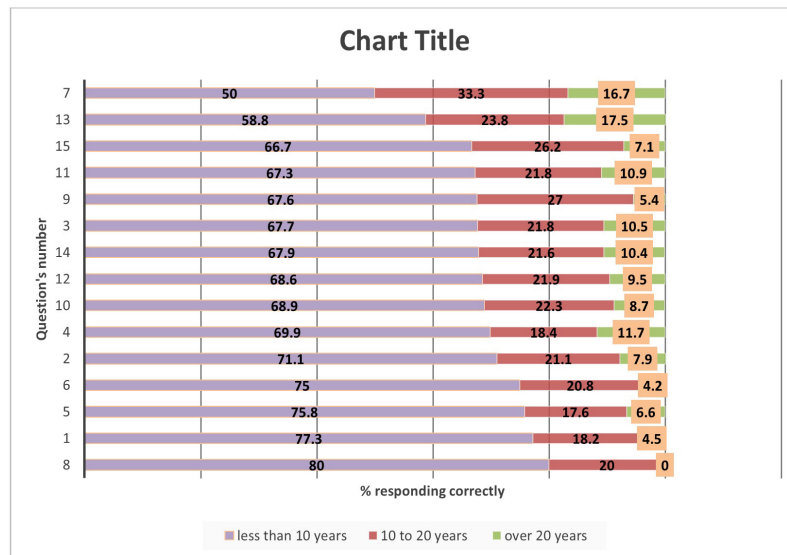


Figure 2. Dentists' Awareness of Precancerous Lesion in Term of Years of Graduation

age of male and female dentists respectively, was 38.11 and 35.61 (Minimum 25 years and maximum 60 years old). The graduation time span was 1 year [lowest] and 35 years (highest) and the average was 9.88. Minimum scores were 3 and the maximum score was 13 and with the average of 7.96.

Most (64.7%) of participants were in the group 1 that graduated within the previous 10 years, 23.5% between 10 and 20 years and 11.8% more than 20 years. The graduation time less than 10 years earned a minimum score of 4 and the maximum 13, the mean scores 8.53 and the median score of this group was 9. In the group with graduation time span between 10 to 20 years, the minimum score was 3, the maximum score 13, the mean score was 7.28 and the median was seven. In the group with graduation time span more than 20 years the minimum score 3, the maximum 10, the mean was 6.22 and the median was 6.

There was a statistically significant difference between the most recently graduated group (< 10 years) and

the other two groups (Table 1).

The dentists' awareness about the subject of the study was significantly associated with age. With every one-year increase in age, the awareness reduced by as much as 0.4. Among male participants, the maximum score was 13 and the minimum score 5, for the female participants, the maximum and minimum score were subsequently 13 and 3. The results showed that the mean score of 8.05 was for male participants and 7.88 for female participants. The numerical value of females' knowledge was 0.8 less than males. Statistically, it was not significant.

Figure 1 and 2 demonstrated the percentage of correct answers for each question in total, and for each group considering time span since graduation (Figure 1, 2). The most correct answers were for the most common type of orofacial cancer (87.6%) and the lowest correct answers was regarding the most common type of potentially malignant oral lichen planus (3.9%). Most (86.9%) dentists were aware of the precancerous lesion risk factors for oral cancer and 59.5% were aware of

Box 1. The Questionnaire of Oral Precancerous Lesions' Knowledge

1) What is the most common type of precancerous lesion?				
a) Leukoplakia	b) Erythroplakia	c) Lichen planus	d) oral mucous fibrosis	e) no idea
2) Which of the oral precancerous lesions is more apt to be malignant?				
a) Leukoplakia	b) Erythroplakia	c) Lichen planus	d) oral mucous fibrosis	e) no idea
3) Which of the following is the risk factor of transforming oral precancerous lesion to cancer?				
a) Tobacco	b) alcohol	c) cigarettes	d) all of them	e) no idea
4) Which ages are more potential for precancerous lesions to become malignant?				
a) Under 20 years	b) 20-30 years	c) 30-40 years	d) above 40 years	e) no idea
5) Which area is more apt for precancerous lesions to become malignant?				
a) Floor of the mouth	b) dorsal surface of the tongue	c) cheek	d) lips	e) no idea
6) Which type of leukoplakia is more likely to be malignant?				
a) Homogenized	b) proliferative warts	c) nodular	d) wart-shaped	e) no idea
7) Which type of lichen planus is more likely to be malignant?				
a) Reticular atrophic	b) bullous	c) plaque-like	d) popular	e) no idea
8) Which area of the mouth is more apt to proliferative leukoplakia?				
a) Lateral border of tongue	b) lower gum	c) cheeks	d) lips	e) no idea
9) Which sex is more apt to proliferative leukoplakia?				
a) Man	b) woman	c) no difference	d) unrelated to the sex	e) no idea
10) Which sex is more apt to the oral cancer?				
a) Man	b) woman	c) no difference	d) unrelated to the sex	e) no idea
11) How long is required to run a precise diagnostic procedure when there is no chance for oral lesion to be cured?				
a) Less than 1 week	b) less than 2 weeks	c) more than 2 weeks	d) none of them	e)no idea
12) Which is the definitive diagnosis of oral lesions?				
a) Physical examination	b) radiographic examination	c) histopathological examination	d) all three have the same value	e) no idea
13) Which of the followings is the most common causative factor in mucous fibrosis?				
a) Alcohol	b) cigarettes	c) NAS chewing	d) trauma	e) no idea
14) Which is the most common type of oral cancer?				
a) Basal cell carcinoma	b) squamous cell carcinoma	c) malignant melanoma	d) salivary gland tumors	e) no idea
15) Which are the most common symptoms of cancerous ulcer?				
a) No pain	b) no cure	c) gets bigger	d) all of them	e) no idea

the areas where precancerous lesions were the more potentially malignant. Most (57.5%) of dentists correctly answered questions regarding the most common type of precancerous lesion and 54.9% of them correctly answered the most common signs of cancerous lesions (Figure 1, 2).

Discussion

The results demonstrated the average knowledge of participants who answered a 15-item questionnaire ranged from 6.22 to 8.53. In a survey conducted in America (Yellowitz et al., 2000) the knowledge level among 7,000 dentists who answered 14 questions related to oral cancer, was 8.4. In the Gagendra et al study in New York (2006) the dentists' knowledge of 29 questions related to oral cancer was 17.3 (approximately 60%) (Gajendra et al, 2006). In a study by Razavi and colleagues in 2013 in Iran, the mean score of the dentists' knowledge was 5.41 out of 10 (Razavi et al., 2013). In the conducted study by Borhan Mojabi et al (Borhan-Mojabi et al., 2012) in Iran, the knowledge of physicians and dentists about oral cancer was average, and that finding is comparable to the current study.

The results of this study suggest that for every one-year increase in age, knowledge is reduced as much

as 0.4, which is statistically significant and consistent with the findings of Borhan Mojabi et al., (2012) in Iran, but any significant relationship was not observed in Hertrampf et al's study in Northern Germany (Hertrampf et al, 2010).

The finding showed that the more graduation time spans the fewer dentists' awareness, which was consistent with the findings, obtained by Pattonet al., (2005); BorhanMojabi et al., (2012) and Borhan-Mojabi et al., (2012). However, no significant relationship was observed in Ekanayakc, Ariyawardana and Ekanayake, (2008) and Hertrampf et al., (2010) findings. A study was conducted in 2005 in Brazil to evaluate the Brazilian general dentist's knowledge and diagnostic skills, regarding aspects of etiology, early diagnosis, and prevention of oral cancer. The results showed that Brazilian general dentists' knowledge about oral cancer was less than the optimal level (Leao et al, 2005) and that was consistent with the findings of this study.

In this study, almost 80% of participants were aware of the most common form of oral cancer. In a survey conducted by Greenwood and Lowry, (2001) in England, awareness of the most common form of cancer was 90.6%, in the study by Canto et al., (2002) in Maryland, it was 80% and in a study by Mehdizadeh et al., (2014) in the north of Iran was 81.2%. The awareness level about the

most common form of oral cancer in Leao et al., (2005) 's study was reported as low.

Finally, in this study, almost 70% of participants were aware of a definitive diagnosis, histopathological examination, of oral lesion, 60% of participants were aware of the area that precancerous lesions were potentially malignant and half of the dentists was aware of the most important precancerous lesions which could be potentially malignant. Also, about 70% of the participants were aware of the risk factors and signs that would place persons at higher risk for oral cancer susceptibility. Hassona et al., (2015) reported that only a minority of dental students in Jordan knew about oral potentially malignant disorders (OPMDs) (less than 25%), as risk factors for oral cancer. They reported leukoplakia was the best-known OPMD identified by 45 % of students, followed by erythroplakia and submucous fibrosis. However, fewer students knew about other lesions with possible risk of malignant transformation such as chronic hyperplastic candidiasis, lichenoid lesions, and chronic actinic cheilitis.

The proportions of dentists who displayed inadequate knowledge in the field of oral cancer were different in different studies. In a study by Clovis et al., (2002) 33.3%, and in Yellowitz et al., (2000) 32% of dentists declared that they did not have enough knowledge about oral cancer.

Based on results, it seems the participants have an average knowledge about more general issues such as the most common oral cancers, the predisposing factors of the precancerous lesions and required diagnostic methods, the age of malignant potential, the most common type of precancerous lesion and symptom of a cancerous ulcer. Their knowledge about the more specific questions was low. In fact, according to the results, it can be concluded that the dentists' knowledge in the diagnosis of precancerous lesions and oral cancer is lacking in some respects. General dentists' training seems to be improved to change this situation. Against the background of increasing rates of oral cancer, and especially as populations are ageing, the early detection, diagnosis and treatment of oral cancer and precancerous lesions are becoming a higher priority. As dentists are often the first point of contact for patients to oral health care, their knowledge and awareness regarding this field is of vital importance, in order to shift emphasis to prevention, and ultimately lowering incidence levels.

Conflict of interest
Nill.

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