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RESEARCH ARTICLE

Global Point Prevalence Survey of Squamous Cell Carcinoma in Ten Teaching Hospitals in Iraq

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Abstract

The type of cancer stages is one of the most important aspects of squamous cell carcinoma. In order to create an appropriate and successful treatment programme in Iraq, the purpose of this study is to evaluate the squamous cell carcinoma patterns in Iraqi hospitals through a survey and identify quality indicators. Within the 10 primary teaching hospitals in Iraq, a point prevalence study was conducted. Every patient admitted to a hospital was included in the study. Comprehensive data on patients who underwent treatment for squamous cell carcinoma were sought after by the study. Among the 649 included patients, comprised 347 of male and 302 of female. A highly significant difference is between the whole sites tumor types of the squamous cell carcinoma patterns at P-value < 0.05 except in lower lip, dorsal surface and other. The patients' mean age was 55.85 years, with males affected at a rate ten years older than females ($p < 0.05$). The current study identified a number of quality indicators that require improvement, including as Iraqi hospitals' overprescription of squamous cell carcinoma patterns. Data from the global point prevalence study of squamous cell carcinoma will assist Iraq's health officials in creating an action plan aimed at enhancing the appropriate treatment of squamous cell carcinoma.

Keywords

Squamous cell carcinoma, Oral cavity, Malignant tumor, Histogenetic, Epidemiology

Introduction

One of the most common cancerous tumours in the head, neck, and oral cavity is squamous cell carcinoma (SCC) [1]. SSC ranks sixth in frequency of cancer and is a leading cause of cancer-related mortality worldwide [2]. Not only is the histologic classification of malignant tumours interesting from a histogenetic standpoint, but it is also important in terms of prognosis and therapy [3]. SCC accounts for more than 90% of all malignant tumours, making it both the most significant and frequent malignant mucosal tumour to affect the head and neck [4]. SCC affects more men than women and usually strikes in the middle of a person's life, however it can affect anyone at any age [5]. Tobacco, alcohol consumption [6], use of areca nuts, human papillomavirus (HPV) infection (primarily for oropharyngeal cancers) [7], and Epstein-Barr virus (EBV) infection (especially established in Asia [8], especially for nasopharyngeal cancers) are the main risk factors generally related to head and neck cancer. The known genetic propensity to SCC is limited to a small minority of clinical SCC [9,10]. A more aggressive biologic behaviour has been linked to removal, allelic imbalances, or loss of heterozygosity (LOH) on the short arm of the chromosome [11], and these conditions may have therapeutic implications for SCC of the head and neck [12]. Anywhere in the head and neck can develop mucosal SCC, although the oral cavity, the glottis in the larynx, and the maxillary sinus in the sinonasal tract are the area's most affected [13,14]. Although well-differentiated cells nearly always replicate normal squamous epithelium, "conventional" SCC is composed of varying stages of squamous differentiation [15], with tumour cell nests violating the basement membrane [16]. The characteristics of SCC include impaired growth, dyskeratosis, keratin pearls, intercellular bridges [17], loss of polarity, increased nuclear to cytoplasmic ratio, abnormalities in nuclear chromatin, conspicuous eosinophilic nucleoli, and increased mitotic figures (including atypical forms) [18]. As the tumour stage becomes more poorly differentiated, mitotic figures and necrosis tend to increase [19].

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Merely few foci of squamous differentiation [20] are seen in the weakly differentiated lesions, which merely resemble squamous epithelium [21]. Seldom are certain investigations necessary to confirm the tumor's epithelial origin. The major limitations of the differential diagnosis include hyperplasia and papilloma [22]. Adult papillomas vary histologically from well-differentiated SCC due to their unclear development and clear-cut morphologic malignancy features [19]. The Iraqi Cancer Society has made an effort to implement a real plan to identify the cause of SCC. In order to accomplish this, it is important to choose a trustworthy database on SCC, which represents a variety of healthcare institutions, in order to develop an effective plan. To further assist Iraqi authorities in determining the benchmarks for lowering SCC, quality indicators should be established. Few studies have analysed SCC in Iraq, however few publications about the condition have been published by Iraqi academics who work in local hospitals. Furthermore, SCC may have only been evaluated in a few locations or at a single hospital in these researches. As a result, the goal of the current study is to improve the SCC database in Iraq by conducting a multicenter assessment of SCC at 10 of the country's top teaching hospitals.

Material and Methods

The Department of Oral and Maxillo-Facial Pathology at the University of Karbala approved this cross-sectional study. 649 patients diagnosed for different hospitals of Iraqi governments from 2017 to 2023. Participants aged 9-years-old and above at enrollment with squamous cell carcinoma were randomly selected using systematic sampling techniques. Gender, age, governorates, geography, and clinical data from every patient were gathered by going over every information history in every institution. All data were translated into a computerized file structure without any noise by testing for errors utilizing mean and rational data via cleaning ways.

Sample Size Calculation

The statistical analyses obtained by using Microsoft Excel 2021 and the statistical package for social sciences (SPSS) version 27 were used to calculate the sample size. Results show that there were 649 patients overall between 2017 and 2023. The data collection was manually collected via the patients' information. The α error was 0.05 and the power was 0.90 utilized for sample size calculation. Frequency spread and percentages for selected variables describing the detailed patients with samples were implemented. The variables were given by mean, standard deviation (SD), and standard error mean, and all tests were normally distributed.

Results

The histological features of the squamous cell carcinoma were observed and analyzed 649 patients from 2017 to 2023 in ten teaching hospitals in Iraq.

649 SCC instances overall were chosen for the study based on the inclusion and exclusion criteria. The data collection was collected in (10) Iraq governorates from 2017 to 2018: Baghdad (385), Basrah (58), Babil (37), Nasiriyah (37), Najaf (30), Diwaniyah (27), Maysan (24), Kut (23), Karbala (22) and Muthanna (6). The highest frequency (385) was recorded in Baghdad governorate and the lowest frequency (6) was recorded in Muthanna governorate, as shown in Figure 1.

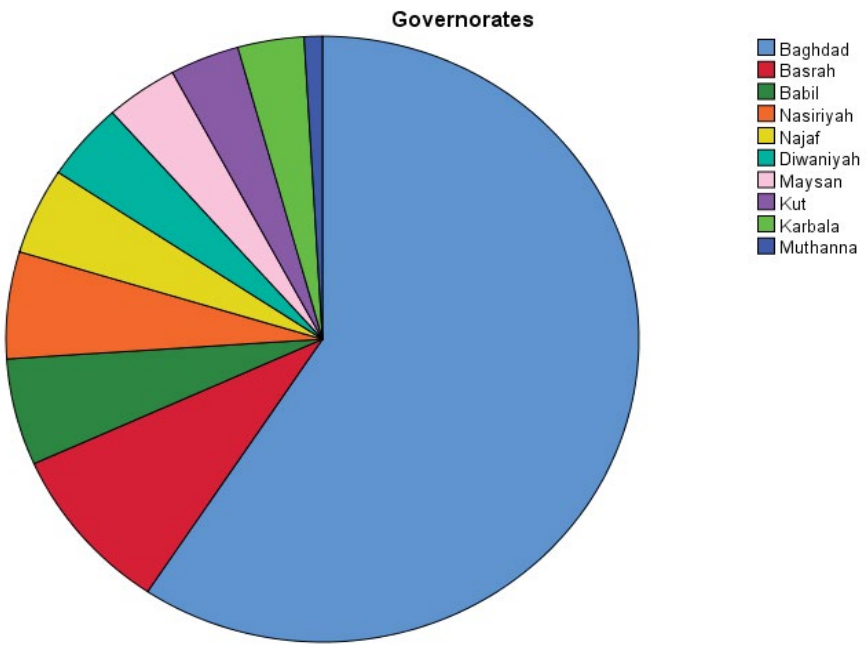

Figure 1: The pie-chats of governorates of SCC.

With a male to female ratio of 1.21:1, there are more male patients than female patients (347 patients, 53.50%). The gender frequency distribution is displayed in Table 1.

The average age of all patients was 55.85 years (SD ± 16.24, standard deviation), with a range of 9 to 98 years. The mean age of male patients was 55.73 years (SD ± 16.47), nearly ten years younger than the mean age of female patients (56 years, SD ± 16.00, ranging from 11 to 90 years). Age and gender did not significantly differ from one another (p = 0.125). Table 2 displays the distribution of ages.

To make things easier to work with, the age group is split into five categories: less than 15, (15-24), (25-39), (40-59), and more than 60. The age group with the highest proportion of afflicted patients was over 60 (307), followed by individuals in the 40-59 age range (237) with a percentage of (36.50%). Table 3 indicates that less than 15 patients had the lowest percentage of patients (1.40%), with 9 out of a total of 15.

For site of tumor, the highest frequency from all sites tumor is (201) with percentage (31.00%) of border of tongue. It followed by (115) with percentage (17.70%) of tonsil area. The lowest frequency (14) with percentage (2.20%) was found in other sites tumor type, as displayed in Table 4. A statistical analysis using t-test showed that there was a highly significant difference among all sites tumor types except in lower lip, dorsal surface and other. Figure 2 shows the pie-charts of sites tumor.

For the relative frequency of sites tumor by age group, the most affected of sites tumor was found in border of tongue by age group (40-59) and (60+) were (75) and (97) patients, respectively. It followed by ventral tongue by age group (60+) was (54) patients, as illustrated in Table 5.

Table 1: The frequency distribution of gender.

Gender	No	Percentage (%)
Male	347	53.5
Female	302	46.5
Total	90	100.0

Table 2: Age distribution of 649 patients.

Value	Male	Female	P-Value
Mean and standard deviation age of SCC	55.73 ± 16.47	56.00 ± 16.00	0.125

Discussion

The current investigation reveals that about one-fourth of all oral malignant tumours detected in the ten general hospitals in Iraq were not SCC, despite several studies confirming that SCC comprise 80-90% of all oral malignant tumours [23]. Some of these hospitals did not have any specialist laboratory is used to detect tumor types. It is supposed that the whole cases must send to specialist laboratory in Baghdad hospitals to accurately detect SCC.

According to the existing studies, SCC primarily affects men, with a male to female ratio that can vary from 6:1 to 2:1 [24].

Table 3: Frequency distribution of age group.

Age group		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	< 15	9	1.4	1.4	1.4
	(15-24)	13	2.0	2.0	3.4
	(25-39)	83	12.8	12.8	16.2
	(40-59)	237	36.5	36.5	52.7
	60+	307	47.3	47.3	100.0
	Total	649	100.0	100.0	

Table 4: The distribution of topography.

Site tumors		Frequency	Percent	Valid Percent	Cumulative Percent	P-value
Valid	Border of tongue	201	31.0	31.0	31.0	0.001
	Tonsil area	115	17.7	17.7	48.7	0.002
	Ventral tongue	107	16.5	16.5	65.2	0.002
	Lateral border	72	11.1	11.1	76.3	0.003
	Retromolar area	64	9.9	9.9	86.1	0.003
	Buccal mucosa	40	6.2	6.2	92.3	0.004
	Lower lip	19	2.9	2.9	95.2	0.156
	Dorsal surface	17	2.6	2.6	97.8	0.187
	Other	14	2.2	2.2	100.0	0.196
	Total	649	100.0	100.0		

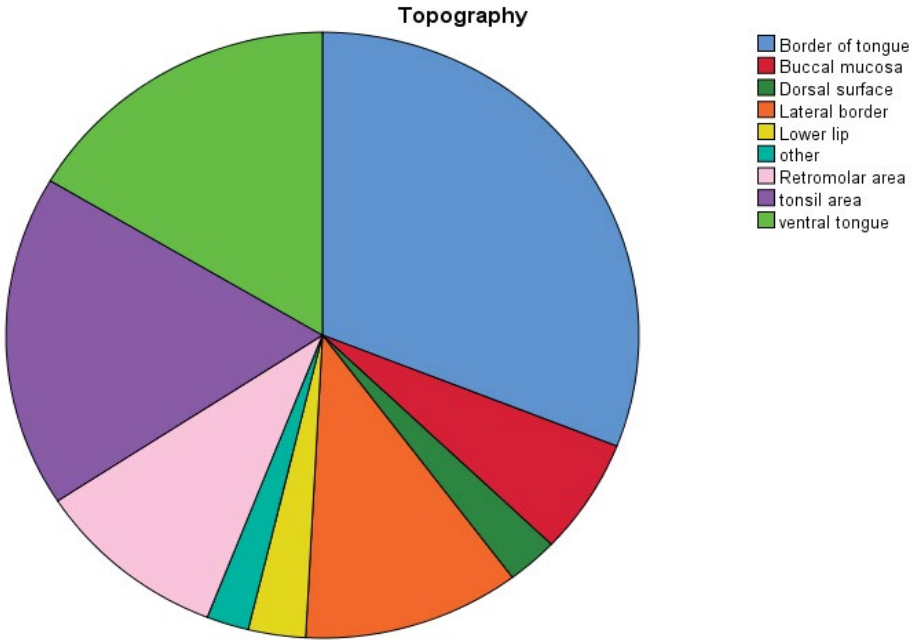

Figure 2: The pie-charts of sites tumor.

Table 5: The relative frequency of sites tumor by age group.

	Age group						
Sites tumor	**< 15**	**(15-24)**	**(25-39)**	**(40-59)**	**60+**	**Total**	**P-value**
Border of tongue	0	2	27	75	97	201	0.001
Buccal mucosa	1	2	7	15	15	40	0.004
Dorsal surface	0	0	0	7	10	17	0.187
Lateral border	5	3	12	21	31	72	0.003
Lower lip	0	2	0	7	10	19	0.156
Other	0	0	1	3	10	14	0.196
Retromolar area	0	1	9	26	28	64	0.003
Tonsil area	2	2	16	43	52	115	0.002
Ventral tongue	1	1	11	40	54	107	0.002
Total	9	13	83	237	307	649	

The majority of SCC cases are diagnosed in younger individuals, with ages ranging from less than fifteen to more than sixty [25] and [26]. This gender and age distribution has been validated by other investigations, and the current results support these findings. Just 10% of the patients registered in this research were younger than 39, which is in line with the findings reported by [27] and [28]. According to the current study, the means reported by the earlier investigations, which commonly ranged from 4 to more than sixty [29] and [28].

Squamous cell carcinoma is the sixth most frequent tumour type to be identified, and both its incidence and fatality rates are rising. It was shown that the oral cavity's SCC incidence from 2017 to 2023 was strikingly comparable to other worldwide successions.

The study population's demographic and clinical profile of SCC patients revealed that males were affected at a rate about ten years older than females, and that both genders' tumours mostly impacted the ventral tongue, tonsil region, and tongue border. The clinicopathological data from male and female patients with SCC showed certain differences in the population under investigation; further researchers concentrating on diverse Iraqi and international groups are encouraged to corroborate these aspects.

It appears that there are geographical and populational differences in the mean age of the impacted patients, as presented by [30] Karachi, Pakistan which displayed a mean age of (55.85) years-old and 50% of the patients with ages below 39-years-old but with different number of patients (222). Similarly to the findings of the current study, other authors have also presented that the mean age of males impacted by SCC is lower than the mean age for females [31] and [6].

Any portion of the oral cavity can be affected by SCC, and big lesions can target many locations at once. The tongue border, tonsil region, and ventral tongue were the most commonly impacted locations, according to

the present data. Despite the fact that the border of the tongue is thought to be the most common location for SCC in Iran [32] other writers have proven that, because of tobacco and areca nut chewing behaviours, the tonsil region is the most common location for SCC [33] and [34].

Conclusion

Squamous cell carcinoma is the sixth most frequent tumour type to be identified, and both its incidence and fatality rates are rising. It was shown that the oral cavity's SCC incidence from 2017 to 2023 was strikingly comparable to other worldwide successions. The study population's demographic and clinical profile of SCC patients revealed that males were affected at a rate about ten years older than females, and that both genders' tumours mostly impacted the ventral tongue, tonsil region, and tongue border. The clinicopathological data from male and female patients with SCC showed certain differences in the population under investigation; further researchers concentrating on diverse Iraqi and international groups are encouraged to corroborate these aspects.

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