ORIGINAL ARTICLE

Knowledge and Attitude of Iranian Dental and Medical Students towards Oral Precancerous Lesions

Mahsa Khodaparast[1], Mohammad Hossein Lotfi[2], Maryam Asadat Hashemipour[2]

[1]Resident of Prosthodentics, Member of Kerman Dental and Oral Diseases Research Center, Kerman University of Medical Sciences, Kerman, Iran.
[2]Associate Professor of Oral Medicine, Department of Oral Medicine, Dental School, Kerman University of Medical Science, Kerman, Iran.

Author to whom correspondence should be addressed: Maryam Alsadat Hashemipour, Department of Oral Medicine, School of Dentistry, Kerman University of Medical Sciences, Kerman, Iran. Phone: 00983412118074. E-mail: m.s.hashemipour@gmail.com.

Abstract

Objective: To investigate the level of dental and medical students' awareness and their attitude towards Oral cancer in Kerman, Iran. **Material and Methods:** The research is considered as a cross-sectional analytical study. A questionnaire was distributed among dental and medical students, reliability and validity of which has been confirmed through statistical tests and experts' point of views. The questionnaire includes some questions for measurement of awareness and attitude of students in terms of diagnose, risk factor, and prognosis of lesions suspicious of malignancy, in the mouth. The results were analyzed using Mann-Whitney, Chi-square, Spearman, and ANOVA. **Results:** 350 questionnaires were distributed among dentistry and medical students, of which 318 were returned (90.8%). Dental students (16.32 ±3.1) achieved higher awareness score compared to the medical students (11.67 ±3.1). No significant relationship existed between age, gender, and average awareness score (p=0.023, and p=0.014, respectively). Dental students had more positive attitude in comparison to medical students; however, there was no significant relationship between age and positive attitude. **Conclusion:** Dentists and physicians do not have enough knowledge for cancer-related examinations, despite their professional obligations. The study shows training programs to be required in relation to risk factors and prognosis of oral cancer in form of refresher programs, and more emphasis in students' curriculum.

Keywords: Knowledge; Attitude; Students; Oral Medicine; Mouth Neoplasms.

Introduction

Currently, cancer is considered as a public health problem in the entire world and in all countries with class, cultural, and economic differences. This disease affects at least 9 million people annually, causes the deaths of 5 million people, and is the second leading cause of death in many countries. It is estimated that if cancer prevention and control measures are not taken, in the next 20 years, the prevalence of this disease will be 100% [1].

Oral cancer is the seventh most common cancer worldwide, the fourth most common cancer in men, and the sixth most common cancer among women. This cancer causes 50 percent of cancer death in India, but in the West, these statistics include only 4 percent. According to the World Health Organization, oral and oropharynx cancers are the most common cancers in the head and neck and about 390000 new cases are diagnosed annually. The incidence of oral cancer in the UK has considerably increased in the last 10 years and the death rate caused by genital cancer, other cancers of the head and neck and skin cancers are higher in this area. The ratio of oral cancer in men is three times more than in women and occurs after the age of 40. The disease can destroy half of the face and sometimes it is necessary to separate the lower jaw from other parts of the face to save the lives of patients [2].

Smoking (tobacco, cigarettes, pipes, and NAS), drinking alcohol, lack of iron and vitamins, syphilis, fungal infection of the mouth, and viruses are of the common causes of oral cancer. Moreover, cancer is the result of the interaction between genetic factors and environmental exposures. Nutrition and diet are as environmental factors, and growth and body factors are as genetic factors that can increase risk of some human cancers including oral cancers. Most cases are diagnosed at the age group 60 years and older. Survival rate is approximately 5 year for 50% in both sexes and in comparison with gastrointestinal cancer; it is less common, because most cases are diagnosed in advanced stages. Due to the delay in the diagnosis, highly invasive surgery treatment is done for patients and often leads to functional impairment and affects the quality of life [3].

Early detection of lesions through detection of premalignancy, especially erythroplakia and leukoplakia, is currently the best way to control and reduce mortality and disability from oral cancer. Dentists have special status due to familiarity with mouth structure and the possibility of further involvement in oral mouth and dental examination of patients. Several tudies have shown that the ability of dentists to detect early signs and symptoms largely depends on the levels of knowledge about the precancerous lesions. However, it has been shown that often dentists' knowledge of the symptoms, diagnosis, cause, and treatment procedures is not enough. According to international recommendations, it is necessary that all patients older than 40 undergo oral cancer examinations and this while 13-20% of patients older than 40 years receive these examinations [4].

Despite the high importance of precancerous lesions of oral cancer in terms of burden of disease, health care costs, and the importance of the role of the dentist and dental students, few studies have been conducted in Iran to assess the level of knowledge and practice of dental students in this regard. Moreover, studies have shown that, despite the high prevalence of oral cancer,

knowledge of dental and medical students in this area is very low [5]. Due to the lack of extensive research in the field of oral precancerous lesions by dental and medical students, the aim of this study is to assess knowledge and attitudes of dental and medical students of Kerman, Iran, in the field of oral precancerous lesions.

Material and Methods

Study Design and Data Collection

This study is an analytical cross-sectional study. A questionnaire was designed to determine the level of knowledge and attitude of the students. The questions were developed based on other studies [6,7], educational content taught in dental schools and international recommendations.

A researcher developed questionnaire containing personal questions such as age, sex and other items listed, general inquiries, and questions related to knowledge and attitude of the students was given to 4 to 6 year dentistry students and 4 to 7 medical students and they were asked to complete and deliver it. The nature and purpose of this study was such that students who enrolled in the study, got the permission to enter the study, were allowed to exit the studies after the interview began. The aim of this study was explained to people and, if desired, questionnaires were given to them. Moreover, all the people were assured that all questionnaire information remains confidential and used purely for statistical aspects.

The questions asked were designed by two dentistry experts and an expert in statistics, and to assess the scientific validity of the questionnaire, it was given to seven experts of the school was approved, and about the questions and understandablity of the questions were discussed on the basis of their comments and review of the literature. The validity was desirable. Then to assess reliability, the questionnaire was given to 40 dentristry and medical students within two weeks [Cronbach's alpha = 0.74].

After changes, the final questionnaire including 30 questions was developed with demographic characteristics. The questionnaire contained 12 questions on knowledge (correct answer 2 score, wrong answers 1 score, and total score between zero to 24) and 18 attitude (strongly agree, 5; agree, 4; no idea, 3; disagree, 2; strongly disagree, 1; and score between 18 and 90).

Statistical Analysis

The results were analyzed using Mann-Whitney, Chi-square, Spearman, and ANOVA. The significance level in data analysis was $p<0.05$, and the statistical program SPSS Version 20 (SPSS Inc., Chicago, IL, USA) was used.

Ethical Aspects

This study was approved by the Institutional Review Board of Kerman University of Medical Sciences. All participants signed the informed consent form.

Results

In this study, 350 questionnaires were distributed among dentistry and medical students, of which 318 were returned (Response Rate = 90.8%). Of this number, 148 were male (46.5%) and 170 females (53.5%) (men to woman ratio F = 0.87). Mean age of the participants in this study was 23.0±4.2 years and age range between 22 and 38 years, 143 (45%) participants in this study were dental students and 175 (55%) were medical students.

Table 1 shows the participants' responses to general questions on precancerous lesions in oral canser. This study showed that the greatest source of information about the lesions is academic courses. Moreover, 208 students (65.4%) stated that while examining the patient, they check for precancerous lesions, and in this regard, there was no significant difference between dental and medical students.

Table 1. Students' responses to general questions on precancerous lesions.

Questions		Dentistry		Medical		Total	
		n	%	n	%	n	%
What source do you get your information on precancerous lesions?	Collegiate courses	120	83.9	142	81.1	262	82.4
	Scientific articles	20	14.0	23	13.2	43	135
	Congress	3	2.1	10	5.7	13	4.1
Do you check your patient in terms of precancerous lesions while examining them?	Always	50	35.0	52	29.7	102	32.1
	Some time	51	35.7	55	31.5	106	33.3
	Rarely	20	14.0	40	22.8	60	18.9
	Never	22	15.4	28	16.0	50	15.7
When you examine the patient, do you ask about their smoking or other drugs?	Always	42	29.4	45	25.7	87	27.3
	Some time	59	41.2	78	44.6	137	43.1
	Rarely	18	12.6	25	14.3	43	13.5
	Never	24	16.8	27	15.4	51	16.1
Do you have questions about alcohol use during patient examination?	Always	42	29.4	45	25.7	87	27.3
	Some time	59	41.2	56	32	115	36.2
	Rarely	18	12.6	47	26.8	65	20.4
	Never	24	16.8	27	15.5	51	16.1
Have you ever diagnosed precancerous lesions during patient examination?	Yes	11	7.7	12	6.0	23	7.2
	No	132	92.3	163	94.0	295	92.3
The best technique to confirm pre-cancerous lesions	Excisional	100	69.9	105	60.0	205	64.5
	Incisional	30	21.0	60	34.3	90	28.3
	Cytology	13	9.1	10	5.7	23	7.2

In response to the question of which of the following is a risk factor for precancerous lesions (leukoplakia and erythroplakia and lichen planus), 210 (66%) participants mentioned smoking, 145 (45.6%) people alcohol consumption, and 142 (44.7%) people sunlight (Table 2).

Table 3 shows the responses of students to knowledge questions. In this study, mean knowledge score was obtained as 14.2±2.3. There was a significant relationship between knowledge and discipline of the students (p = 0.001). In other words, dental students' had higher score of knowledge than medical students (16.3±3.1 vs. 11.6±4.1). However, there was no significant relationship between age, gender, and mean score of knowledge (respectively, p = 0.023; p = 0.014).

Table 2. Students' responses to etiology factors on precancerous lesions.

Objects	Dentistry		Medical		Total			
	Yes	No	Yes	No	Yes		No	
	n	n	n	n	n	%	n	%
Sun Light	50	93	92	83	142	44.7	176	55.3
Aging	60	83	50	125	110	34.6	208	65.4
Alcohol	80	63	65	110	145	45.6	173	55.4
Cigarette & Drugs	110	33	100	75	210	66.0	108	34.0
Hot Food & Liquid	50	93	45	130	95	29.9	223	70.1
Tobacco, Smokeless	68	75	80	95	148	46.5	170	53.5
Herpes Virus	20	123	62	113	82	25.8	236	74.2
HIV Virus	10	133	15	160	25	7.9	293	92.1
Spicy Food & Liquid	50	93	42	133	92	28.9	226	71.1
Low Consumption of Fruit & Vegetable	32	111	41	134	73	23.0	245	77.0
High Fat Diet	12	131	20	155	32	10.1	286	89.9
History of Oral Cancer of Person	60	83	58	117	118	37.1	200	62.9
Existence of Precancerous Lesion in Family	65	78	81	94	146	45.9	181	54.1
Loose Denture	10	133	26	149	36	11.3	282	88.7
Poor Oral Hygiene	25	118	51	124	76	23.9	267	76.1
Hepatitis Virus	5	138	3	172	8	2.5	310	97.5
HPV Virus	41	102	52	123	93	29.2	227	70.8
Weight Gain	12	131	24	151	36	11.3	202	88.7

Table 3. Students' responses to questions of knowledge of precancerous lesions.

Questions	Dentistry		Medical	
	Yes	No	Yes	No
	n	n	n	n
Two common areas of precancerous lesions are floor of the mouth and tongue	131	12	110	65
Precancerous lesions usually appear as a painless sore or red	85	58	60	115
Patients in the early stages of precancerous lesions are asymptomatic	100	43	102	73
The existence of a painless lymph node with a firm consistency and without mobility can be a sign of precancerous lesions	45	98	85	90
Precancerous lesions are often diagnosed at an advanced stage	62	81	42	133
Leukoplakia is the most common precancerous lesion	112	31	42	133
Erythroplakia is the most common precancerous lesion	132	11	45	130
Patients with denture do not need mouth examination for precancerous lesions	25	118	45	130
Examination of lymph nodes of all patients is essential to check for precancerous lesions	45	98	74	101
Age of incidence of precancerous lesions is 60 years	96	47	42	133
Precancerous oral lesions are more common in men	102	41	45	130

The study showed that 146 (45.9%) students, from their point of view, have the skills required for the diagnosis of precancerous lesions of patients. Moreover, 132 (41.5%) people have the necessary skills for examination of the lymph nodes. Table 4 shows the responses of students to the questions on the skills and knowledge of precancerous lesions.

The results of this study showed that 156 (49.1%) students have positive attitudes towards early detection, age of the patients, referral, and examination of age are precancerous lesions. The average score of attitude was obtained. There was a significant relationship between gender and positive attitude – girls had more positive attitudes than boys did. In addition, there was a significant relationship between discipline and positive attitude. In other words, dental students had a more positive attitude than medical students did. However, there was no significant relationship between age and positive attitude (Table 5).

Table 4. Students' responses to questions in the field of knowledge and skill examination of precancerous lesions.

Questions	Dentistry		Medical	
	Yes	No	Yes	No
	n	n	n	n
Do you have the necessary skills to examine patients for oral precancerous lesions?	90	53	56	119
Do you have the skills needed for the examination of the lymph nodes?	80	63	52	123
Is your information in case of precancerous lesions up to date?	70	73	52	123
Do you have enough training in screening for precancerous lesions?	50	93	40	135
Do you need more training in screening for precancerous lesions?	90	53	100	75
Is your information about risk factors for precancerous lesions enough?	62	81	52	123
Is your information about the signs of precancerous lesions enough?	80	63	56	119
Is your information about the prevention of precancerous lesions enough?	52	91	56	119
Is your information about on the sampling of precancerous lesions enough?	52	91	56	119
Is your information about the detection of precancerous lesions enough?	52	91	46	129

Table 5. Students' responses to questions about the attitude towards precancerous lesions.

Questions	Quite Agree		Agree		No Idea		Disagree		Quite Disagree	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
	n	n	n	n	n	n	n	n	n	n
Early and timely diagnosis of precancerous lesions increases 5-year survival of patients.	112	206	52	266	51	267	80	238	79	239
All patients older than 40 years must be examined for precancerous lesions on an annual basis.	210	108	51	257	21	297	16	302	20	298
All patients of 18-39 years should be examined on an annual basis in terms of precancerous lesions.	80	238	102	216	24	294	70	248	52	266
Patients with suspected precancerous lesions should be referred to a specialist.	280	38	20	298	2	316	20	298	6	312
Oral examination must be done for all patients using tobacco and alcohol.	250	68	50	268	3	313	20	298	5	313
Delays in diagnosis of precancerous lesions lead to expansion or creation of the lesions.	300	18	20	298	8	308	0	318	0	318

Discussion

Cancer is one of the biggest threats to general health in developed countries and a growing factor in developing world [26]. The mouth and throat cancer is the sixth most common cancer in the world (1 case per 100,000) persons). The incidence of the disease between different countries has been reported, and in all countries with increasing age, it increases, so that 98% of cancers of the throat and mouth areas occur in patients older than 60 years. Among the risk factors, ethnic factors, family background and genetics, occupational hazards, smoking, alcohol consumption, bacterial and viral infections, diet and consumption of alcoholic mouthwash can be noted. Studies have shown that early detection of oral cancer can play a role in the prognosis of this disease. Moreover, studies have recommended periodic examinations, especially in patients at risk [9-12]. Dentistry plays an important role in both primary prevention of oral cancer by encouraging healthy lifestyles and secondary prevention by detecting cancer in early stages of oral cancer or precursor lesions.

This study was designed to evaluate the knowledge and practice of medical and dental students in the field of precancerous lesions. The results of this study showed that knowledge of dental students regarding these lesions is higher than that of medical students. 55.7 percent of the

participants had chosen erythroplakia as the most common precancerous lesion that is consistent with previous study, which reveal that 50 percent of respondents had correctly selected erythroplakia as precancerous lesions with most likelihood of malignancy [10]. Another research showed that only answer of half of dentists is true in most common precancerous lesion [9].

Seventy three percent of the students had chosen the most common sites for oral cancer as tongue and floor of the mouth. Some authors find that 72 percent were aware of the fact that the most common site of oral cancer is tongue and floor of the mouth [10]. In addition, 54% of dentists knew that the most common sites of involvement are tongue and floor of the mouth [13].

A total of 40.9% knew a painless lymph node with a firm consistency and without mobility as the signs of precancerous lesions. However, the stated characteristics of a lymph node can be a sign of metastasis not existence of a precancerous lesion, since 66% of people in relation to metastasis of oral cancer to lymph nodes, announced lymph node properties correctly [10].

In connection with patient's symptoms associated with early cancerous lesions stated by the patient, 63.5% of students were aware of the fact that the lesions of oral cancer have no symptoms in the early stages that is consistent with previous report [13]. Forty-two percent of students stated age 60 years and older as the age with the most probability of cancer that is consistent with some authors [9].

The study showed that a high percentage of students re aware of well-known major risk factors (smoking and alcohol), but their knowledge of the other risk factors such as low intake of vegetables or high-fat diet is less that is inconsistent with previous research [10]. Therefore, lack of knowledge of risk factors among dental and medical students of Kerman is common. Although students had higher scores on oral cancer, about the risk factors, they often had incomplete information. A previous study found that 90 percent of dentists were aware of clinical symptoms of oral cancer and risk factors [14].

In Spain, all dentists considered alcohol as a risk factor for oral cancer and 96 percent were aware of the relationship between tobacco and the disease [13]. In Italy, it was found that dentists were aware of the major risk factors for oral cancer, but only 47.9 percent of the participants considered aging and only 25 percent low intake of vegetables as risk factors [15]. In Kuwait only 23 percent of dentists are aware of the risk factors and stages of oral cancer detection [16]. In India on 240 dentists, 99 percent of dentists were aware of the relationship between tobacco use and oral cancer [17]. Therefore, it can be concluded that the majority of dentists around the world recognize the major risk factors but have less information on other risk factors.

The study showed that despite knowledge of dental students of the risk factors and age prone to oral cancer, only 31.5% of them fully performed oral cancer examination in their patients that is consistent with previous report [17] and similar to the results obtained within the country [18-20].

A previous study conducted in Isfahan showed that 85.5% of dentists do not perform oral cancer examinations for each of their patients, and only 11 percent of them performed examination

process in accordance with the protocol of oral cancer examination for all patients in this age range [10]. Although oral cancer and its risk factors as well as the examination protocols of it are taught for general dentists in the teaching curriculum and the students are expected to follow these protocols, unfortunately, only one-third of the participants in the study perform oral cancer examination for patients older than 40 years, which is smaller than other studies in this field.

Another study conducted in the United States showed that almost 85% of dentists participating in the study perform oral cancer examination for patients older than 40 years [21]. In Italy, it was found that 52% of dentists perform systematic screening examination for all people over 40 years in the first session [15]. However, some studies have had similar results with the present study as developed in Germany, where it was found that 64% of dentists perform oral cancer examinations for young people, and 94% of them considered performing this examination for the elderly over 40 years as essential. However, only about 30 percent of them performed such screening examinations for their patients in the first session or the next session [22].

Despite drastic improvements in surgery, radiotherapy, and chemotherapy, 5-year lifetime of oral cancer has not improved compared to a decade ago and is about 50 to 55 percent [23]. However, with early diagnosis at early stages, one can greatly improve 5-year survival status. As is shown in case of early detection, the index reaches 80 per cent [24]. Currently, only about 35-40 percent of oral cancers are diagnosed in the early phases [25]. A study in Iran showed that 59% of cancers of the oral cavity at the time of diagnosis are stage III and 29% of lip cancers are at stage IV [26].

Although oral cancer is often asymptomatic, most likely, a dentist diagnoses it with a correct examination in a dental environment, and diagnosis of the lesion during a routine meeting is essential in reducing deaths [27]. Moreover, early detection of oral cancer through the detection of premalignant lesions such as leukoplakia erythroplakia is now the best way to control and reduce mortality and disability of oral cancer [28].

This study showed that 82.1% of students agree that all patients older than 40 years must be examined for precancerous lesions on an annual basis. A previous study showed that 72.4% of respondents deemed carrying out a systematic examination of the oral soft tissue to rule out precancerous lesions necessary [29]. This percentage is close to other studies conducted in Europe and America (83-86%) [30,31]. However, nearly 100 percent of dentists performed oral cancer examination for people over 40 years [13].

Oral cancer screening consists of a series of oral mucosa and systemically important questions during a regular dental checkup. According to international recommendations, it is necessary to check all patients aged 40 and over for oral cancer [32], while normally only 13 to 20% patients older than 40 years receive these examinations [31]. Due to their understanding of the structure of the mouth and the possibility of further involvement in the mouth and oral examination of patients are at a particular situation. Studies have shown that the ability of dentists in early diagnosis of signs and symptoms largely depends on the level of knowledge and awareness about cancer lesions. However, it has been found that most knowledge of the dentists of detection, disease

processes, and medical treatment is not adequate [33]. This study showed that 53.9% of students know erythroplakia as the most common precancerous lesion. Some authors found that 37% of dentists knew this lesion as pre-malignant [13].

In this study, 59.7% of participants said that they would like to participate in oral cancer screening programs. Previous results showed that 34% of senior dental students said they lacked information on oral cancer [34], while 18.6% of Iranian students considered their information insufficient in this field [9]. Moreover, 92% of American dental students were calling for further education in oral cancer [34], while 81.2% of Iranian students were willing to learn more [9].

In this study, mean knowledge score was 14.25±2.3 out of 22 that, respectively, in the dental and medical students was reported as 16.23±3.1 and 11.67±4.1. There was a significant relationship between knowledge and discipline. In other words, dental students' had higher score of knowledge than medical students. According with literature [19], the average knowledge score of students was 8.55 ± 2.21 out of 13 that is lower than the present study, while in other studies, the mean score of dental students has been reported lower [13].

Studies have shown that, if oral cancer is detected at an earlier stage compared to most other cancers, an area in need of treatment with few side effects and lower costs. Therefore, the defect or deformity in the patient is minimized [35]. The survival rate of patients diagnosed at an early stage compared to the advanced stage is 78% [36]. However, it is noteworthy that although the oral cavity is easily accessible for review and examination [37], the rate of early detection of oral cancer has remained unchanged over the past three decades [38].

On average, the interval between the first symptoms and performing a physical examination by the dentist is 4 to 9 months and the interval between the detection of a change in the oral tissues that is a sign of lesion and initiation of treatment is 5 to 9 months [35,39]. A variety of factors cause delay in diagnosis and treatment of oral cancer. Most people are not aware of the existence of cancer and its complications, so approximately 50% of them do not take complete and regular dental checkups seriously, and as at the early stages of the disease, it is usually painless, patients do not feel a need to pay attention to changes [40].

On the other hand, dental practitioners, especially dentists who can play a major role in determining and early diagnosis of the carcinoma [37], were not aware of the importance of their role and most of them do not perfrom complete head and neck examination, especially the oral cavity. Moreover, they lack adequate knowledge about the risk factors, signs and symptoms of mouth cancer. Thus, many of whom lack the ability to detect these lesions are precancerous lesions or early stage [39].

Given the incidence of oral cancer and demographic change in Iran, planning to encourage dentists to perform oral cancer examination and follow-up protocols and reducing barriers is vital. Therefore, it is suggested that oral cancer screening programs be held for dental students and medical doctors and dentists.

Conclusion

The results of this study showed that dental students' knowledge in the field of precancerous lesions is better than medical students'. However, the relationship between age, gender and mean knowledge score was not significant.

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