

Awareness of oral cancer among tobacco users attending an outpatient dental hospital

V. P. Pathmashri¹, Meenakshi Krishnan², Dhanraj Ganapathy^{1*}

ABSTRACT

Background: Cancer is a group of disease involving abnormal growth of cells which tend to proliferate in an uncontrolled way, with the potential to invade or spread to other parts of the body. Oral cancer refers to cancer in the oral cavity. Oral cancer, which includes cancers of the lips, tongue, cheeks, hard and soft palate, sinuses, and pharynx, can be life threatening if not diagnosed and treated early. Researchers in oral cancer believe that lack of public awareness has also been considered to be a potent barrier for early detection of cancer. **Aim:** The aim is to understand the awareness among individuals about oral cancers. **Materials and Methods:** A cross-sectional study was conducted among 50 randomly selected individuals who were tobacco users, attending a private dental college in Chennai. Both smokeless and smoking tobaccos users were included irrespective of their gender. A self-structured questionnaire was used to access the knowledge of the participants based on gender, type of habit, educational level, early signs and symptoms, and awareness of oral cancer. The obtained data were collected and analyzed. **Results:** All patients invited to this survey accepted to participate and there was more male predilection with a count of 86% and the female being 14%. About 84% of the participants said that oral cancer is contagious. Out of all the 50 participants, 33 of the participants were willing to quite their habit and the rest were not willing to quit it. **Conclusion:** The oral cancer awareness and knowledge in the present population are poor. Moreover, many of the individuals though they know about the health hazards of tobacco still continue using tobacco. Early diagnosis and rapid access for treatment of cancer are an important factor for improving outcomes for oral cancer.

KEY WORDS: Cancer, Contagious, Smoking, Tobacco

INTRODUCTION

Cancer is a group of disease involving abnormal growth of cells which tend to proliferate in an uncontrolled way, with the potential to invade or spread to other parts of the body. Oral cancer refers to cancer in the oral cavity. Normally, our body forms new cells regularly, replacing aged cells. This death of cells takes place by a process called apoptosis, which is “programmed cell death.” When something goes wrong in this, new cells are produced even when they are not required and they do not die regularly but remain alive and keeps multiplying leading to abnormal growth. These extra cells can form a mass called a tumor. They have longer life spans and instead

of dying to continue to grow and form new, abnormal cells.^[1]

Cancer cells can also invade other tissues. This invasion is not possible by normal healthy cells. This property is called metastasis.^[2] Metastasis can also be defined as the development of secondary malignant growth at a distance from the primary site cancer.^[2] Cancer cells grow into tumors that are supplied by a new network of blood vessels by a process called angiogenesis. It is defined as the process of formation of new blood vessels from the pre-existing vessels.^[3] This process is responsible for maintaining the blood supply and supply of nutrients to the cancer cells. A normal cell can become a cancer cell if it undergoes damage in its deoxyribonucleic acid (DNA). A healthy cell does not undergo this transformation in a night. It occurs not because of damage to one or two genes but the cause of damage to 300–700 genes, which affect

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the cell's normal apoptotic activity and also increase its ability to multiply more than normal.^[3,4] Because it is the DNA that regulates the cells' cycle of growth and death and any changes or damage to DNA affects the cell. Usually, when damage occurs in any cell, the cells tries to correct the damage, if the damage is so that it cannot be corrected then the cell undergoes death by itself. In cancer cells, the damaged DNA is not repaired, and the damage is propagated to newer abnormal cells that are born of the defective cell. Damaged DNA by mutation can also be inherited from parents or relatives. DNA damage can also occur due to exposure to toxic factors such as cigarette smoking and alcohol which are major triggering factors.^[5,6] Tumors can be benign or malignant. Benign tumors are not cancer, but the malignant ones are. Cells from malignant tumors can invade nearby tissues. They can also break away and spread to other parts of the body.^[7] Metastasis is the spread of cancer to other locations in the body. The dispersed tumors are called metastatic tumors, while the original is called the primary tumor. Almost all cancers can metastasize, most cancer deaths are due to cancer that has metastasized.^[8] Cancer is not just one disease but many diseases. There are more than 100 different types of cancer. Most cancers are named for where they start. Symptoms and treatment depend on the cancer type and how cancer advances. Most treatment plans may include surgery, radiation, and/or chemotherapy. Some may involve hormone therapy, immunotherapy or other types of biologic therapy, or stem cell transplantation.^[9,10]

Oral cancer, which includes cancers of the lips, tongue, cheeks, hard and soft palate, sinuses, and pharynx, can be life threatening if not diagnosed and treated early. Oral cancer ranks in the top three of all cancers in India, which accounts for over 30% of all cancers reported in the country and oral cancer control is quickly becoming a global health priority.^[11] In oral squamous cell carcinoma, modern DNA technology, especially allelic imbalance (loss of heterozygosity) studies, has identified chromosomal changes suggestive of the involvement of tumor suppressor genes (TSGs), particularly in chromosomes 3, 9, 11, and 17. Functional TSGs seem to assist growth control, while their mutation can unbridle these control mechanisms.^[12-14] The region's most commonly identified thus far have included some on the short arm of chromosome 3, a TSG termed P16 on chromosome 9, and the TSG termed TP53 on chromosome 17, but multiple other genes are being discovered. As well as damage to TSGs, cancer may also involve damage to other genes involved in growth control, mainly those involved in cell signaling (oncogenes), especially some on chromosome 11 and chromosome 17. Changes in these and other oncogenes can disrupt cell growth control, ultimately leading to the uncontrolled growth of cancer.^[15]

All forms of tobacco use are known risk factors for oral cancer. Researchers in oral cancer believe that lack of public awareness has also been considered to be a potent barrier for early detection of cancer. Even though there is a lot of public awareness of oral cancer through advertisements, movie theatres, etc., some group of people have no idea about the risk factors to the adverse effects of these risk factors.^[16] There are people who know about the adverse effects of tobacco but still do not quit the usage of tobacco. More people may have heard of oral cancer by initiatives such as cancer awareness week or cancer awareness programs. However, the increased publicity from mouth cancer awareness week has not led to a reduction in the usage of tobacco or reduction in the rate of incidence of oral cancer. Risk factor knowledge and awareness of the signs and symptoms of the disease are still poor. Lack of public awareness has been reported in the past to be the most significant factor in delaying treatment of oral cancer, although ignorance of early signs is probably the most important cause.^[4] This public awareness also depends on the education level of the people, 57% of men and 11% of women between 15 and 49 years of age use some form of tobacco in India.^[6] Hence, this study aims to assess awareness of oral cancer and knowledge of its early signs and risk factors among the tobacco users.

MATERIALS AND METHODS

A cross-sectional study was conducted among 50 randomly selected individuals who were tobacco users, attending a private dental college in Chennai. Both smokeless and smoking tobaccos users were included irrespective of their gender. A self-structured questionnaire was used to access the knowledge of the participants based on gender, type of habit, educational level, early signs and symptoms, and awareness of oral cancer. The obtained data were collected and analyzed.

RESULTS

Among the 50 participants, 27 of them were uneducated, 17 have done schooling, and 6 were graduates. Thus, in our study, 12% of the participants were graduates, 34% of them have done schooling, and the rest of the 54% population were uneducated [Chart 1].

Among the 50 participants, 48 of the participants were male and 2 of the participants were female. Thus, the study consists of 96% male population and 4% female population [Chart 2].

All the participants were tobacco users, but the mode of consumption was different. A most common method of consumption is smoking, chewing, and mixed (which is both chewing and smoking). About

84% of the participants consumed tobaccos by both smoking and chewing, 10% were alcoholic, 4% consumed tobacco only by chewing, and the rest 2% by smoking [Chart 3].

Among the 50 participants, 40 participants (80% of the participants) answered that any red/white patch in oral cavity is a possible initial sign of cancer, and 10 (20% of the participants) of them answered that presence of red/white patch in oral cavity is not a sign of oral cancer [Chart 4].

For the second question, which is about whether a long-standing mass or ulcer in the oral cavity is a

sign of cancer. For this question, about 36 participants answered yes and about 16 participants answered no [Chart 5].

About 84% of the participants said that oral cancer is contagious and only 16% of them answered the question right by marking no [Chart 6].

Cancer can be inherited through genes, but there is no specificity to it. About 42% of them agreed that cancer is inherited and the rest 8% denied it [Chart 7].

About 24% of the participants said marked tobacco chewing would cause cancer, and 56% of the participants said that smoking would cause cancer. About 12% of them said cancer can be caused because

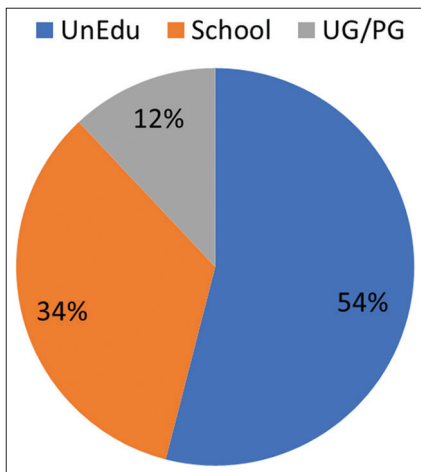


Chart 1: The educational level of the study participants

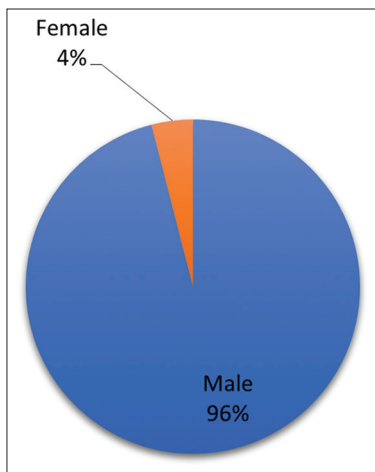


Chart 2: Number of male and female participants

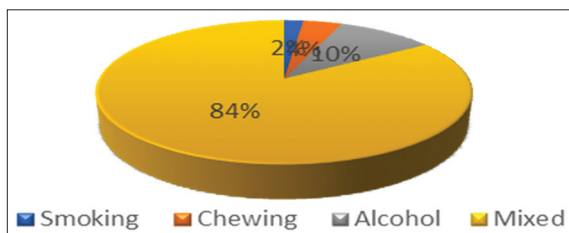


Chart 3: Habits of the participants

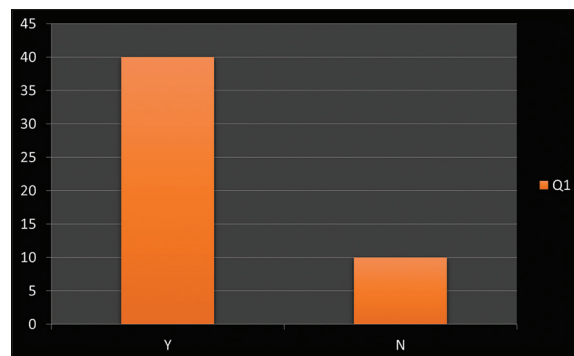


Chart 4: Question 1 is a red/white patch in the mouth a possible initial sign of cancer?

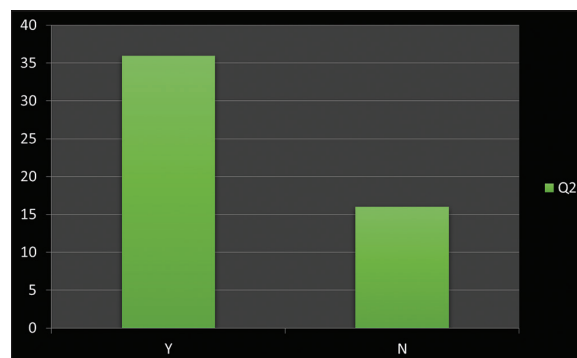


Chart 5: Is a long-standing mass/ulcer in the mouth a possible sign of cancer?

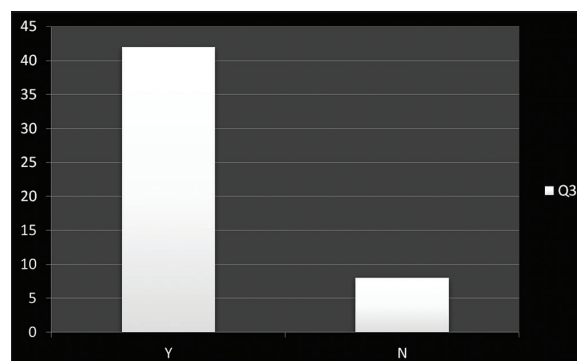


Chart 6: Is oral cancer contagious?

of alcohol consumption, and 4% of the participants said it is caused because of infectious agents. Cancer can be caused because of all the above-given options [Chart 8].

About 39% of the participants accepted that early detection of cancer better the prognosis will be and 11% of the participants disagreed that [Chart 9].

About 60% of the individuals believed that cancer was curable and 40% believed that cancer was incurable [Chart 10].

A total of 12 of the participants said that they knew about cancer through family and friends; 20 of the participants said that they knew about cancer through television; 4 of the participants said that they knew

about cancer through radio; 8 of the participants said that they knew about cancer through newspapers, posters, banners; and 4 of the participants said that they knew about cancer through the internet [Chart 11].

Among all the participants, 15 of them said they knew few which included medications and radiation, and 35 of them said they knew no treatment for cancer.

Treatment of cancer includes chemotherapy, radiation, and surgery which are followed to cure or treat oral cancer [Chart 12].

Among all the participants, 46 of the participants been screened for oral cancer and 4 of the participants were never been screened [Chart 13].

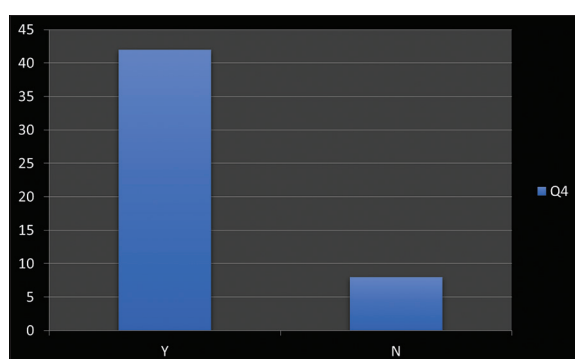


Chart 7: Is oral cancer hereditary disease?

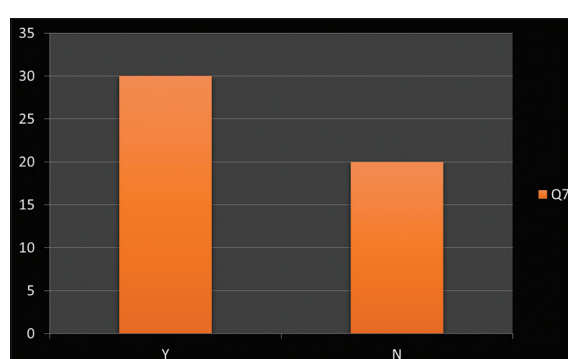


Chart 10: Is oral cancer a curable disease?

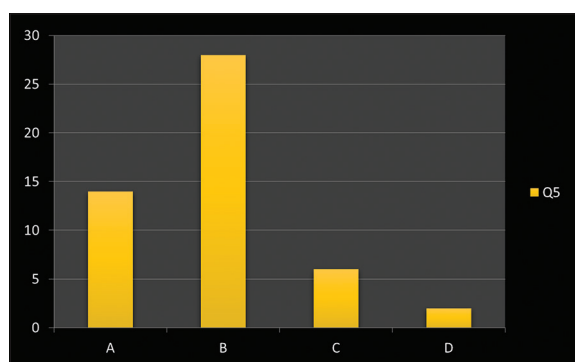


Chart 8: What are the causes of oral cancer?

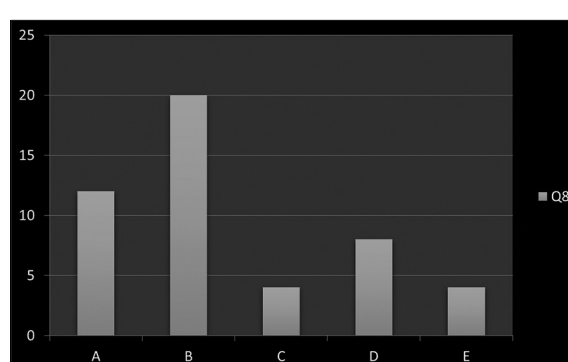


Chart 11: From where did you get information about oral cancer?

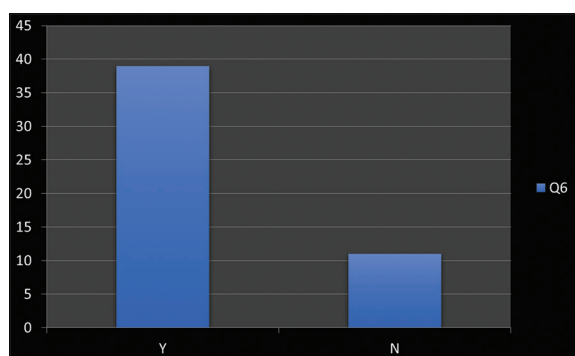


Chart 9: Does early detection of oral cancer means better prognosis?

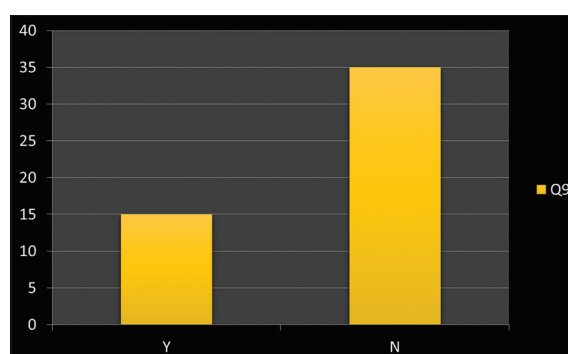


Chart 12: Do you know any treatment for oral cancer?

Out of all the 50 participants, 33 of the participants were willing to quite their habit and the rest were not willing to quit it [Chart 14].

DISCUSSION

Any red/white patch in oral cavity need not be a sign of cancer. If the same patch stays for a longer period of time, then it is better to consult the physician and get it checked. These red and white patches can also be caused because of any continuous irritation because of the sharp cusp, orthodontic appliance, etc. The continuous irritations can sometimes become a risk factor of causing malignancy, so it is better to remove the irritation. Some patches like fungal infections are not cancerous; these white patches of thrush usually rub off leaving red patch underneath. If the fungal treatment is treated, the red/white patch will go away, thus they are not related to cancer.

The next question is about whether a long-standing mass or ulcer in the oral cavity is a sign of cancer. For this question, about 36 participants answered yes and about 16 participants answered no. An ulcerated area which has a delayed healing time can be cancer. About 80% out of 100 people with mouth ulcer have this symptom.^[16]

Oral cancer is not contagious. A contagious disease means that the disease spreads from one person to another by direct contact. And about 84% of the participants said that oral cancer is contagious and

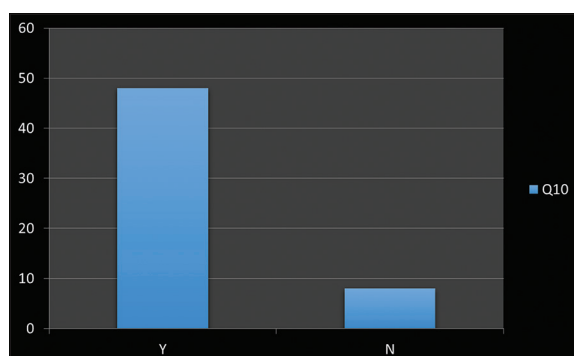


Chart 13: Have you got screened you for oral cancer?

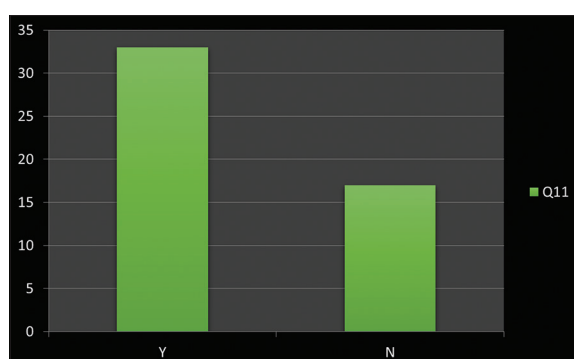


Chart 14: Are you willing to quit the deleterious habits?

only 16% of them answered the question right by marking no.

Cancer can be inherited through genes, but there is no specificity to it. In a study done in the year 1996 by Ankahil R, all the oral cancer patients registered at the Regional Cancer Centre, Trivandrum were subjected to detailed pedigree analysis. This revealed that oral cancer tends to aggregate in families. Like other familial cancers, a family history of oral cancer was associated mostly with an early age of onset of the disease. Family members without habits such as tobacco chewing, smoking, or alcohol consumption were also affected. These observations prompt us to suggest the probable inheritance of an oral cancer susceptibility gene in these families. The familial aggregation, mostly site-specific, with an autosomal dominant mode of inheritance, was observed in 0.94% of the total oral cancers.^[17] This necessitates the need to undertake studies to elucidate the molecular lesions responsible for oral cancer susceptibility in families.

The major cause of cancer includes tobacco chewing, smoking, alcohol consumption, and infectious agents. The participants were asked the cause of oral cancer, and they were given all the four options, which are tobacco chewing, smoking, alcohol, and infectious diseases. Moreover, the participants were asked to mark the option which they thought would cause cancer. About 24% of the participants said marked tobacco chewing would cause cancer, and 56% of the participants said that smoking would cause cancer. About 12% of them said cancer can be caused because of alcohol consumption, and 4% of the participants said it is caused because of infectious agents. Early detection cancer can be treated and can also be cured sometimes. The prognosis is worse during the later or the advanced stage. About 39% of the participants accepted that early detection of cancer better the prognosis will be and 11% of the participants disagreed that 60% of the individuals believed that cancer was curable and 40% believed that cancer was incurable. Cancer can be treated if its detected during the early stages, but if it is detected during the advanced stages, then it cannot be cured completely but can be treated by chemotherapy, surgery, or both to reduce the prognosis.

A total of 12 of the participants said that they knew about cancer, its nature through family and friends; 20 of the participants said that they knew about cancer through television; 4 of the participants said that they knew about cancer through radio; 8 of the participants said that they knew about cancer through newspapers, posters, banners; and 4 of the participants said that they knew about cancer through the internet.

Treatment of cancer includes chemotherapy, radiation, and surgery, which are followed to cure or

treat oral cancer. The site of cancer and the stage of cancer change the type of treatment to be done. The advanced therapy of cancer is targeted drug therapy; it targets the cancerous cells to interfere with cell growth on a molecular level. It may be combined with chemotherapy and radiation therapy for better treatment results.

Any long-standing mass or ulcer can be a malignancy. A normal ulcer or growth is caused because of any stimulus such as a sharp cusp or other factors. A normal ulcer or mass is differentiated from malignant ulcer or mass by the fact that a normal ulcer disappears once the stimulant is treated, but the malignant ulcer stays even after the initiator is removed.

A study was conducted by Alessandro Villi in the year 2011 among the Italian population to know about their knowledge of oral cancer. The majority of the study participants were Italian (89.7%). Approximately 36% of the population reported current smoking, although the proportion of smokers was higher in subjects from Messina (48.8%) compared to Milano SP and Milano SR (26.6% and 31.6%, respectively). Heavy alcohol consumption was reported by 58.6% of subjects, and the highest rate was found in the North of Italy.^[3]

A study on oral cancer awareness of the general public in Gorakhpur city conducted by Mamta Agarwal reported that the awareness seemed reasonably good with most of the respondents believing that oral cancer is preventable (74.1%). There were certain misconceptions; also, 10.8% believed that oral cancer is contagious and 40.9% of respondents did not associate increasing age with an increased possibility of having oral cancer. The general awareness of oral cancer on various dimensions varied significantly across various age groups, with the younger age groups being more aware. The age groups above 30 years had significantly less knowledge except for the question asking about the association of oral contraceptive with age for which the 41–50 age groups had a mean score of 1.93 showing awareness.^[4]

A recent population-based survey of adults in the UK has shown that a combination of public education of symptoms and empowerment to seek medical advice, as well as support at the primary care level, could enhance the early presentation and improve cancer outcomes.^[18] A systematic review has reported some evidence that interventions delivered at an individual or community level may increase cancer awareness.^[19] However, whether awareness leads to early presentation of oral cancer is being debated, and evidence is somewhat limited.^[20] Oral cancer screenings also may provide an excellent opportunity for raising public awareness and providing patient education and counseling regarding behavioral risk

factors and how to reduce them.^[21] Cancer fatalism often plays a pivotal role in people either not accepting professional advice on avenues for prevention or arriving too late for therapy. Cancer fatalism needs prompt identification and there is a duty of health-care providers to offer information on how early therapy saves lives. Education of the public, most importantly youth population may help to bring out change in the common attitude that cancer affliction is a matter of chance. There is now sufficient scientific evidence to conclude that cancer of the mouth and pharynx is largely related to lifestyle. The earlier detection of oral cancer by opportunistic screening should afford patients with greater survival rate and more certainly less radical treatment.^[22]

CONCLUSION

The oral cancer awareness and knowledge in the present population are poor. Moreover, many of the individuals though they know about the health hazards of tobacco still continue using tobacco. Early diagnosis and rapid access for treatment of cancer are an important factor for improving outcomes for oral cancer. Programs such as awareness campaigns and population screenings remain important public health measures to reduce delays in diagnosis.

REFERENCES

1. Watters AL, Epstein JB, Agulnik M. Oral complications of targeted cancer therapies: A narrative literature review. *Oral Oncol* 2011;47:441-8.
2. Bonner JA, Harari PM, Giralt J, Azarnia N, Shin DM, Cohen RB, *et al.* Radiotherapy plus cetuximab for squamous-cell carcinoma of the head and neck. *N Engl J Med* 2006;354:567-78.
3. Herbst RS, Arquette M, Shin DM, Dicke K, Vokes EE, Azarnia N, *et al.* Phase II multicenter study of the epidermal growth factor receptor antibody cetuximab and cisplatin for recurrent and refractory squamous cell carcinoma of the head and neck. *J Clin Oncol* 2005;23:5578-87.
4. Carter LM, Ogden GR. Oral cancer awareness of general medical and general dental practitioners. *Br Dent J* 2007;203:E10.
5. Kekatpure V, Kuriakose MA. Oral Cancer in India: Learning from Different Populations. *Cancer Prevention. National Newsletter and Website from New York Presbyterian Hospital*; 2010.
6. Natarajan E, Eisenberg E. Contemporary concepts in the diagnosis of oral cancer and precancer. *Dent Clin North Am* 2011;55:63-88.
7. Abdullah Jaber M. Dental practitioner's knowledge, opinions and methods of management of oral premalignancy and malignancy. *Saudi Dent J* 2011;23:29-36.
8. Oliveira JM, Pinto LO, Lima NG, Almeida GC. Oral cancer: Assessment of academic dentistry and nursing knowledge as for the risk factors and diagnostic procedures. *Rev Bras Cancerol* 2013;59:211-8.
9. Ferlay J, Shin HR, Bray F, Forman D, Mathers C, Parkin DM. Estimates of worldwide burden of cancer in 2008: GLOBOCAN 2008. *Int J Cancer* 2010;127:2893-917.
10. Vimalakshan I, Kumar S. Knowledge and awareness regarding oral cancer among dental patients. *Int J Pharm Sci Rev Res* 2017;43:112-6.
11. Pelucchi C, Gallus S, Garavello W, Bosetti C, La Vecchia C.

- Cancer risk associated with alcohol and tobacco use: Focus on upper aero-digestive tract and liver. *Alcohol Res Health* 2006;29:193-8.
12. Blot WJ, McLaughlin JK, Winn DM, Austin DF, Greenberg RS, Preston-Martin S, *et al.* Smoking and drinking in relation to oral and pharyngeal cancer. *Cancer Res* 1988;48:3282-7.
 13. Parkin DM, Bray F, Ferlay J, Pisani P. Global cancer statistics, 2002. *CA Cancer J Clin* 2005;55:74-108.
 14. Llewellyn CD, Johnson NW, Warnakulasuriya KA. Risk factors for squamous cell carcinoma of the oral cavity in young people – A comprehensive literature review. *Oral Oncol* 2001;37:401-18.
 15. James C, James N, Davies D, Harvey P, Tweddle S. Preferences for different sources of information about cancer. *Patient Educ Couns* 1999;37:273-82.
 16. Kumar S, Harshini AK. Knowledge and awareness about oral cancer among undergraduate dental students. *Asian J Pharm Clin Res* 2016;9:165-7.
 17. Ankathil R, Mathew A, Joseph F, Nair MK. Is oral cancer susceptibility inherited? Report of five oral cancer families. *Eur J Cancer B Oral Oncol* 1996;32B:63-7.
 18. Robb K, Stubbings S, Ramirez A, Macleod U, Austoker J, Waller J, *et al.* Public awareness of cancer in Britain: A population-based survey of adults. *Br J Cancer* 2009;101 Suppl 2:S18-23.
 19. Austoker J, Bankhead C, Forbes LJ, Atkins L, Martin F, Robb K, *et al.* Interventions to promote cancer awareness and early presentation: Systematic review. *Br J Cancer* 2009;101 Suppl 2:S31-9.
 20. Grant E, Silver K, Bauld L, Day R, Warnakulasuriya S. The experiences of young oral cancer patients in Scotland: Symptom recognition and delays in seeking professional help. *Br Dent J* 2010;208:465-71.
 21. Warnakulasuriya KA, Johnson NW. Dentists and oral cancer prevention in the UK: Opinions, attitudes and practices to screening for mucosal lesions and to counselling patients on tobacco and alcohol use: Baseline data from 1991. *Oral Dis* 1999;5:10-4.
 22. Vokes EE, Weichselbaum RR, Lippman SM, Hong WK. Head and neck cancer. *N Engl J Med* 1993;328:184-94.

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