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Research Article

Head and Neck Cancer in a Tertiary Referal Center in Mexico: Some Epidemiological Notes

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Introduction

Cancer is a global public health problem; it causes great loss of life and is responsible for enormous economic, social and emotional burdens [1,2]. In head and neck, cancer includes a variety of neoplasms, but mucosal squamous cell carcinoma of the upper aerodigestive tract (SCC-UADT) is the most common group after carcinomas of the skin. Incidence of SCC-UADT grows, especially among women [3], and causes great deterioration of the quality of life and contributes to the enormous costs of cancer to the health system [4].

Squamous cell carcinomas of the oral cavity (SCC-OC) and larynx (SCC-L) are the most important neoplasms in UADT; both represent up to 80% and most of them are caused by tobacco and alcohol [5]. However, globally, squamous cell carcinoma of the oropharynx (SCC-O) rapidly increases its incidence, presumably due to persistent infection by the Human Papillomavirus (HPV) [6-8], but in México this information is scant. At our institution, most cases are diagnosed in advanced stages. In Mexico, the frequency of SCC-UADT seems relatively low, but there are no reliable records and its incidence seems to be growing. The lack of precise data makes it difficult to know the exact magnitude of the problem and to firmly plan public health policies. A population registry would facilitate predicting trends over time, identifying vulnerable groups, inferring levels and trends of exposure to risk factors, to take preventive measures, plan health actions, and measure their impact. Due to the scarcity of populational data in Mexico, we set out to evaluate the epidemiology of SCC-UADT at the National Cancer Institute of Mexico (INCan), a national reference center as an initial approach to the epidemiologic knowledge of this important public health problem.

Material and Methods

The records of new patients with head and neck tumors treated in INCan between January 2007 and December 2014 were retrospectively analyzed. Data related to the patient and tumor was extracted, including risk factors and intensity of exposition. Due to the absence of certain important data, we decided to undertake a prospective analysis of 100 consecutive patients with a proven diagnosis of carcinoma in the UADT enrolled between May 1sts. 2016 and August 30, 2017. A questionnaire was applied to them that explored eating, sexual and drug addiction habits.

The questionnaire was administered by a trained interviewer, with direct questions. A sample of 100 patients was elected because it minimizes the variability over one year, since this sample was estimated to be reached in 14 months. Informed consent was obtained from all patients. The data were summarized in measures of frequency, central tendency and dispersion. The Chi-square test was used to explore differences between some categorical variables. The statistical processing was done in the SPSS V.21 program.

Results

A total of 4858 patients admitted between 2007 and 2014 were identified with SCC-UADT. They were classified by site of origin (Figure 1).

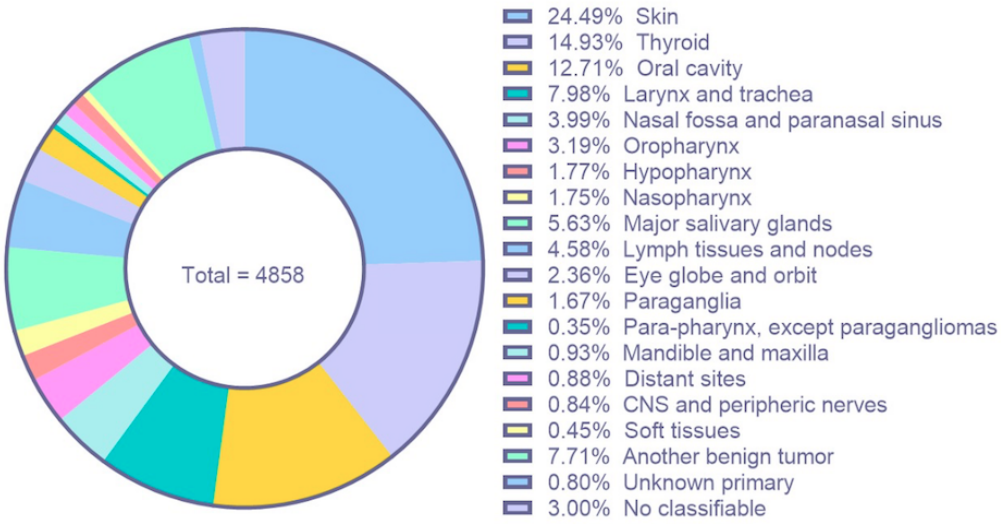

Figure 1: Anatomical sites of 4858 UADT carcinomas (2007-2014).

Of 1520 tumors in the UADT, benign, secondary, metastatic neoplasms, lymphomas, sarcomas, and unclassifiable lesions were excluded. A total of 1063 UADT carcinomas remained; this is 24.6% of 4318 malignant neoplasms. Relationship between men/women was 2:1; anatomical sites are shown in Table 1.

Site	Men	Women	Subtotal %
Oral cavity	247	212	459 (43.2%)
Larynx and trachea	256	39	295 (28%)
Bucopharynx	89	27	116 (11%)
Nasal fossa and paranasal sinus	50	48	98 (9%)
Hypopharynx	54	12	66 (6%)
Nasopharynx	19	10	29 (3%)
Total	715	348	**1063 (100%)**

Table 1: Anatomical sites of 1063 carcinomas of the UADT (2007-2014).

Among the 4858 patients with UADT carcinomas, the mean age was 60 years. In analysis of 100 consecutive cases (2016-2017) with UADT carcinomas, the mean age was 61.84 years (p=NS).

The anatomical sites of the 100 consecutive patients are shown in Table 2.

Site	Men	Women	Subtotal %
Oral cavity	29	22	51 (51%)
Larynx and trachea	21	1	22 (22%)
Bucopharynx	7	3	10 (10%)
Nasal fossa and paranasal sinus	10	2	12 (12%)
Hypopharynx	3	1	4 (4%)
Nasopharynx	1	0	1 (1%)
Total	71	29	100 (100%)

Table 2: Anatomical sites in 100 UADT carcinomas (2016-2017).

The proportion of cases per site did not seem be distinct between both periods, except by oral cavity and larynx, but differences were not statistically different.

Most (53%) of the patients come from Mexico City or state of Mexico and the remaining from near states. On other hand, only 7% of patients had superior studies, and 13% were illiterate. In addition, 48% of patients were divorced, widow, single or lived in free union.

Indicators in relation to eating and exercise habits are shown in Table 3.

Rations peer week	Men	Women	Total
Fruits			
<1	12	1	13
1-3	24	10	34
4-7	13	4	17
>7	22	14	36
Total	71	29	100
Vegetables			
<1	12	0	12
1-3	24	6	30
4-7	15	8	23
>7	20	15	35
Total	71	29	100
Meet			
<1	30	13	43
1-3	32	11	43
4-7	8	3	11
>7	1	2	3
Total	71	29	100
Physical activity sessions peer week			
0 a 1 / week	50	22	72

2 – 4 / week	4	2	6
> 4 / week	17	5	22
Total	71	29	100

Table 3: Eating and exercise habits, 100 patients with UADT carcinomas (2016-2017).

Relative to sexual habits and sexual preferences, patients initiated sexual life at a median age of 19 with a standard deviation of 7 years. The median of sexual partners was 6.1 with a SD of 13.5%; 96% patients declared to be heterosexual and 29% practiced oral sex. The clinical stage of 100 UADT carcinomas is shown in Figure 2.

Figure 2: Clinical stage in 100 patients with UADT carcinomas (2016-2017).

Discussion

Six hundred new cases of neoplasms of the head and neck are admitted to INCan each year, most of them malignant. As can be expected, most arise on the skin. As a single entity, the next most frequent malignant neoplasm is thyroid cancer that significantly increased its incidence in recent years, but as a group, the UADT carcinomas are the most important neoplasm due to its frequency and lethality; these neoplasms derived of the present study represent 24.6% of the head and neck malignant neoplasms in our hospital. Other less common malignancies arise from the major salivary glands, the eye and orbit; finally, the ubiquitous lymphomas, bone sarcomas, and soft tissue sarcomas appear.

Due to their relative frequency and lethality, carcinomas of the UADT deserve special attention. In INCan, more than 130 new cases are attended annually, between primary and recurrent tumors; 92% of them are squamous carcinomas and 71% arise in the oral cavity and larynx. Interestingly, two men are affected for every woman, a lower proportion of men than reported by other authors; although this must be a reference bias, since our hospital predominantly cares for individuals without other forms of social security acquired as salaried workers and women usually work at home without any payment.

Due to the lack of certain reliable data in the retrospective analysis (2007-2014), we decided to collect data prospectively from 100 consecutive new patients. Although the observation and sampling period is relatively short, it is possible to observe a trend to increase the relative frequency of oral carcinomas and a similar decrease of laryngeal carcinomas in recent years, while the frequency of squamous carcinomas remains constant, this could represent a true unexplained tendence. The average age in both periods is 60 to 62 years, not different from what was reported.

In the prospective analysis, we found that 60% of our patients have only basic education or are illiterate, and only half are married; this is important because complex and multidisciplinary treatment requires social and family support to be successful, and this does not seem to be common among our patients. In addition, causal expositions are probably more frequent in the less favored social classes.

It is well known that squamous cell carcinomas are associated with the use of tobacco, alcohol, and chronic high-risk human papillomavirus infection, particularly type 16. In this regard, we found that 65% of our patients smoke or have smoked and, remarkably, there are no differences in the frequency of the habit between men and women. The prevalence of smoking and alcoholism in our population is higher than reported by de National Survey of Addictions (2017-2018) that indicates that the prevalence of alcohol intake in the last year is 51% (2011) and for tobacco was 17.6% [9].

Very interesting, 57% of smokers accept to smoke less than 10 cigarettes per day and 81.5% less than 20 cigarettes per day, this shows that it is not necessary to smoke many cigarettes to be at risk of disease, but the exposure time seems important, since 71% of the smokers had smoked 11 or more years. It is very important that according to the perception of the patients they were not heavy smokers.

Regarding the intake of alcoholic beverages, 79% of the patients agreed to be current or past drinkers, and again the frequency was not different between men and women. This indicates, men and women are equally susceptible to the carcinogenic effects of tobacco and alcohol. In addition, the intensity of exposure does not appear to be high to be associated with the disease, 68% of the drinkers drank 3 or fewer drinks a day. Also, long time seems important; 61% of drinkers had been drinking for 21 years or more. The increasing proportion of affected women and a comparable frequency of exposure to tobacco and alcohol among affected men and women suggest that recent changes in the social roles make exposure to tobacco and alcohol as frequent in women as in men.

It has been proposed that diet and exercise could modulate the effects of carcinogens [10]. Our findings support this assertion. We found that 88% of the patients agreed to drink coffee regularly; 47% eat 3 or fewer rations of fruit per week; 42% eat 3 or fewer rations of vegetables per week; 86% eat 3 or fewer rations of meat per week and 72% do exercise sessions once or less times per week.

It is well known that advanced stage is associated with dismal prognosis. Unfortunately, 82% of our patients were diagnosed in stages III or IV, which is associated with a very poor functional and survival prognosis; We found that in the oral cavity 25% of the cases presented in early stages (0, I and II); 63.4% as moderately advanced tumors (III, IVa), 6% as very advanced or unresectable (IVB) and 3.8% as metastatic tumors. In the most recent cases, immunohistochemistry for p16 was performed in 35 of 51 cases of oral cavity cancer, looking for evidence of HPV infection and the test was positive (5 of 35), that is, in 14.3% of the cases, a diminished prevalence respect those reported (30.1%) by other authors but most of them provides figures obtained by using PCR [11].

Of the carcinomas of the larynx, 5 presented in early stages (I and II) 22.7%; 63.6% in moderately advanced stages (III and IVa) and 13.6% as very advanced or metastatic (IVb and IVc). In 8 of 22 cases a search for p16 was carried out, in none was it positive.

Of the oropharyngeal carcinomas, 50% were moderately advanced (IV a) and 50% were very advanced or metastatic (IV b and IV c), in 7 of 10 (70%) p16 was positive, reflecting the high frequency of infection by HPV in the oropharynx, as high as that recorded in developed nations [12]. Very interesting is that none of the patients perceived themselves as a heavy smoker and drinker; we also check relatively low intensity but prolonged exposures. This means that we must emphasize prevention, which does not require intense exposures to be at risk.

Our study has certain limitations. Although hospital cancer registries do not have the function of estimating population incidence or mortality from cancer, since there is no certainty of how many cases are not referred for treatment in the hospital, in developing countries, such as ours, the implementation of a hospital registry could be useful to monitor cancer variables in the absence of expensive populational registries [13].

However, our study yields important figures related to head and neck cancer of which there is no previous record in our population, and we believe they can be very useful in planning health policies, detecting variations in exposures to risk agents and measuring the impact of preventive measures, and planning the allocation of resources to this important disease.

Conflict of interest

The authors declare no conflict of interest.

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