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ORIGINAL RESEARCH ARTICLE

AWARENESS OF ORAL CANCER AND POTENTIALLY MALIGNANT ORAL DISORDER AMONG FINAL YEAR MEDICAL AND DENTAL UNDERGRADUATE STUDENTS OF CHITWAN MEDICAL COLLEGE, NEPAL

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ABSTRACT

Background: Oral Cancer (OCA) is a common malignancy in South East Asia and the burden of the disease is increasing. OCA is usually preceded by Potentially Malignant Oral Disorder (PMOD). The early detection of these diseases may limit the high mortality and morbidity. The objectives of this study were to assess the awareness of burden, associated risk factors, early detection and prognosis of OCA and OPMD among final year medical and dental students..

Methods: This cross sectional study was conducted among final year Medical and Dental undergraduate students of Chitwan Medical College, Nepal in April 2017 using a pre tested self-administered questionnaires. All the final year students present at their respective classes (Dental= 50 and Medical=75 students) responded to the questionnaires after giving informed consent. Data entered in SPPS 20 software was analyzed using Pearson Chi Square test and Fisher exact test.

Results: Dental students had better awareness concerning PMOD. Yet, the dental students did not differ significantly from their medical counterpart in most of the responses related to OCA. Surprisingly, more Dental students had misconception that OCA is not preventable and early detection is difficult. Few of both groups were confident in having sufficient knowledge in OCA prevention and detection. Only 18.6% of Medical students had examined PMOD and few students of both groups had examined OCA.

Conclusions: This study revealed the deficient aspect in the knowledge concerning OCA and OPMD among Medical and Dental students indicating the need to emphasize on these aspects of medical education.

INTRODUCTION

The burden of Oral cancer (OCA) is highest in South Asian countries. Among OCA, Squamous Cell Carcinomas are the most common form.[1] According to GLOBOCAN 2012, lip and oral cavity cancer is the 12th most common cancer in Asia and ranks 8th among all the cancers in men.[2] OCA is usually preceded by premalignant lesions or conditions such as leukoplakia, erythroplakia and oral submucous fibrosis. These identifiable precursor lesions or conditions are collectively referred to as Potentially Malignant Oral Disorders (PMOD).[3] OCA and PMODs are usually attributed to preventable habits such as betel chewing, smoking, snuff dipping, areca nut chewing and excessive alcohol intake and are preventable as most of the risk factors are related to habits of individuals.[4] Risk of developing OCA is higher among lower socioeconomic group of population may be due to lack of public awareness of risk factors.[4,5] This lack of public awareness

concerning OCA and PMOD probably is an important reason for late detection.[6] Early diagnosis may reduce the mortality and morbidity which are related to the grade of disease and the stage at which the lesion is diagnosed.[7]

Previous studies, showed that Medical and Dental students are inadequately aware of the importance of routine oral examination, risk factors, and oral potentially malignant disorders highlighting the need for improved education at the undergraduate level regarding OCA and PMOD.[8-12]

The objectives of this study were to assess the awareness of burden, associated risk factors, early detection and prognosis of OCA and OPMD among final year medical and dental students.

METHODS

This cross-sectional study was conducted among the final year Dental and Medical undergraduate students of Chitwan Medical College, Nepal in April 2017. The ethical clearance was obtained from the institutional review committee of Chitwan Medical College (CMC-IRC/017-018/--0005).

All the final year medical and Dental students of academic year 2017/18 who were present during the survey period were included in the study (Medical=75, Dental=50).

A self administered questionnaire developed by Jayasinghe RD et al.[9] was adapted taking permission from the author. Before administering the questionnaire pretesting was done among fourth year Medical students who were not included in the study to ensure the validity and clarity. Reliability was also assessed using Cronbach's alpha internal consistency coefficient (the value averaged 0.8). The questionnaire consisted of 22 questions with 4 questions on epidemiology, 3 questions on etiology, 8 questions on clinical aspects of OCA and PMOD, 2 questions on prognosis, 1 question on early detection, 2 questions on self-evaluation regarding the sufficiency of knowledge concerning prevention and detection of OCA and final 2 questions on the clinical exposure. More than 50% of correct responses from the participants were considered as adequate knowledge. Written informed consents were obtained and the participants were provided with the questionnaire after a routine lecture. The participants were not allowed to discuss among themselves while responding the questionnaire and the survey was completed in the presence of the investigator. The collected data were scrutinized and entered in MS excel. Data was analyzed using Statistical Package for the Social Sciences (SPSS) 20 software. Pearson Chi Square test and Fisher exact test were applied to compare the level of awareness of OPMD and OCA among final year Dental and Medical undergraduate students. The level of significance was set at $P<0.05$.

RESULTS

All the students (Medical=75, Dental=50) present at their respective routine classes responded to the questionnaire. Among total of 125 participants, 62 were female participants. The statistical analysis of the answers to the questions that elicited more than 50% of correct responses from either group is tabulated in Table 1 while the answers to the questions that elicited less than 50% correct responses from either group is summarized in Table 2. Table 3 shows the Participants self-evaluation of sufficiency of knowledge and clinical exposure to Oral Cancer (OCA) and Potentially Malignant Oral Disorder (PMOD).

Table 1: Question on Awareness of Epidemiology, Etiology, Clinical Features, Early detection and Prevention of Oral Cancer that elicited correct response from more than 50% of students of either group

Questions	Medical (N)	(75) %	Dental (N)	(50) %	p-value
Burden of Oral Cancer is highest in the South East Asian Continent	63	84	40	80	0.329*
Oral Cancer affects the lower socio-economic groups of the population	66	88	42	84	0.176*

Chewing betel quid with tobacco and areca nut cause Oral Cancer	71	94.6	50	100	0.125*
Smoking play role in the causation of Oral Cancer	72	96	47	94	0.469*
Oral Cancer is mostly preceded by white or red patches in the oral mucosa	62	82.6	44	88	0.398*
Cancer of the floor of the mouth have a poor prognosis	46	61.3	28	56	0.722*
Squamous Cell Carcinoma is the most common histological type of Oral Cancer	63	84	49	98	0.04**
Areca nut induced Oral Submucous Fibrosis is a Potentially Malignant Oral Disease (PMOD)	50	66.6	46	92	0.001**
Oral leukoplakia is a PMOD	40	53	44	88	<0.001**
Oral erythroplakia is a PMOD	38	50.6	39	78	0.003**
PMOD always progress to malignancy***	39	52	38	76	0.021**
Early detection of oral cancer is difficult***	50	66.6	29	58	0.038**

**denotes statistically not significant*
***denotes statistically significant with P value <0.05*
**** denotes the correct response to the question is "No"*

Table 2. Question on Awareness of Epidemiology, Etiology, Clinical Features, Early detection and Prevention of Oral Cancer that elicited correct response from less than 50% of students of either group

Questions	Medical (N)	(75) %	Dental (N)	(50) %	p-value
Lip cancer has the good prognosis compared to cancer of other sites	37	49.3	26	52	0.958*
Excessive alcohol consumption is considered to be a causative factor for Oral Cancer	36	48	40	(80)	0.002**
Oral Cancer is mostly a preventable disease in Nepal	57	76	12	24	<0.001*
Any white patch on the oral mucosa is referred to as leukoplakia***	17	22.6	30	60	<0.01**
Hairy leukoplakia found in HIV infected patients is not a PMOD	26	34.6	14	28	0.012**
Any red patch on the oral mucosa is referred to as erythroplakia***	20	26.6	26	52	0.014**

**denotes statistically not significant*

*** denotes statistically significant with P-value <0.05*

**** denotes the correct response to the question is "No"*

Table 3. Participants self evaluation of sufficiency of knowledge and Clinical Exposure to Oral Cancer and Potentially Malignant Oral Disorder

Questions	Medical (N)	(75) %	Dental (N)	(50) %	p-value
Sufficient knowledge concerning prevention and detection of oral cancer	27	36	17	34	0.069*
Interested in receiving more information on precancer and cancer	61	81.3	50	100	<0.01**
Examined a patient with Potentially Malignant Oral Disease	14	18.6	41	82	<0.01**
Examined a patient with Oral Cancer	13	17.3	10	20	0.815*

**denotes statistically not significant*

*** denotes statistically significant*

Questions related to Epidemiology:

Most of the Medical (84%) and Dental (82.4%) students responded that the burden of OCA is highest in the South East Asian Continent with no significant difference in level of awareness between two groups. Similarly, Medical (88%) as well as dental (84%) students were aware that OCA affects the lower socio-economic groups of the population without any significant difference in level of awareness. More Dental students (98%) than Medical students (84%) were aware of the fact that Squamous Cell Carcinoma is the most common histological type of OCA with slight statistically significant difference between two groups whereas, significantly more Medical students (76%) than Dental students (69%) correctly identified OCA as mostly a preventable disease.

Questions related to etiology of OCA:

All the Dental (100%) and majority of Medical students (94.6%) identified chewing betel quid with tobacco and areca nut as a risk factor. Likewise, Majority of both groups (Medical-96%, Dental-94%) considered smoking as a risk factor. Both of these findings didn't show any statistically significant differences between two groups. Significantly, less Medical students (48%) than Dental students (80%) identified alcohol as a risk factor.

Questions related to clinical features:

Majority of both groups (Medical - 82.6% and Dental-88%) were aware that OCA is mostly preceded by PMOD which appears white or red patches in the oral mucosa. Oral submucous fibrosis was considered as PMOD by 66.6% of Medical students whereas significantly more Dental students (92%) correctly responded to this question.

Equal percentage of dental students (88%) and almost equal percentage of Medical students (53%and 50.6% respectively) identified Oral Leukoplakia and Oral Erythroplakia as PMOD with statistically significant difference. There were statistically significant differences regarding the level of understanding of definition of oral leukoplakia and oral erythroplakia between Dental (60% and 52 % respectively) and Medical students (22.6% and 26.6 respectively). Less than 50% of medical students had clear understanding about the definition of oral leukoplakia and erythroplakia. While, significantly more Dental students (76%) than Medical student (52%) knew that PMOD won't always progress to malignancy. Few students of both the groups knew hairy leukoplakia found in HIV infected patient is not a PMOD.

Questions regarding prognosis and early detection:

Almost equal and less than 50% of either group (Medical 49.3% and Dental 52%) were aware that lip cancer has the good prognosis compared to cancer of other sites. Whereas, slightly more Medical students (61.3%) than Dental students (56%) were aware that cancer of the floor of the mouth have a poor prognosis. The difference in responses to both the questions on prognosis was not statistically significant.

Surprisingly, significant percentage of Medical students (66.6%) than Dental Students (58%) believed that early detection of oral cancer isn't difficult.

Self evaluation of sufficiency of knowledge on OCA and PMOD:

Minority and almost equal percentage of Medical (36%) and Dental (34%) students assumed that they had sufficient knowledge concerning prevention and detection of OCA and PMOD. While, all the dental students and majority of Medical students (81.3%) are interested in receiving more information.

Question on Clinical Exposure of PMOD and OCA:

More Dental students (82%) than Medical students (18.6%) had examined a patient with PMOD. The difference is clinical exposure to PMOD is highly significant. However both the groups (Medical-17.3% and Dental-20%) were not adequately exposed to OCA. Almost equal percentage of Medical and Dental students had examined OCA without any statistically significant difference.

DISCUSSION

The This study was conducted among Final year medical and Dental students in April 2017 to access the awareness of these two groups towards OCA and PMOD because they were the future Medical and dental practitioner who play an important role in early detection of OCA.

More than 80% of either group correctly responded to most of the questions on epidemiology of OCA suggesting good understanding on epidemiology as seen in previous studies.[9,10] Similar to previous finding by Jaysinghe RD et al.[9], significantly more dental students than Medical Students knew SCC as the most common histological types of OCA though there was slight statistically significant difference (P=0.04). In contrast to previous findings[9,10], surprisingly more Medical students than Dental students knew that OCA is mostly a preventable disease.

The participant of both the Medical and Dental group had an excellent understanding of the aetiological agents of OPMD and oral cancer similar to the findings by Jayasinghe RD et al.[9] and Sitheeque Met al.[10]. Majority of medical students identified smoking and chewing betel quid with tobacco and areca nut as a risk factor unlike previous studies.8,10 However, alcohol as a risk factor was identified significantly by more Dental students (80%) than Medical students (48%) which were in accordance to previous findings by Carter LM and Ogden GR8 and Sitheeque M et al.[10]. In contrast to our findings, alarmingly, less dental students identified alcohol as risk factors in studies by JaysingheRD et al.[9], (only 43.4% of dental students) and Awan KH et al.[11] (35% of Dental students). The awareness regarding alcohol as risk factor was found to be higher among Medical students in our study in comparion to previous studies[8,11] but lower than in study by Sitheeque M et al.[10] (62.6%). These findings suggest that emphasis on the role of alcohol in causation of OCA has to be given while delivering education to Medical students.

Similar to findings by Shrestha A et al.[12], majority of both Medical and Dental students correctly identified that oral cancer is mostly preceded by red and white oral mucosal patch. In contrast to our findings more dental students than Medical students were found to be aware of oral mucosal changes associated with OCA in previous studies.[8,10,11] In our study, both Medical and Dental student were adequately aware of prognosis of OCA. More Medical students in this study than Medical students in previous studies by Jayasinghe RD et al.[9] and Sitheeque Met al.[10] were aware of prognosis of OCA. In contrast to findings by Jayasinghe RD et al.[9], significantly more Dental students than medical students had misconception that early detection of OCA is difficult. These findings may attribute to late detection and increasing morbidity and mortality of OCA.

No significant difference is evident between the study groups in most of the responses regarding awareness of epidemiology, risk factors, oral mucosal changes, prognosis of OCA. Surprisingly significantly more Dental students had misconception that oral cancer is preventable disease and early detection of OCA is difficult. Fourth year Medical students are assigned few lectures on dentistry, posted in Dental departments throughout the year and in addition theory as well as practical examinations on dental surgery are conducted as per the requirement of the curriculum of Tribhuwan University which could

justify these findings.

More than 50% of Medical and Dental students were aware of PMOD whereas low awareness among medical students was seen in previous studies.[8,9,10] However, significantly more dental than medical students were aware of oral leukoplakia and oral erythroplakia as PMOD. In contrast to study by Sitheeque M et al.[10] significantly more dental students than medical identified Oral submucous fibrosis as PMOD. Although Medical students were aware of Oral leukoplakia and Oral erythroplakia as PMOD, majority of them errorneously considered any white and red patch as Oral leukoplakia and Oral erythroplakia respectively suggesting they were unaware of the definition of those lesions. This finding is similar to that observed by Sitheeque M et al.10. However, more than 50% of dental students were aware of the definition of Oral leukoplakia and Erythroplakia suggesting satisfactory awareness of definition.

In contrast to previous study by Sidiquee et al.[10], both the Medical and Dental students were adequately aware that PMOD won't always progress to malignancy. However, more Dental than Medical students were aware of this fact. Majority of both the study groups had misconception that Oral hairy leukoplakia is a PMOD.

Significantly more dental students than Medical students were found to be aware of PMOD, aware of definition of Oral leukoplakia and erythroplakia and PMOD won't always progress to malignancy. These findings suggest that emphasis has to be given while delivering knowledge on PMOD to Medical students.

Minority of Dental (34%) and Medical students (36%) were confident in having sufficient knowledge concerning prevention and detection of Oral cancer and PMOD which is consistent with previous findings.[9,12] Thus, a significant number of Medical (60%) and all the Dental (100%) students were interested in receiving more information on PMOD and OCA. In Tribhuwan University, the curriculum of dental surgery incorporates various aspects of oral cancer to a greater depth whereas the relative importance of this aspect of their education is reduced in medical curriculum. In our country where OPMD and OCA are common, the medical curriculum should include this as an important area. Medical students should acquire similar levels of knowledge and skills concerning prevention and detection on OCA and OPMD. Significantly more dental students (82%) than medical (18.6%) students had examined patient with PMOD. The limited clinical exposure to medical exposure student may be because they are posted in dental department for limited period of time throughout the year and most of the oral lesions are referred to dental college. Only few students of both groups had examined Oral cancer case without any singnificant difference in clinical exposure to OCA. This may be due to referral of OCA to Cancer hospital located in the same town. An arrangement for clinical postings of both Medical and Dental students in Cancer hospitals should be made to adequately expose the students to OCA.

CONCLUSION

More Dental than Medical students had relatively better awareness concerning PMOD. Yet, the dental students did not differ significantly from their medical counterpart in most of the responses related to OCA. A significant number of both groups believed they lack sufficient knowledge on prevention and detection of OCA and thus were interested in receiving more information on this field. This study revealed the deficient aspect in the knowledge concerning OCA and OPMD of Medical and Dental students. These findings indicate the necessity to strengthen and emphasize on these aspects of Medical and Dental education.

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