Oncology Section

Oral Cancer Knowledge, Attitudes and Practices: A Survey of Undergraduate Medical Students in Himachal Pradesh, India

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ABSTRACT

Background: Oral cancer is the sixth most common cancer among Indian males and the third most common cancer among Indian females. Early detection of oral cancers makes them more amenable to treatment and allows the greatest chance of cure. Lack of awareness among the health care providers is the most significant factor in delaying diagnosis and treatment of oral cancer. So the aim of the study was to assess the knowledge, attitude and practices of oral cancer among undergraduate medical students in Indira Gandhi Medical College, Shimla, India.

Materials and Methods: A cross-sectional questionnaire study was conducted among 186 undergraduate medical students between the third to fifth years in Indira Gandhi Medical College, Shimla. The questionnaire consisted of 15 questions, five each on knowledge, attitudes and practices. The data were analysed by Statistical Package for the Social Sciences version 16. Test used were t-test, Chi-square and ANOVA.

Results: The response rate of the study was 96.5%. The mean knowledge percent of the sample was good. Mean knowledge percent was higher in females than males. Higher percentage of students in 5th year (internship) had excellent knowledge. The knowledge and practices about risk factors was not satisfactory. One hundred and twenty four (66.6%) of the subjects disagreed/ strongly disagreed that their knowledge regarding the prevention and detection of oral cancer is current adequate. One hundred and seventy six and (94.6%) agreed/strongly agreed that there is need for additional training/information regarding oral cancer.

Conclusion: It can be concluded that though the mean knowledge of the population was good but the knowledge and practices about risk factors had to be reinforced among these students so that they can help the patients in tobacco and alcohol cessation and contribute in prevention of oral cancers.

INTRODUCTION

It has been well recognized that the cancers of the oral cavity and the pharynx are a public health problem and as a result, there are a great number of deaths and people suffering from illnesses or disability in many countries [1]. The incidence of oral cancer is rising in most countries, especially in developing countries [2-4]. In India, it ranks number one in terms of incidence among men and third among women [5].

Ninety five percent of oral cancers are squamous cell carcinomas. Oral cancers have been associated with avoidable aetiological risk factors. Smoking tobacco and alcohol use are the main risk factors and are associated with approximately 75% of oral cancers [6]. Smokeless tobacco use, a common practice in the Indian subcontinent, has also been shown to be a significant risk factor for oral and pharyngeal cancer [7].

Oral cancers are usually detected at advanced stages (stage III and IV) as they are mostly asymptomatic (III and IV). Despite therapeutic advances in recent years, this type of cancer has very poor survival rates worldwide; average of five-year survival rate of 50% [8,9]. In order to reduce morbidity and to have greater chance of cure, early diagnosis and prompt treatment is the key. So, any kind of delay in presentation or referral will adversely affect the prognosis. The most important factor in delayed referral and treatment is lack of awareness among the public about the early signs of oral cancer. Lack of general medical practitioner and general dental practitioner knowledge has also been shown to contribute to delays in referral and treatment [10].

Awareness about oral cancer among the undergraduate dental students has been well documented [11], but there is a paucity of information regarding awareness among undergraduate medical students in India. So, the aim of the study was to assess the knowledge, attitude and practices among under graduate medical students in Indira Gandhi Medical College, Shimla, India.

MATERIALS AND METHODS

A cross-sectional questionnaire study was conducted among medical undergraduate students in Indira Gandhi Medical College, Shimla. Prior permission was taken from the head of the Institute to conduct the study. The subjects were informed about the study prior to start of study. The inclusion criteria were those students who were present during the lecture hours for 3rd and 4th year students. For 5th year students questionnaire were filled in various departments where interns were posted. Out of 205 questionnaires distributed 198 were received back which means the response rate was 96.5%. Out of 198 questionnaires 12 were incomplete, so were not included in the study. So, the total study population was 186 students. The time taken to complete the questionnaire was about ten minutes. The questionnaire had questions in four major sections. Section 1 consisted of demographic questions. Section 2 consisted of five closed-ended questions regarding the student's knowledge about oral cancers. Each question answered correctly received a score of 1 and each wrong answer received a score of 0 thus making a maximum score of 5 for a subject. The scores were transformed into percentages of correct answers. Hence, a

student's total score could range from 0 (no answers correct) to 100 percent (all five answers correct). Students with a score less than 25 percent were considered to have weak knowledge, between 25 and 50 percent to have moderate knowledge, between 50 and 75 percent to have good knowledge and more than 75 percent to have excellent knowledge. The third category consisted of five questions on attitude items. The answers to these questions were given on a five-point Likert scale [12] (strongly agree, agree, neutral, disagree, and strongly disagree). The attitude questions were calculated as percentages for different questions. The fourth category consisted of five closed ended questions on practice items with the answer options as "Yes" and "No". The questionnaire was pretested by conducting a pilot study with seven students from each year. After analysing the pretest data, Cronbach's alpha correlation coefficient α=0.763 indicating the survey had a high degree of internal consistency.

STATISTICAL ANALYSIS

The data were analysed by Statistical Package for the Social Sciences (SPSS Inc., Chicago, IL, version 16 for Windows). The statistical tests used were t-test, chi-square test and ANOVA. T-test was used to compare mean knowledge percent between males and females. Chi-square was used to compare percentage of students in different categories of knowledge according to gender and year of education. ANOVA was used to compare mean knowledge of students between the years of education.

RESULTS

There were 87 (46.7) males and 99 (53.3%) females in the study. Out of the total population we had 47 (25.3%) in 3rd year, 66 (35.5%) in 4th year and 73 (39.2%) in 5th year or internship.

The mean knowledge percent of the entire population was 63.3± 19.4 (good knowledge). The average knowledge percent was higher in females (64.4±18.6) as compared to males (62.0±20.6) p-value =0.411. The mean knowledge percent was 58.3±19.0 in 3rd year, 65.1±19.6 in 4th year and 64.9±19.6 in 5th year, p-value =0.125 [Table/Fig-1].

The knowledge was poor for 6 (3.2%), moderate for 27 (14.5%), good for 114 (61.2%) and excellent for 39 (20.9%). Higher percentage of

Gender	Mean Knowledge percent	Standard Deviation	p-value
Male	62.0	20.6	
Female	64.4	18.6	0.411
Total	63.3	19.4	
Year			
Third year	58.3	19.0	
Fourth year	65.1	19.6	0.125
Internship	64.9	19.6	
Total	63.3	19.4	

[Table/Fig-1]: Mean knowledge percent scores of subjects according to gender and year

Gender	Poor (%)	Moderate (%)	Good (%)	Excellent (%)	p-value
Male	5(2.7)	12(6.4)	54(29.0)	16(8.6)	0.100
Female	1(0.5)	15(8.1)	60(32.2)	23(12.3)	
Total	6(3.2)	27(14.5)	114(61.2)	39(20.9)	
Year					
3rd Year	3(1.6)	9(4.8)	29(15.6)	6(3.2)	0.216
4th Year	2(1.1)	6(3.3)	44(23.6)	14(7.5)	
5th year	1(0.5)	12(6.4)	41(22.0)	19(10.2)	
Total	6(3.2)	27(14.5)	114(61.2)	39(20.9)	

[Table/Fig-2]: Percentage of subjects in various categories of knowledge according to gender and Year

students had excellent knowledge about oral cancers in 5th year as compared to other two years but the difference was not statistically significant, p-value =0.211 [Table/Fig-2].

Ninety seven (52.2%) subjects were able to identify tobacco and alcohol as risk factors. Squamous cell carcinoma was the most common type of oral cancer was reported by 140 (75.2%) of subjects. Non healing ulcer was correctly identified as most common manifestation of oral cancer by 141 (75.8%). One hundred and fifty nine (85.4%) correctly identified T 1N 1M0 as the stage with best prognosis.

The attitude of respondents towards oral cancer has been given in [Table/Fig-3]. Only 51.1% of the subjects used to examine oral mucosa routinely. A 67.7% of subjects used to take history regarding use of tobacco and alcohol from their patients, 62.4 % of the subjects educate the patients about adverse effects of tobacco

Questions	Strongly agree/Agree	Don't know	Strongly Disagree/ Disagree
My knowledge regarding the prevention and detection of oral cancer is current and adequate.	48(25.8%)	14(7.6%)	124(66.6%)
Annual oral cancer examinations should be provided for those of 40 years of age and above	163(87.6%)	5(2.7%)	18(9.7%)
Patients' with suspected oral cancer lesions should be referred to a specialist.	178(95.6%)	4(2.2%)	4(2.2%)
Early detection improves five-year survival rates from oral cancer	182(97.9%)	1(0.5%)	3(1.6)
Do you feel that there is need for additional training/information regarding oral cancer.	176(94.6%)	6(3.2%)	4(2.2)

[Table/Fig-3]: Respondents attitude towards Oral Cancer

Questions	Yes	No
Do you examine the oral mucosa routinely?	95(51.1)	91(48.1.)
Do you take history from patient about alcohol and tobacco use?	126(67.7)	60(32.3)
Do you refer the patients with suspicious lesions to a oral surgeon for further evaluation?	121(65.1)	65(34.9)
Do you educate patients on the adverse effects of alcohol and tobacco and assist them in cessation?	116(62.4)	70(37.6)
Have you ever attended any educational programs on oral cancers?	35(18.8)	151(81.2)

[Table/Fig-4]: Respondents Practices towards Oral Cancer

and alcohol [Table/Fig-4]. [Table/Fig-5] shows comparison with results of various studies on awareness about oral cancers.

DISCUSSION

The study was the first one to assess the knowledge, attitude and practices among undergraduate medical students in Indira Gandhi Medical College, Shimla. The mean knowledge percent of the population was 63.3± 19.4 indicating the knowledge was good. The mean knowledge percent was higher among females (64.4±18.6) as compared to males (62.0±20.6). The mean knowledge percent was highest in the 4th year. The higher percentage of students in 5th year belonged to excellent category of knowledge which was also reported by Ogden GR [13]. This is well understood that students in 5th year are exposed to more theoretical and practical knowledge as compared to other two years.

Only 52.1 % of the subjects correctly identified tobacco and alcohol as risk factors in the present study which is comparable to 58% as reported by Sara Rehman [14] but is less than 93% for tobacco and 33% for alcohol as reported by Lalchan [4]. This means only 52.1% of our future medical practioners have knowledge about risk factors

of oral cancers. This is consistent with previous literature regarding general medical practitioners [4,15-17].

Only 67.7% of subjects used to take history regarding use of tobacco and alcohol from their patients and 62.4% of the subjects educate the patients about adverse effects of tobacco and alcohol. It clearly reflects that the students lack the knowledge of tobacco and alcohol in causing oral cancers. Thus, the role of tobacco and alcohol as a risk factor for oral cancer has to be reinforced in future teaching of undergraduate medical students. Being future medical practioners they can play an important role in the prevention and early detection of oral cancers if they are aware about the risk factors as well as signs and symptoms.

In the present study, only 51.2% of the students reported that they examine the oral mucosa routinely. This is higher than 39.6% as reported by Nandita et al., [11], but lower than 61% as reported by Lalchan [4]. But, being future health care providers they have an opportunity to detect oral cancers while they are asymptomatic and are more likely to see patients at higher risk of oral cancer. Literature has shown that, oral mucosa examination is not given much importance in the general physical examination. A study by Elwood et al., [18] says that 94% of patients with advanced oral cancer had been seen by a physician within 1 year of their diagnosis. Prout et al., [19] found that more than 77% of patients first diagnosed with oral cancer at an advanced stage had been under the routine care of a physician within the past 3-24 months.

The most common manifestation of oral cancer reported here was non healing ulceration by 141 (75.8%) of students, followed by leukoplakia 29 (15.5%). This is in line with previous studies [19,20], where ulceration and leukoplakia were identified more commonly than erythroplakia by general medical practioners, despite the greater malignant potential of the erythroplakia. So, one fourth of students reported correctly about non healing ulceration as common

manifestation of oral cancer which is quite acceptable as above the expected standard of 70%.

Out of total, 66.6% disagreed/ strongly disagreed that their knowledge regarding the prevention and detection of oral cancer is current and adequate which is less than 78.2% as reported by Nandita et al., [10]. A 94.6% agreed/strongly agreed, there is need for additional training/information regarding oral cancer which is comparable to 90% as reported by Lalchan [4]. Oral cancer awareness of medical students could be improved by teaching oral health and disease during clinical postings in Oral and Maxillofacial Surgery, Otorhinolaryngology, Plastic Surgery or Clinical Oncology. A collaborative approach from these specialties ensuring the opportunity to take oral health histories and examine patients with oral lesions before graduation should be undertaken so that when they start practicing they can detect the oral cancers at an early stage and educate their patients regarding the harmful effects of tobacco and alcohol. As India has one of the highest incidence of oral cancers, the burden of oral cancers can be greatly reduced if our future medical practioners are well versed with the risk factors and early detection.

CONCLUSION

Overall the mean knowledge of the population about oral cancers among medical undergraduate students was good. The knowledge was higher in females as compared to males but the difference was not significant. The knowledge and practices about the risk factors were not satisfactory. One third of the population disagreed that their knowledge about oral cancers is adequate and current. More than 90% of the students wanted to have some kind of training on oral cancers. So, there is need to improve the knowledge and practices of risk factors for oral cancer among medical undergraduate students by either collaborative approach by various specialties or by arranging continuous medical education programs for them.

REFERENCES

[1] Natarajan E. Contemporary Concepts in the Diagnosis of Oral Cancer and Precancer. *Dental Clinics of North America*. 2011;55(1):63-88.

[2] Jaber MA. Dental practitioner's knowledge, opinions and methods of management of oral premalignancy and malignancy. *Saudi Dent J*. 2011;23:29-36.

[3] Oliveira JMB, Pinto LO, Lima NGM, Almeida GCM. Oral Cancer: Assessment of Academic Dentistry and Nursing Knowledge as for the Risk Factors and Diagnostic Procedures. *Rev Bras Canc*. 2013;59:211-18.

[4] Carter LM, Ogden GR. Oral cancer awareness of undergraduate medical and dental students. *BMC Med Educ*. 2007;15:44-52.

[5] Byakodi R, Byakodi S, Hiremath S, Byakodi J, Adaki S, Marathe K et al. Oral Cancer in India: An Epidemiologic and Clinical Review. *Journal of Community Health*. 2012;37(2):316-19.

[6] Johnson NW, Warnakulsuriya KAAS. Epidemiology and Aetiology of Oral Cancer in the United Kingdom. *Comm Dent Health*. 1993;10:13-29.

[7] Gupta PC, Nandakumar A. Oral cancer scene in India. *Oral Dis*. 1999;5:1–2.

[8] Gómez I, Warnakulasuriya S, Varela-Centelles PI, López-Jornet P, Suárez-Cunqueiro M, Diz-Dios P, et al. Is early diagnosis of oral cancer a feasible objective? Who is to blame for diagnostic delay? *Oral Dis*. 2010;16:333-42.

[9] Baykul T, Yilmaz HH, Aydin U, Aydin MA, Aksoy M, Yildirim D. Early diagnosis of oral cancer. *J Int Med Res*. 2010;38:737-49.

[10] Schnetler JF. Oral Cancer Diagnosis and Delays in Referral. *Br J Oral Maxillofac Surg*. 1992;30:210-13.

[11] Nandita S, Junaid A, Dr. Saranya B. Oral Cancer Awareness among Undergraduate Medical Students of Dakshina Kannada, *India. Sch J App Med Sci*. 2013;1(5):632-6.

[12] Johns R. Likert Items And Scales. Available at http://surveynet.ac.uk/sqb/datacollection/likertfactsheet.pdf; accessed on July 18, 2012.

[13] Ogden GR, Mahboobi N. Oral cancer awareness among undergraduate dental students in Iran. *J Cancer Educ*. 2011;26(2):380-85.

[14] Rehman S, Khan M. Awareness of oral cancer in undergraduate medical and dental students. *Pakistan Oral & Dental Journal*. 2012;32:385-88.

[15] Greenwood M, Lowry RJ. Primary Care Clinicians' Knowledge of Oral Cancer: A Study of Dentists and Doctors in the North East of England. *Br Dent J*. 2001;191:510-12.

[16] Macpherson LMD, McCann MF, Gibson J, Binnie VI, Stephen KW. The Role of Primary Health Care rofessionals in Oral Cancer Prevention and Detection. *Br Dent J*. 2003;195:277-81.

[17] McCunniff MD, Barker GJ, Barker BE, Williams K. Professionals' Baseline Knowledge of Oral/Pharyngeal Cancers. *J Canc Educ*. 2000;15:79-81.

[18] Elwood JM, Gallagher RP. Factors influencing early diagnosis of cancer of the oral cavity. *Can Med Assoc J*. 1985;133(7):651-56.

S .NO	AUTHOR	YEAR	Findings
1	Lachlan M Carter [4] In U.K	2007	A 93% of students identified tobacco and 33% identified alcohol as risk factors. Medical students were less likely to examine patients' oral mucosa routinely and less likely to advise patients about risk factors for oral cancer. This study highlights the need for improved education of undergraduate medical and dental students regarding oral cancer.
2	Nandita et al., [10] In Dakshin Kannada, India	2013	Rate of awareness about oral cancer was 36.6%. Regarding Knowledge of risk factors, most of the respondents agreed that they are aware of the risk factors but only 26.7% people educate their patients about it. A satisfactory knowledge was observed on the knowledge of oral cancer among our medical students.
3	Rehman S, Khan M [14] In Pakistan	2012	A 58% of the subjects reported tobacco and alcohol as risk factors for oral cancer. Only 70% of the subjects could associate betel quid chewing with oral cancer. A poor level of awareness in the next generation of general medical practitioners thus highlights the need for improving the education of undergraduate medical and dental students regarding oral cancer.
4	Kujan O, Abuderman A [21]. In Saudi Arabia	2013	Mean score of cancer knowledge was 57.8%. This study demonstrates a dearth of knowledge relating to the diagnosis and management of oral cancer among clinical students within an established Saudi medical school.
5	Kamran Habib Awan in [22] Malasia in U.K	2014	A 49.3% of students considered smoking and 43% considered betel chewing as risk factors. 60% 0f the subjects used to take history to identify high risk patients. The level of awareness about oral cancer among undergraduate medical is less than acceptable and need improvement and reforms in the teaching curricula.

[Table/Fig-5]: Comparing the results of various studies on awareness about oral cancers

[19]   Prout MN, Heeren TC, Barber CE, Rose L, Morris SG, Hurley C et al. Use of health services before diagnosis of head and neck cancer among Boston residents. *Am J Prev Med*. 1990;6(2):77-83.

[20]   Langdon JD. Oral Cancer: Raising the Level of Awareness. *Dent Update*. 1995,22:269-70.

[21]   Kujan O, Abuderman A, Azzegahiby S, Alenzi FQ, Idrees M. Assessing oral cancer knowledge among Saudi medical undergraduates. *J Cancer Educ*. 2013;28(4):717-21.

[22]   Kamran HA, Tan WK, Tye KY, Rosnah BZ. Assessing oral cancer knowledge and awareness among Malaysian dental and medical students. *Journal of cancer Research and therapeutics*. 2010;14:903-7.

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