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Assessing Knowledge and Awareness of Oral Cancer among Dental and Medical Undergraduates

Dr. Prasanna Kumar P[1], Dr. Ankita Raj[2], Dr. Ankur Rathaur[3], Dr. Akash Tiwari[4] ,Dr. Pulkit Advani[5], Dr.paras kansal[6]

Author

Dr. Prasanna Kumar P, Professor, Department Of Oral & Maxillofacial Surgery,Rama Dental College, Rama University, Kanpur, Uttar Pradesh.

Dr. Ankita Raj,Professor, Department Of Oral & Maxillofacial Surgery,Rama Dental College, Rama University, Kanpur, Uttar Pradesh.

Dr. Ankur Rathaur,Senior Lecturer, Department Of Oral & Maxillofacial Surgery,Rama Dental College, Rama University, Kanpur, Uttar Pradesh.

Dr. Akash Tiwari,Senior Lecturer, Department Of Oral & Maxillofacial Surgery,Rama Dental College, Rama University, Kanpur, Uttar Pradesh.

Dr. Pulkit Advani,Post Graduate , Department of Oral and Maxillofacial Surgery, Rama Dental College Rama University, Kanpur, Uttar Pradesh.

Dr. Paras Kansal,Post Graduate , Department of Oral and Maxillofacial Surgery, Rama Dental College Rama University, Kanpur, Uttar Pradesh.

Corresponding Author :

Dr. Prasanna Kumar P
Mail: drprasannakumar.p.fds@ramauniversity.ac.in

ABSTRACT

Aim : Currently, oral cancer in India ranks among the top three types of cancer affecting mainly the elderly population. However, recent years have witnessed a marked increase in the younger people less than 45 years of age being affected by oral squamous cell carcinoma (OSCC). Thus, its early detection and treatment are of utmost importance and this responsibility lies with the healthcare providers. Therefore, we planned this study to assess the knowledge, attitude and practices of oral cancer among undergraduate dental and medical students. The objective was to suggest strategies to improve awareness on oral cancer.

Material & Methods: A pretested questionnaire comprising nineteen questions were distributed among 193 undergraduate dental and 218 undergraduate medical students of our university. Fundamental questions were included in the clinical examination, risk factors and need for information lectures on oral cancer. Chi-square and ANOVA tests were used to analyse the data.

Results: The response rate of the study was good with 91.7% (177/193) of the dental and 88% (191/218) of the medical undergraduates participating in the survey. Though dental students had sufficient knowledge regarding the prevention and detection of oral cancer, however, medical students were less aware of the investigative methods of oral cancer.

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Clinical significance Though the mean knowledge of the dental students was good, they were not confident of diagnosing the early clinical symptoms of oral cancer. Practices on detection of oral cancer have to be reinforced among medical students so that they can contribute to its prevention

Key words: oral cancer medical ungraduates .

INTRODUCTION

According to the International Agency for Research on Cancer's (IARC) World Cancer report released by the World Health Organization, oral cancer is the second most prevalent cancer globally, with 120,000 new cases being reported in India annually.[1,2] Tobacco is the biggest risk factor for oral cancer, with about 80% of the world's smokers in low- and middle-income countries like India. According to the IARC statistical figures for India, more than 90% of patients with oral cancer belong to the lower-middle socioeconomic strata.[1-4] Thus, cancer treatments are expensive and unaffordable for them. Consequently, it becomes extremely important to find ways for the prevention of oral cancer and has expertise in early detection of oral potentially malignant disorders and oral cancers.

In a systematic review and meta-analysis conducted to analyse the relationship between intervals to diagnosis, TNM classification and survival in oral cancer, the authors observed that a longer time interval from first symptom to referral for diagnosis amplifies the risk for advanced stage diagnosis and poor survival rates of oral cancer.[5] Hence, it becomes mandatory for healthcare professionals to be sufficiently aware and skilled in following a methodical approach to early diagnosis of oral cancer. Dental and medical undergraduates are the future practitioners and must accrue their clinical skills in diagnosing oral cancer in its early stage so that medical intervention at right time saves cancer treatment harassment. With the current study, we aimed to assess the knowledge and awareness of undergraduate dental and medical students of our university by analysing their knowledge, attitude and practice on prevention and early detection of oral cancer. A correlation among these parameters was also determined among the dental and medical undergraduates.

MATERIALS AND METHODS

This was a cross-sectional survey involving third year, fourth year and dental interns and medical undergraduate students of our university to assess their level of knowledge, attitude and practice regarding oral cancer. The study design was approved by the institutional ethics review board and ethical approval was granted for the same. Participation was voluntary, and informed consent was obtained from the participants after explaining the aim of this study. Questionnaires were distributed among 193 dental and 218 medical students in their individual batches out of which, a total of 368 students responded. Response rate was 93% (177 students) for dental and 74.6% (191) for medical students. The questionnaire included demographic data and separate sections on knowledge, attitude and practice on oral cancer. It was assumed that these students had already attended lectures on oral cancer beginning from their pre-clinical years. Each questionnaire included nineteen questions with ten knowledge questions (1 to 10), five attitude questions (11 to 15) and four practice questions (16 to 19) .It was a close-ended questionnaire and for analysing, yes was entered in the Excel file as 1 and number was entered as 0. Demographic data included age, gender, year of study and family history of oral cancer. Knowledge of oral cancer was evaluated by incorporating questions on clinical appearance, etiological factors, awareness of mucosal-related changes like leukoplakia, investigative procedures for early detection of oral cancer, awareness on whether it is a preventable or contagious disease. Attitude was assessed by including questions on annual oral cancer examination after the age of 40 years, providing tobacco cessation education, advising patients on the risk factors of oral cancer, examining patients' mucosa routinely. Practices adopted by undergraduates were tested by asking whether they recorded smoking and alcohol habits in personal

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history, advising biopsy in suspicious lesions, awareness on referring the oral cancer patient to an oral and maxillofacial surgeon and if they were more curious regarding information or training on oral cancer. Since one of the main objectives of the study was to find methods to upgrade oral cancer awareness among students, the last question in practice section was modified and the students were asked to pick the most appropriate mode of gaining knowledge.

Data was collected and statistical analyses were done. Comparison of dental and medical undergraduates with respect to knowledge, attitude, practice (KAP) mean scores was analysed by *t*-test. One-way ANOVA was used to compare the year of study of students with respect to KAP. A *P* value of <0.05 was considered as statistically significant. Karl Pearson's correlation coefficient test was used to find the correlation between KAP scores among both the study groups.

RESULTS

Demographic data including age, gender, year of study and family history of oral cancer revealed maximum number of participants over the age of 20 years, more male participants from medical college (54.5%) and more female dental undergraduates (80.8%). Family history of oral cancer was reported by 5.6% of dental and 4.2% of medical student participants [Table 1].

Table 1: Demographic characteristics of the undergraduate students

Serial no.	characteristic	Dental students n=177	%	Medical students N=191	%
1	age				
	20 0r ,20 years	7	4	5	2.6
	More than 20 years	170	96	186	97.4
2.	Gender				
	Male	34	19.2	104	54.5
	female	143	80.8	87	45.5
3.	Year				
	Third year	77	43.5	85	44.5
	Final year	30	16.9	48	25.1
	Interns	70	39.5	58	30.4
4	Family history of oral cancer				
	Yes	10	5.6	8	4.2
	No	167	94.4	183	95.8

The mean knowledge index score among dental and medical undergraduates was significant (6.73 and 6.01, respectively). Also, the mean attitude score between the two groups was 3.14 and 2.76 which was also highly significant. A highly significant difference was also found between the practice score of dental and medical students (4.42 and 3.49, respectively). These findings suggested that dental students had better knowledge and thus followed good practices on oral cancer [Table 2].

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Table 2. Comparison of dental and medical students with respect to knowledge, attitude and practice scores

Serial no.	Variable	students	n	Mean	Significance
1.	Knowledge	Dental	177	6.73	<0.001
		Medical	191	6.01	
2.	Attitude	Dental	177	3.14	<0.001
		Medical	191	2.76	
3.	Practice	Dental	177	4.42	<0.001
		Medical	191	3.49	

Table 3 reveals a highly significant difference of KAP scores among the third year, final year students and interns. These findings implied that as the students progressed from pre-clinical to clinical years of study, their awareness and perception on oral cancer also enhanced remarkably. The current study further revealed a significant positive correlation between knowledge and practice scores for all the undergraduates. Consequently, students who had better knowledge also followed good practices on oral cancer

Table 3:Comparison of year of study of undergraduate (both dental and medical) students with respect to knowledge, attitude and practice scores

Year of study	n	Mean		
		Knowledge score	Attitude score	Practice score
Third year	162	6.07	2.85	3.77
Fourth year	78	6.35	2.87	3.72
Intern	128	6.72	3.11	4.28
Significance		<0.001	<0.026	<0.001

Both medical and dental students preferred conduction of regular seminars as the mode of information on oral cancer followed by lectures, information booklets and audio-visual media aids to update themselves [Table 4].

Table 4: Percentages of different modes of getting about oral cancer selected by medical and dental students

Different modes of information	Medical students	Dental students
Lectures	56(29.3%)	34(19.2%)
Information booklets	33(17.3%)	32(18.07%)
seminars	90(47.1%)	69(39.%)
Media, audio, visuals	12(6.3%)	42(23.7%)

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DISCUSSION

Numerous studies on oral cancer patients highlight the overall dismal survival rates of oral cancer despite advances in the treatment regime. In fact, it is very important that dental and medical students are acquainted with the risk factors, clinical features and investigative procedures of oral cancer, so that they do not overlook the early diagnostic signs of oral cancer.[6] Because of myriad risk factors, early diagnosis becomes pivotal in the prognosis and treatment of oral cancer. Developing country like India has the highest prevalence of oral cancer globally and is the most common cancer among men.[1-4] The inflated number of oral cancer patients in India calls for elaborate measures for early detection by both dental and medical personnel. It is crucial for both dental and medical future practitioners to take the responsibility of advising the patients on high-risk factors as well as teaching them self-examination of the oral mucosa to not only enhance their comprehension of oral cancer but also help in early detection of changes in the mouth.

Comparison of dental and medical undergraduates with respect to knowledge, attitude and practice scores

The findings of the present study revealed that dental students were more efficient in identifying oral cancer-associated mucosal changes such as leukoplakia and erythroplakia, than their medical counterparts. Significantly, more medical students reported that they were not well-informed about the clinical appearance of oral cancer as they did not have the opportunity to examine patients' oral mucosa.

In the current study, dental students had a better perception of the risk factors, detection, investigative procedures and prevention of oral cancer as compared to the medical students. These findings were consistent with a study conducted by Macpherson LM *et al.*, 2003,[7] where general medical practitioners reported lack of confidence about their knowledge of oral cancer and attributed this to lack of clinical training. Concordant results were recorded in another cross-sectional study conducted in Bhubaneswar where dental practitioners had a higher score for knowledge and practice questions as compared to the medical practitioners.[8] Interestingly, the medical practitioners had a better attitude than the dental practitioners regarding oral cancer.[8,9] In contrast, inadequate level of knowledge of oral cancer among the recently graduated medical and dental professionals was reported in Amman, Jordan.[10] Varied results were observed in different Universities of Malaysia when cross-sectional studies were carried out in dental and medical undergraduates. Investigators in one of the Malaysian University observed a non-significant difference between dental and medical undergraduates on the awareness of oral pre-cancer and cancer. They emphasized on the need for revision in the curriculum design of dental and medical subjects so as to enhance the clinical exposure of the undergraduates and improve their awareness on oral pre-cancer and cancer.[11] A study conducted at International Islamic University, Malaysia, highlighted the lack of awareness in dental undergraduates about the risk factors of oral cancer and further identified the knowledge gaps on oral cancer where only sixty percent of the future dental practitioners selected tobacco smoking as the risk factor of oral cancer.[12] Other literature studies showed that 90 percent of the dental and medical students were able to recognize tobacco as a high-risk factor of oral cancer, yet, dental students had better knowledge and awareness in prevention and early detection of oral cancer compared to medical students.[11,13-16] Overall, dental students were more comprehensive of referring the oral cancer patient to the most appropriate discipline. More dental students chose to refer the oral malignancy case to oral surgeon. These results are encouraging as it is the responsibility of dentists to diagnose and evaluate oral cancer. Consistent findings were observed in different literature studies.[13,14,16,17] However, contradictory results were found by Brzak *et al.*, (2012)[15] where majority of undergraduate dental students chose to refer oral cancer patients to a plastic surgeon specialist. Oral potentially malignant and malignant lesions are an integral part of the oral medicine and oral pathology subjects of dental undergraduate

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programme curriculum, and oral cavity examination being included in the clinical sessions, dental students have a better perception on oral cancer.

Comparison of year of study of undergraduate students with respect to knowledge, attitude and practice scores

The current study observed a highly significant difference among the students of third and fourth year and students undergoing internship. As the students progressed to clinical years, their mean scores for knowledge, attitude and practice also got better indicating their enhanced clinical experience. While in a study, third year students were found to have insufficient knowledge regarding prevention and early detection of oral cancer.[12] Medical students from second and fourth years were poorly informed regarding oral cancer and showed keen interest in receiving more training and information on this subject in some studies.[17,18] We observed that a large majority of dental students had the opportunity to examine oral cancer patients and were more perceptive in figuring out oral mucosal changes in such patients. Additionally, dental students were more confident to provide tobacco cessation education to patients and advise patients regarding prevention and detection of oral cancer as well as risk factors of oral cancer. The current study observed a highly significant difference for knowledge and practice scores as the students progressed to clinical years. The final year students and interns were better in their knowledge on risk factors, detection and investigative procedures of oral cancer. Additionally, they followed better clinical practices like recording tobacco and alcohol habits in history-taking, taking biopsy in suspicious lesions, doing a thorough oral cavity examination and referring the oral cancer patient to an oral and maxillofacial surgeon.

Correlation between knowledge, attitude and practice scores among both the groups

The present study revealed a significant positive correlation between knowledge and practice of all the undergraduates suggesting that students who had better knowledge also followed good practices on oral cancer. A Saudi study demonstrated inadequate knowledge (mean score was 57.8%) among medical students regarding the detection and management of oral cancer patients. Additionally, sixty-three percent of Saudi medical students reported that they were incapable of providing tobacco cessation measures to oral cancer patients or take part in other disease preventive strategies.[19] A UK study highlighted the need for improved education of undergraduate medical and dental students regarding oral cancer. The authors observed that 93% of students identified tobacco and 33% identified alcohol as risk factors. Medical students were less likely to examine patients' oral mucosa routinely and were more restrained in advising patients about risk factors for oral cancer.[17] Though a satisfactory knowledge of oral cancer was observed, inadequate knowledge about risk factors of oral cancer was observed in medical students of an Indian University.[20] Interestingly, both dental and medical undergraduates were uniform in demanding more information or training on oral cancer in the present study.

Dentists' attitudes related to oral cancer strongly suggest that educational interventions for practitioners and dental students are necessary. Further training is required for both medical and dental students to increase awareness of oral cancer and its associated risk factors. In our study, both the dental and medical students showed interest to acquire more information and teaching regarding oral cancer. Awareness and knowledge of oral cancer for medical students can be enhanced by including teaching and clinical training on oral disorders. A collaborative approach from different specialties such as oral and maxillofacial surgery, otorhinolaryngology, plastic surgery or clinical oncology may provide support in clinical teaching about oral cancer.

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Different modes of information and awareness on oral cancer

Most of the studies observed that third year, final year students and interns had sufficient clinical skills related to diagnosis and clinical presentation of cancer of oral cavity but still wanted to gain more knowledge and expertise related to diagnosis, clinical presentation and management of oral cancer. Most of the respondents wanted information to be provided to them by conducting seminars and lectures.[11,13,14,16] In the present study, it was observed that considerably more dental students regularly inspect the oral mucosa when compared with the medical students. This is, obviously, because dental students regularly examine the oral cavity during their clinical postings. Medical students are less informed as compared to dental students on clinical diagnosis and management of oral cancer. Conduction of seminars was the favourite medium for dissemination of information by all respondents on oral cancer, followed by lectures, information booklets and media audio-visuals. Both dental and medical students agreed that more awareness programmes like seminars and lectures regarding the clinical symptom, risk factors and early detection of oral cancer, need to be organized regularly

CONCLUSION

The current study emphasizes the need for inclusion of oral malignant lesions in the teaching curriculum of medical students as dental students had a better knowledge regarding risk factors, clinical appearance, detection, investigative procedures and tobacco cessation measures. An improved knowledge, attitude and practice scores were observed as the students progressed to clinical years. However, still there are gaps of elementary knowledge and awareness about oral cancer among undergraduate dental and medical students, which need reforms and improvement. It becomes imperative to implement the clinical suspicion of oral cancer to enable awareness and early diagnosis. This can be achieved by organizing more training programs in the form of lectures, seminars and workshops for dental and medical fraternity.

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