

Knowledge Assessment among the Fourth and Fifth Year Students on the Potentially Malignant Lesions of Oral Cavity

SUMMARY

Background/Aim: Potentially malignant oral lesions (PMOL) are lesions that have an increased risk of malignant transformation concerning healthy oral mucosa. This research aimed to assess the knowledge of students of final years of study on the potentially malignant lesions of the oral cavity. **Material and Methods:** 120 students of the fourth and fifth years of study participated in this research, 60 respondents were fourth-year students, 60 respondents were fifth-year students. All of the respondents signed informed consent. According to the type of research, this is a cross-sectional study which was conducted by completing a 15-item questionnaire. The results were statistically analyzed and processed in the SPSS Statistics 21.0 program. **Results:** The results indicate that during the clinical examination the fourth and fifth-year students examine the oral mucosa as well. 61% of the students find themselves poorly informed on the PMOL. In the fourth year of study, only 5,5% of students responded that they were well informed, while in the fifth year that number totaled 28,5%. When knowledge self-assessment is concerned the difference has shown itself to be statistically significant between the fourth and fifth-year students. When asked what knowledge on the prevention of oral cancer they expect to receive during their studies, 78% of the students expected more knowledge than at that moment – 36% of which were fifth-year students, and 42% were fourth-year students. **Conclusions:** Even though the oral cavity is easily accessible to examination, the discovery of oral cancer occurs quite late. Ours, as well as results of other studies, impose the need for better theoretical and practical education of the students.

Key words: PMOL, Oral Cancer, Prevention, Early Detection

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Introduction

Oral cancer is the eighth most common form of cancer in the world. It represents more than 90% of all malignant formations in the oral cavity. It occurs after the age of fifty more often; and men suffer from it more than women, in the proportion of 2:1. The main risk factors are smoking and alcohol abuse. It is very invasive and represents 3% of all malignant formations in men and 2% in women. In the last 30 years, and increased frequency of oral cancer in women and the young were noted, which

imposes the need for a more serious approach towards the examination of the oral cavity with the purpose of earlier detection of potentially malignant changes in the oral mucosa. Other risk factors, besides smoking and alcohol, are poor oral hygiene, poorly designed dental prosthetics and papillomavirus^{1,2}.

More than 90% of oral cancer cases are squamous cell carcinomas that can arise from potentially malignant oral lesions (PMOL)³. Potentially malignant oral lesions (PMOL) are lesions of oral mucosa that have an increased risk for malignant transformation concerning the healthy

mucosa. The most common precancerous lesions are leucoplakia, erythroplakia, oral lichen planus, actinic cheilitis, but they can also occur in the seemingly normal oral mucosa^{4, 5}.

In their research on a sample of 340 patients, Hadžić *et al.* (2017) have identified 40 patients with potentially malignant lesions. The most clinically diagnosed lesions are Lichen reticularis (25%). Lichen erosivus was present in 20% of the patients, leucoplakia in 15%, focal hyperkeratosis in 11%, ulcus chronicus in 8%, erosion mucosae in 7%, and 2% of the patients each, they noted cheilitis actinica, morsictio buccae, pemphigus, and hamangioma. And, the most frequent localizations of malignant changes (cancers) in 17% of the patients each are the floor of the mouth, lower lip, unilateral facial mucosa, and ventral surface of the tongue. Of 40 patients with potentially malignant lesions after completed biopsy and pathohistological analysis, it was proven that 20% of all lesions are Cancer (CIS, Basal Cell carcinoma, Squamous cell carcinoma), and 14% are dysplasia of mucosal epithelium. Statistical analysis has confirmed a significant link between potentially malignant lesions and leucoplakia (leucoplakia and squamous cell carcinoma)⁵.

Information on potentially malignant lesions is unfortunately scarce, and prevention has not yet reached a satisfactory level. Only in Italy, 8000 people suffer from oral cancer every year⁶. Literature data show insufficient knowledge among dental and medical students on the potentially malignant lesions of the oral cavity, but also family physicians and even dentists⁷. Although it is a fact that oral cancer appears on accessible and visible localization, it often remains unidentified for a long time, and it is diagnosed when it already spreads significantly. At the moment of detection, around 45% of patients have already had regional metastases, and 10% of them even had remote ones. For that reason, the cancer detection time is crucial for healing and the extent of the treatment⁸⁻¹⁰.

Early cancer mostly causes no pain and our patients either do not have or ignore the symptoms. For that reason, they belatedly notify their doctor, and that is what we call "the first lost time". If the dental office does not suspect PMOL and precise diagnosis is not determined, we are talking about "the second lost time". "The third lost time" is a period that passes from the real diagnosis to the beginning of the treatment¹¹.

The European Parliament and the Council of European Dentists (CED) have held a meeting on 23 July 2015 to raise awareness on the significance of early detection of oral cancer and the role of the dental profession in saving lives. The dentist is the one health care practitioner that has a daily opportunity to use a simple and completely non-invasive examination of the oral cavity to determine if there is a suspicious change that should be referred to oral medicine specialists for additional diagnostic treatment¹².

That is why it is important to gain knowledge about the oral cavity cancer during the studies and develop awareness on the need for early detection of potentially malignant lesions in the oral mucosa, which includes a routine examination of all oral mucosa regions and cervical lymph nodes during dental examination¹³⁻¹⁷. Clinical examination, a record of PMOL and pH result lead to the prevention of oral cancers or the detection of cancer in its initial stage, which can save a patient's life in 80% of the cases.

The primary aim of this research was to assess the knowledge of students of final years of the Faculty of Dentistry in Sarajevo on the potentially malignant lesions of the oral cavity, prevention, and early detection. The specific aim was to compare the knowledge of the fourth and fifth-year students of Faculty of Dentistry in Sarajevo and to observe whether the duration of the study increases that knowledge and awareness.

Material and Methods

Students of the fourth and fifth years of the Faculty of Dentistry in Sarajevo participated in this research. It included 120 respondents, 60 of which were fourth-year students (50%), and 60 of the respondents (50%) were fifth-year students of the Faculty of Dentistry in Sarajevo. The age of the respondents was between 21 and 30. All the participants had signed a written informed consent before completing the questionnaire. The students participated in the survey voluntarily and anonymously.

The research was conducted during the winter semester of 2017/18. According to the type of research, it is a cross-sectional study. The research was conducted using a 15-item questionnaire, which was developed and modified according to the Carter and Ogden questionnaire¹⁸.

The questionnaire consisted of three groups of questions. The first group referred to the students' knowledge on etiology and topography of potentially malignant lesions of the oral cavity, the second group referred to self-assessment of knowledge gained during classes about early diagnostics and prevention of oral cavity cancer, and the third group referred to procedures and preventions as well as treatments of those patients. The results were statistically analyzed and processed in the SPSS Statistics 21.0 program.

Results

Students of the fourth and fifth year of the Faculty of Dentistry in Sarajevo, aged 21-30 (median 25,5 years of age) participated in this research and completed the

questionnaires. The fourth year of dental medicine study was represented by 60 students- 22 male students (18%) and 38 female (32%), and the average age was 23 (the range from 21 to 26 years of age, except two students aged 28 and one student aged 30). In the fifth year group, out of a total of 60 students- 21 were male students (17%) and 39 were female (33%), the average age was 24,5 years of age (Table 1.).

Table 1. Year of study and sex

		Year of study and sex				Total
		Male	%	Female	%	
Year of study	fourth	22	18	38	32	60
	fifth	21	17	39	33	60
Total		43	35	77	65	120

$\chi^2=0,036$ (p=0.849)

Table 2. Do you also examine oral mucosa during clinical examination of every patient?

		Do you also examine oral mucosa during clinical examination of every patient?				Total
		YES	%	NO	%	
Year of study	fourth	55	46	5	4	60
	fifth	56	47	4	3	60
Total		111	93	9	7	120

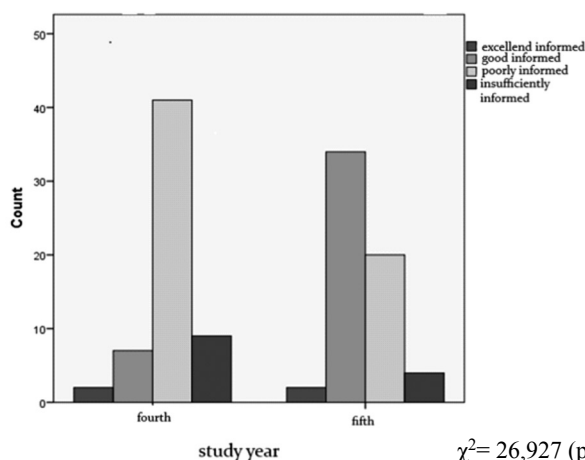
$\chi^2=0,120$ (p=0,729)

When asked whether they examined the oral mucosa during the clinical examination of every patient, 93% of the students responded positively (Table 2). There was no statistically significant difference in students' responses to the question of whether they warn and advise patients on avoiding risk factors.

When asked whether during study practice they had the opportunity to observe patients with potentially malignant lesions, 99,2% of the students responded that they rarely observe such cases. There was no statistically significant difference in the fourth and fifth-year students' responses.

Students have presented a self-assessment on students' recognition of a clinical picture of potentially malignant lesions. Slightly more than half of the respondents (61%) find themselves poorly informed, (35%) find that they are well informed, (11%) are insufficiently informed, and (3%) are perfectly informed on the clinical picture of oral cancer. In the fourth year of studies (7,5%) of the students are insufficiently informed, (33,5%) are poorly informed, (5,5%) are well informed, and (1,5%) are perfectly informed.

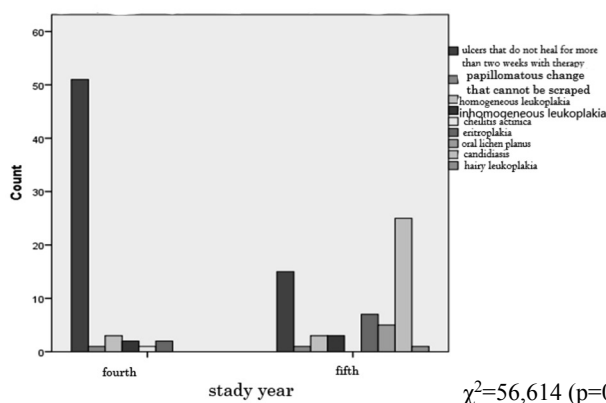
When it comes to self-assessment of the knowledge the difference did not prove itself statistically significant among the fourth and fifth-year students (Figure 1).



$\chi^2= 26,927$ (p=0)

Figure 1. How do you feel regarding identification of image of potentially malignant oral lesions?

When asked what changed in the oral mucosa the students would associate with potentially malignant lesions, a total of 66 students (54%) stated that it was ulcerations that do not heal for longer than two weeks with therapy. Out of that number, 51 fourth-year students (43%), and 15 fifth-year students (11%) responded with that answer. Fifth-year students also listed erythroplakia (6%), oral lichen planus (4%), and (21%) of fifth-year students listed candidiasis as a change that is associated with oral cancer. The difference in the responses has also proven to be statistically significant (Figure 2).



$\chi^2=56,614$ (p=0)

Figure 2. What changes in the oral mucosa would you associate with oral cancer?

When asked to name a localization in the oral cavity mucosa that they find the most at risk for the occurrence and development of potentially malignant lesions, most of the students state that it is the floor of the oral cavity (97,5%), out of which fifth-year students represent (51,4%), and fourth-year students represent (46,1%).

When asked who should treat patients with oral lesions, (27%) of fourth-year students think that it should only be oral diseases specialist, and (22%) of them think that it should be every dentist. Fifth-year students state that every dentist should treat oral lesions (31%), while (13%) think that it should only be an oral disease specialist. The difference has proven to be statistically significant (Figure 3).

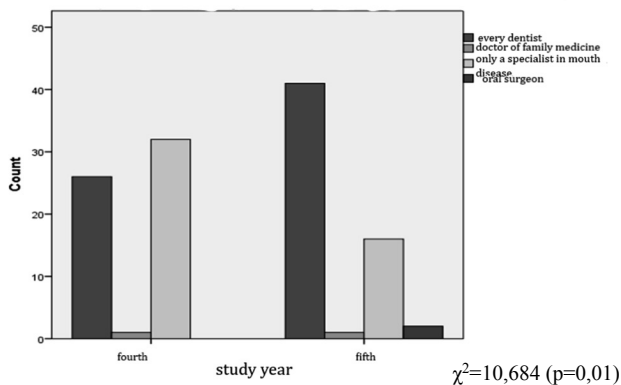


Figure 3. In your opinion, who should treat patients with potentially malignant oral lesion?

When asked to whom would they refer patients with the diagnosis of a suspected potentially malignant lesion, (86%) of the students stated that it was oral medicine specialist, (42%) of which are fourth-year students and (44%) fifth-year dental students? The difference has proven to be statistically significant (Figure 4).

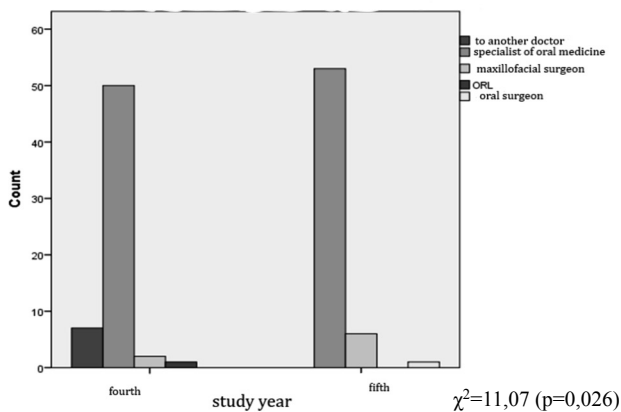


Figure 4. To whom would you refer patients with the diagnosis of suspected oral cancer?

When asked whether students get enough information about potentially malignant lesions during their studies, (39,2%) of the students answered YES, and (60,2%) students said NO. Fifth-year students state that they get more information during lectures about oral cancer (28%) more cases than fourth-year students (11%) (Table 3).

Table 3. Do you receive enough information on potentially malignant lesions during your studies?

	Do you get enough information on potentially malignant lesions during your studies?			Total
	yes	no	3,0	
Year of study				
fourth	13	46	1	60
fifth	34	26	0	60
Total	47	72	1	120

$\chi^2=15,939$ (p=0)

When asked whether students want to receive more information on precancerous and cancerous lesions in the oral cavity (97,5%) responded positively and (2,5%) responded with a NO (Table 4).

Table 4. Do you want to receive more information on precancerous and cancerous lesions in the oral cavity?

	Do you want to obtain more information on precancerous and cancerous lesions in the oral cavity?		Total
	yes	no	
Year of study			
fourth	59	1	60
fifth	58	2	60
Total	117	3	120

$\chi^2=0,342$ (p=0,559)

When asked what knowledge on the prevention of oral cancer they expected to obtain during their studies, (78%) of the students expects more knowledge than at the present, (38%) of which are fifth-year students and (43%) are fourth-year students. When asked what oral cancer prevention represents and includes, most of the students responded that it was education (68%) and good oral hygiene (32%).

Discussion

The results of the research show that fourth and fifth-year students examine oral mucosa during clinical examination of every patient. Fifth-year students find themselves well informed regarding recognizing the clinical picture of a potentially malignant lesion, unlike fourth-year students who stated that they are poorly informed. Fifth-year students stated that they get enough information on potentially malignant lesions during their studies (28%), unlike fourth-year students (11%). The difference has also proven to be statistically significant.

This imposes the need to improve students' education on potentially malignant lesions during the entire course of dental medicine study.

When asked whether they warn and advise patients on risk factors such as smoking, alcohol, and drugs, both fourth and fifth-year students have responded positively in 87.5% of the cases, which corresponds with similar studies. Therefore, in their study on knowledge assessment among students on oral cavity cancer conducted by Joseph BK *et al.* (2015), they state that 75,3% of students are aware of risk factors and offer advice about modifications of the same¹⁹. In their study on knowledge and awareness among dental and medical students on oral cancer, Awan KH *et al.* (2014) have reached a conclusion that dental students examine oral cavity mucosa more often, 96,7% of them responded positively, in relation to medical students where only 60,6% of the students paid attention to that part of the examination. And, concerning risk factors, dental students have shown greater knowledge than medical students. As much as 93,9% of dental students stated that they are aware of risk factors (smoking, alcohol) in the development of potentially malignant lesions, concerning medical students (76,1%)²⁰. This study corresponds with our study as well, where 93% of the fourth and fifth-year students responded that they observe oral mucosa during examinations.

In our study, a surprisingly high number of students responded that they rarely have an opportunity to see patients with potentially malignant lesions, 99,2% (with no statistically significant difference between fourth and fifth-year students), which differs considerably concerning other studies. Therefore, for example, in their study among medical and dental students on awareness on oral cancer, Lachlan MC and Graham RO (2007) stated that dental students have had more opportunity to examine patients with potentially malignant lesions in oral cavity mucosa in comparison with medical students, where 88% of dental students responded positively in relation to medical students (61,2%)²¹. The results of our studies impose the need to engage the students more during their study practice, both in terms of the number of patients and their activity during practice.

A statistically significant difference has been shown among fourth and fifth-year students regarding the identification of the clinical picture of potentially malignant lesions. The fifth-year students mostly responded that they are well informed (28,5%), whereas fourth-year students responded that they are poorly informed (33,5%). Similar results are also present in other studies where students mostly responded that they are well informed, and a very small number responded that they are very well informed²¹. That difference can be attributed to the fact that fifth-year students have more hours of lectures and practice in the subject of oral medicine as well as other subjects related to diseases of

the oral mucosa. Our results correspond with the results of similar studies, which have also shown that graduating students have better knowledge of potentially malignant lesions²²⁻²⁵. Soares *et al.* have found in their study that students do not sufficiently recognize clinical pictures of potentially malignant lesions, regardless of the developed awareness of the need for a thorough examination of the oral mucosa^{26, 27}.

The results of our study show that the most common changes in the oral mucosa that students associate with potentially malignant lesions are ulcerations that do not heal for more than two weeks with therapy. As much as 54% of the students have listed it as potentially malignant lesions. The interesting fact is that 43% of the above number are fourth-year students, and 11% of it is fifth-year students. The difference in answers has proven to be statistically significant. Fifth-year students also list candidiasis (21%), erythroplakia (6%) and oral lichen (4%). In other studies, as well, students mostly associate the same changes with potentially malignant lesions^{5,20,21}.

Of the total number of students, 86% of the students responded that oral medicine specialists should treat patients with potentially malignant oral lesions, (42%) of which are fourth-year students, and (44%) are fifth-year dental students. The difference has proven to be statistically significant which also corresponds with the results of other studies^{14,20,21}. The results of our study show that both fourth and fifth-year studies, 97,5% of them, responded that they want to receive more information on precancerous and cancerous lesions in the oral cavity.

When asked what knowledge of oral cancer prevention they expected to receive during their studies, 78% of the students expected more knowledge than at the present, 36% of which are fifth-year students, and 42% are fourth-year students. Our results correspond with the results of other studies. In their study, Awan KH *et al.* (2014) have found that dental students have better knowledge and awareness on prevention and early detection of oral cancer concerning medical students, but both have stated that they would like to receive additional information on oral cancer²⁰. Lachlan M Carter *et al.* reached the same results in their study²¹. In a study conducted by Radman M *et al.* there is a statistically significant difference regarding a question related to students' satisfaction with received information during lessons about oral cancer. 39,5% of fifth-year students find that they are well informed, unlike 15% of fourth-year students who find that they need to get more information²⁷.

When asked what prevention of oral cancer represents and includes, most of the students responded that it was education (68%) and good oral hygiene (32%), which corresponds with the results of other studies^{21,26}.

Conclusions

Even though the oral cavity is easily accessible for examination, the detection of oral cancer occurs at a later stage. Most oral cancers develop from PMOL, which is why it is important to have a detailed clinical examination with early detection of pathological changes. Because the occurrence of oral cancer is more frequent, the dentist's role in its prevention and early detection is increasingly important. Our study has shown that fourth and fifth-year students have knowledge about PMOL, but they find that it is insufficient. Fifth-year students show a greater level of awareness on the significance of early recognition of pathological lesions that could alter malignantly, which also corresponds to the fact that knowledge and awareness increase with the length of the study, i.e. with an education that students receive in later years of studies. Our results, as well as results of other studies, impose the need for better theoretical and practical education of students.

This study emphasizes the need for the earliest possible education of students on the significance of oral mucosa examinations, detection of early signs and risk factors for the development of PMOL, early diagnosis, and treatment with the purpose of prevention of oral cancer.

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