International Journal Of

Recent Scientific Research

ISSN: 0976-3031

Volume: 7(5) May -2016

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THE OFFICIAL PUBLICATION OF
INTERNATIONAL JOURNAL OF RECENT SCIENTIFIC RESEARCH (IJRSR)
http://www.recentscientific.com/ recentscientific@gmail.com

ISSN: 0976-3031

Available Online at http://www.recentscientific.com

International Journal of Recent Scientific Research
Vol. 7, Issue, 5, pp. 10797-10801, May, 2016

International Journal of Recent Scientific Research

Research Article

EPIDEMIOLOGIC STUDY OF HEAD AND NECK CANCERS IN TEHRAN CANCER REGISTRY CENTER (IRAN)

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ARTICLE INFO

Article History:

Received 16th February, 2016
Received in revised form 24th March, 2016
Accepted 23rd April, 2016
Published online 28th May, 2016

Keywords:

Tehran Cancer Registry center, Head & neck cancers, cancers, Oral cancers,

ABSTRACT

Introduction: The incidence of Head & neck cancers in different populations are different. Knowing about the frequency of these lesions could be helpful in early diagnosis of these cancers and will reduce the associated complications. The aim of this study is to determine the prevalence of Head and neck (H&N) cancers in the Tehran cancer registry center (CRC) since 1999-2010.
Materials & Methods: This descriptive study was done by referring to the Tehran cancer registry center and recording head and neck cancers and related factors including age, sex, location and microscopic type of the lesion. Statistical analysis was done using SPSS16.
Results: Out of 419,794 registered cases as cancer in Tehran CRC, 37,382 (8.9%) cases were in head and neck region and 382,412 (91.1%) cases were in other parts of the body. Frequency of head and neck cancers were 61% in males and 39% in females. The most common lesions was BCC (37.3%) and SCC (22.9%) that were occurred in the skin of the eyelids(17%) and the highest incidence in the eight decade (27%) was observed. Incidence of cancers was increased each year.
Conclusion: About 9% of the cancers were involved in Head & neck region, and the frequency of the malignant cancers increased over the years and had positive correlation with aging.

INTRODUCTION

Due to the high risk of cancers and an increasing incidence of mortality among patients, detecting cancer incidence and frequency, and other factors associated with them can go toward early detection and then prevention of tumor progress in order to improve survival rate and quality of life of suffered patients. It is obvious that in the absence of in time diagnosis, side effects of the disease will be observed both psychologically and economically as well as the effects on their families and the community (1).

The relevant factors involved in cancer can be attributed to location, diet and different cultures as well as socioeconomic conditions. About the incidence of head and neck cancers and related factors, many studies have been done that there are contradictions between them and any of these articles are implicated a variety of factors in the cancer incidence (2,3,4).

Nowadays, one of the main problems in our society is the absence of accurate and comprehensive statistical data on the prevalence and causes of head and neck cancers (5,6).

Then, due to the lack of information about the prevalence of head and neck cancers in Tehran, as well as the lack of a coherent and accessible informative center to collect & record accurate data to, we aimed to investigate prevalence of malignant tumors in the head and neck region and related factors.

METHODS AND MATERIALS

In our descriptive study, all information related to the head and neck cancers which were registered in Tehran CRC during these 12 years period were collected and recorded. The sampling method was census. Parameters such as age, sex, location, tissue origin and the type of cancer were recorded and compared with each other. Finally, the frequency of cancers was calculated by usage of SPSS16 software and descriptive statistical analysis.

RESULTS

The total number of cases was 419, 794 in the period of 12 years. 382,412 cases of malignant tumors were in other parts of the body (91.1%) and about 37,382 (8.9%) cases were

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diagnosed as head and neck cancers. Most cases were in the 7th and 8th decades, and the lowest were in the second decade. Most common involved area in the head and neck were skin of eyelids and head (17%), then the head and neck lymph nodes (9%). The lowest incidence of cancer was found in the gum (0.3%).

Table-1 Frequency of head and neck malignant tumors according to the age

Age	Number	Percentage
<40	6957	18.6
40-70	20102	53.8
≥70	10323	27.6
Total	37382	100

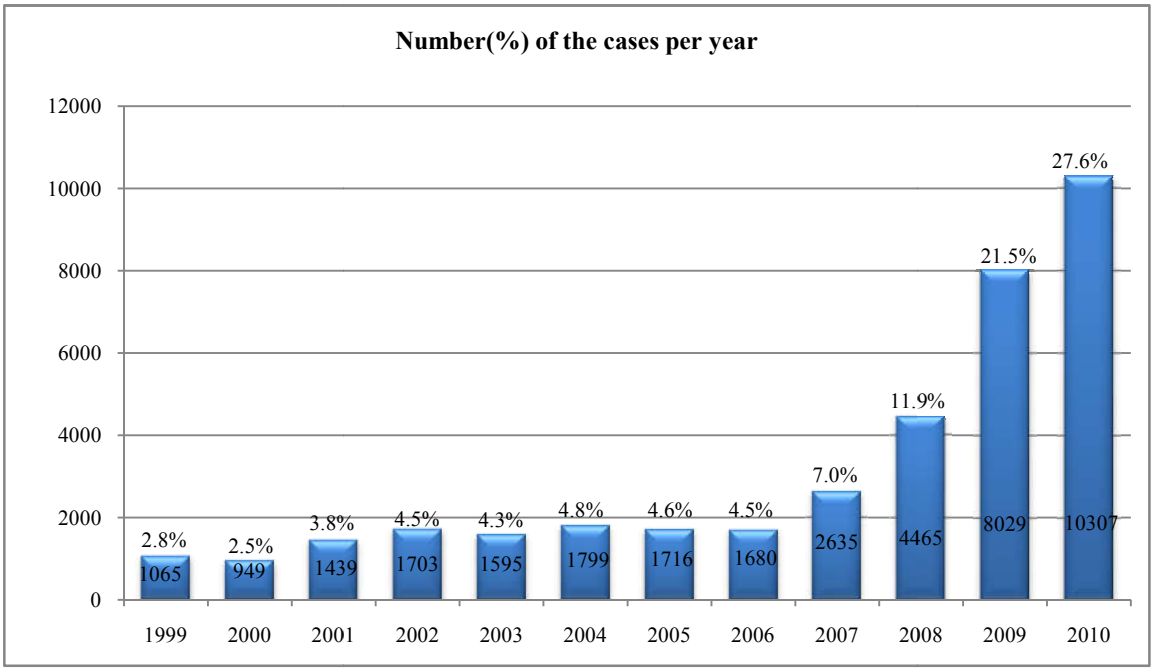

Chart-1 Frequency of head and neck malignant tumors according to the year

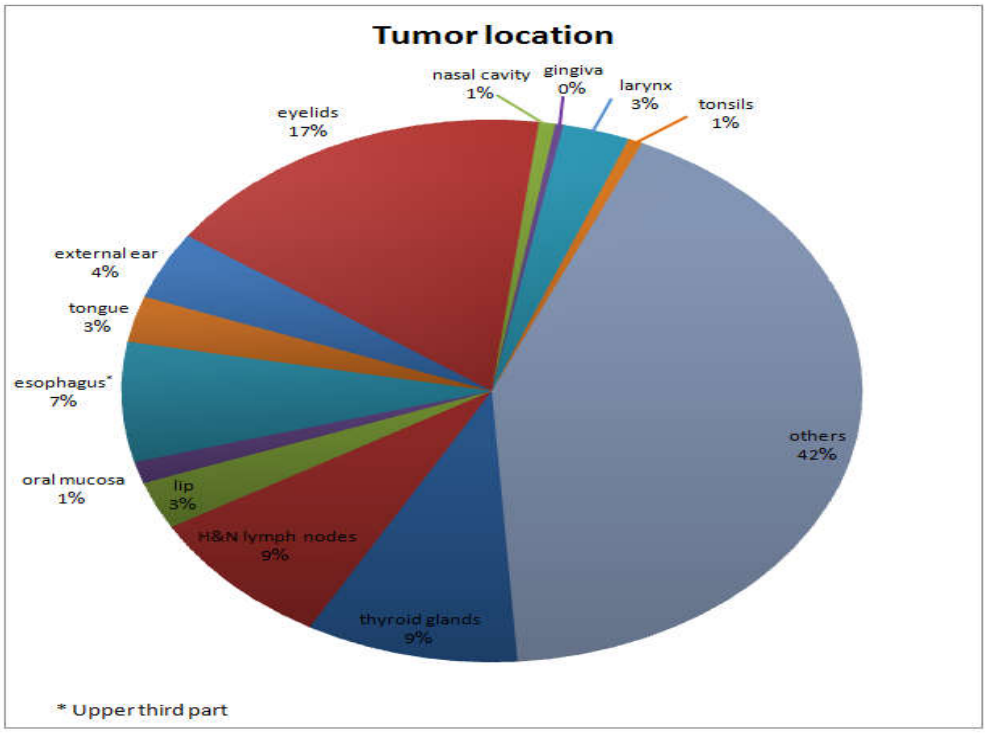

Chart-2 Frequency of head and neck malignant tumors according to tumor location

Table-2 Frequency of head and neck malignant tumors according to the microscopic type of tumor

Types of tumor	Number (%)
SCC	8586(22.9)
BCC	13943(37.3)
Lymphoma	3114(8.3)
Carcinoma*	1009(2.7)
Adenocarcinoma	573(1.5)
Other types**	10157(27.3)
Total	37382(100)

*Including acinar cell carcinoma, Epithelial myoepithelial carcinoma, Adenoid cystic carcinoma, Adenosquamous carcinoma, Basaloid squamous carcinoma, and etc.

** Including Osteosarcoma, Chondrosarcoma, Rhabdomyosarcoma, clear cell sarcoma, Kaposi sarcoma, synovial sarcoma, and etc.

The frequency of head and neck malignant tumors according to the year is shown in the chart-1. Distribution of head and neck malignant tumors displayed based on related factors such as age and microscopic type of the tumor (table 1 & 2, respectively) and its location (chart-2). found 61 percent of head and neck cancers in men and 39 percent in women (Male to Female ratio: 1.6/1)

DISCUSSION

Prevalence of the head and neck cancers in Tehran province in this twelve years study showed that, out of 419,794 cases of cancer, 37,382 cases of head and neck were reported that accounted about 9% of all malignancies in this period.

In general, the most tumor frequency was related to the last year and we found the lowest frequency during the first year of research. It may be related to the increasing frequency of these cancers in the recent years or even, it may be related to the regular and correct collection and gathering of cancer information through CRC, and the most probably both reasoning together explains better why the prevalence of H&N cancers are increasing by year of study. According to our findings, the frequency of cancers was not markedly changed in early years until 2006 but a significant leap (almost double) was seen during 2006-2007. This leap might be more indicative of increased frequency of malignancies or it would be because of the incomplete record of cancer incidence in past years.

Bhattacharjee and colleagues in India showed that the prevalence of H&N cancers was 54.48%, out of 2052 cases, (7) and Onyango JF and colleagues in Kenya reported that the H&N cancers frequency was 33%, out of 2340 cancers (8). Izarzugaza and colleagues in Spain expressed that head & neck malignancies formed 23%, out of 2548_cancers (9). Another study by Oji C and colleagues in Nigeria showed that the frequency of H&N cancers was about 2.7%, out of the total 81 cases of cancers (10). Armando and colleagues in Angola showed that the prevalence of H&N cancers was10.6%, out of all 4791 cases of cancers (11). Larizadeh and his colleagues in Iran (Kerman, Southeast of Iran) also stated that H&N cancers accounted 8%, out of 20050 all cancers (12). The frequency of head and neck cancers in our study was different from other studies mentioned above except Larizadeh's study. Althought Shahsavari and colleagues in Iran (Guilan, North of Iran) showed that H&N cancers accounted for about 18% of all cancers, out of 12,830 cases (13). The frequency of H&N cancers seems to be duplicated in the latter study which is done to the same period of time as our study did. It could be related to the geographic area and different population with different genome and life styles which all have important effect on incidence and prevalence of cancers. As the sample size in our study was much higher than other studies (419,794 cancers) and also Tehran is the capital of our country, referral center for many cancer patients, we could justify that the prevalence of H&N cancers in Iran is less than other countries. On the other hand, other cancers are most common in Iran, compared to H&N cancers, and it is actually related to the etiologic factors we are exposed to.

Our study showed that most H&N cancers were found in eighth and seventh decades of life (27% and 22% respectively) while Mehrotra and colleagues reported that the highest prevalence of cancers were in sixth and eighth decades of life(14). Shahsavari and colleagues also reported that eighth and seventh decades were the most common decades, 25% and 21% respectively (13). Larizadeh and colleague reported the highest prevalence of cancers in sixth decade of life (12).

Ansari and colleagues stated that most cancers were found in the seventh and eighth decades of life, 42.7% and 39.6% respectively (15). Mirzaei and colleagues showed that the highest incidence rate was seen in the age group of 80 to 84 years, ninth decade of life, in both sexes (16). Blomberg and colleagues reported a significant incidence of H&N cancers in patients older than 60 years (17). Like us and many other studies, Ostman and colleagues (18) expressed the eight and seventh decades were the most common decades in patient involved by head & neck cancers.

In our study, the incidence of malignant tumors in men & women were 61% and 39% respectively (Male to Female ratio: 1.6/1) and the most malignant head and neck tumors were BCC (37.3%) & SCC (22.9%), and both of them were more common in men. Similar to our study, Ansari *et al* stated that, male to female ratio was 1.52/1 as well as were the most common tumors identified in their study [BCC(38%) and SCC(23%)] (15). Despite of our findings in Tehran, we found out male to female ratio as 1.4/1 in Guilan, while the most common type of cancer in that study was SCC (42.06%) followed by BCC (23.04%) (13). In Mehrotra's study, the male to female ratio was 3.8/1, and the most common tumor was SCC (67%) (14). In Bukola's research, SCC was the most common tumor both among all carcinomas (67.7%) and all head and neck cancers (47.8%); however, the male to female ratio was 1.8 /1(19). In Larizadeh's study, male to female ratio was 2.7/1, and SCC was the most common carcinoma (77.5%) (12). Mirzaei 's study stated that the male to female ratio was greater than one for various types of head and neck cancers, except for thyroid cancer (16). The male to female ratio in our study was most similar to study of Ansari[15], Shahsavari[13], and Mirzaei[16] which all were performed in Iran whereas in studies by Bukola[19,] Mehrotra[14] which were done in other countries, and also Larizadeh[n3]in Iran, this ratio was reported much higher. Therefore, the results could be associated with the location of studies. Although, it has been mentioned that the higher rate of smoking and alcohol consumption among men is not the only reason for increasing cancer prevalence and Sex-hormone differences between male and female may also have a role in this process (12, 20), we could advocate just the latter, because we do not have any precise information about smoking and alcohol consumption due to our cultural limitations and taboos

in Iran. Some variations between studies may represent differences in subsists studied, accuracy of reports (e.g. some of reports have not been specified by details such as location), geographic differences, or even genetic differences in the cases reported.

Eyelid &scalp skin (17%) and cervical lymph nodes (8.44%) were the most common sites which specified in records. The gingiva was relatively rare location for head and neck cancers (0.3%). Shahsavari *et al* stated that the esophagus (25.86%), head and neck lymph nodes (7%) and lips (3.8%) were the most common site of involvement for head and neck cancers respectively (13). Ostman *et al* showed that the esophagus (43%) and lymph nodes (21%) were the most common site of involvement (18). Louise *et al* reported that the head and neck cancers most frequently occurred in the thyroid (52%) (21). Mirzaei *et al*, also stated that the most common sites, involved by head and neck tumors, were thyroid (37%), followed by larynx (25%), and lip & oral cavity (19%)(16). Mafi *et al* reported that the Larynx was the most common site of head and neck cancers in both sexes in Iran (22). Larizadeh *et al* also stated that the most common site of involvement was larynx (46.76%) followed by oral cavity (15.9%) and neck (13.72%)(12).

The most frequent tumor was BCC (37.3%) in our study, similar to studies of Ansari[15], Oji[10]. As we reported here the eyelid &scalp skin (17%) was the most common site which specified in the records of our study, and also we know BCC is the most common tumor of the skin.

Finally, in our 12-year study, 2703 cases of oral cancers were observed that constituted approximately 1% of all malignancies (among 37382 cases). In study of Oji C *et al*, oral cancers constituted 2.7% of all cancers(among 5646 cases)(10) but in the study of Bhurgri *et al*, 8.8% of malignancies was related to oral cancers(among 2553 cases)(23). Probably, the high rate of oral cancers in areas such as Pakistan in the study of Bhurgri *et al* is due to high rate of consumption of smokeless tobacco like betel quid and chewing tobacco among their community.

CONCLUSION

In our study, assessment of head and neck cancers in the period of 12 years showed that these cancers was higher in men than women and the highest incidence of cancers was occurred in the eighth decades of life. As we found BCCs as the most common types of head and neck cancers which mostly reported in the eyelid and scalp of the skin, attentions should be more directed to the prevention and early diagnosis of these cancers specifically in this area.

Our findings showed that the incidence of head and neck cancers were increasingly gained annually, which incidence of cancers in the last year of this period was about 10 times higher than the first year. However it could be due to both incomplete report and actual increasing in the prevalence of these cancers.

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How to cite this article:

Fatemeh Shahsavari *et al*.2016, Epidemiologic Study of Head and neck Cancers in Tehran Cancer Registry Center (Iran). *Int J Recent Sci Res.* 7(5), pp. 10797-10801.

TSSN 0976-3031