

Oesophageal cancer in Bahrain

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سرطان المريء في البحرين

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الخلاصة: تم تحليل المعطيات من 148 حالة من السرطانات المريئية في البحرين خلال الفترة 1952-1999 وفقاً للجنس والعمر والموقع والنموذج الهستولوجي للورم، مع مقارنتها بما لدى البلدان الأخرى في الخليج. إن سرطان المريء يتشكل في البحرين 2.6% من الأورام الخبيثة، ونسبة إصابة النساء إلى الرجال 1.8 إلى 1، ومعظم المرضى كانت أعمارهم تتراوح بين 51 عاماً فأكثر وبين 70 عاماً فأقل؛ وكان الثلث الأسفل من المريء هو الأكثر إصابة في حين كان الثلث الأعلى من المريء هو الأقل إصابة. أما النمط النسيجي الغالب فقد كان لدى الذكور السرطانة الحرشفية الحلايا ولدى الإناث السرطانة الغدية. وهناك توافق متباين الدرجة بين هذه المعطيات وبين المعطيات لدى البلدان الأخرى في الخليج والتي لديها مرتمسات ديمغرافية وأنثروبولوجية مشابهة. وقد يساعد إجراء دراسة استباقية على تقديم فهم أفضل لأسباب هذا المرض وتوفير المعلومات اللازمة للسياسات الوقائية.

ABSTRACT Data from all 148 cases of oesophageal cancer in Bahrain during 1952-99 were analysed according to patient sex and age and site and histological pattern of tumour, and compared with other Gulf countries. In Bahrain, oesophageal cancer accounted for 2.6% of malignant neoplasms. The female:male ratio was 1.8:1, and the majority of patients were ≥ 51 years and ≤ 70 years of age. The lower and upper third of the oesophagus were the most and least frequently involved sites, respectively. Squamous carcinoma (males) and adenocarcinoma (females) were the main histological types. There is varying consistency between these data and those of other Gulf countries having similar anthropological and demographic profiles. A prospective study may help to better understand the aetiology of the disease and inform preventive policies.

Le cancer de l'œsophage à Bahreïn

RESUME Les données provenant de l'ensemble des 148 cas de cancer de l'œsophage survenus à Bahreïn pendant la période 1952-1999 ont été analysées en fonction du sexe et de l'âge des patients ainsi que de la localisation et du type histologique de la tumeur, et comparées avec celles d'autres pays du Golfe. A Bahreïn, le cancer de l'œsophage représentait 2,6 % des tumeurs malignes. Le rapport hommes/femmes était de 1,8:1, et la majorité des patients avaient un âge compris entre 51 et 70 ans. Le tiers inférieur et le tiers supérieur de l'œsophage étaient, respectivement, les sites le plus souvent et le moins souvent atteints. Le carcinome épidermoïde (hommes) et l'adénocarcinome (femmes) étaient les principaux types histologiques. Il y a une cohérence variable entre ces données et celles d'autres pays du Golfe qui ont des profils anthropologiques et démographiques similaires. Une étude prospective permettrait de mieux comprendre l'étiologie de la maladie et d'éclairer les politiques de prévention.

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Introduction

Oesophageal cancer is among the 10 most frequently occurring cancers in the world [1-4]. Its geographic distribution is curious. There can be, for example, a high incidence in one region alongside a zero incidence in an adjacent region [1]. A survey of alimentary tract malignancies has shown oesophageal cancer to be the most common malignancy in Saudi Arabia [5]. It is also common in other Gulf states which share common environmental, dietary and socioeconomic similarities [4,6-12]. It is however, not listed among the 10 most common cancers in Oman [13].

Because of the absence of relevant data from Bahrain, our study sought to analyse cases of oesophageal cancers diagnosed between 1952 (when records started) and 1999, and to compare the sex and age distribution of Bahraini cases and the anatomic site and histological type of the tumours with data from other nearby Gulf countries.

Methods

The records of all histologically confirmed cases of primary oesophageal cancer diagnosed in all pathology laboratories in Bahrain during 1952-99 were retrieved and analysed according to sex and age of the patients, and anatomic site and histological type of the tumours. Examination of the microscopic sections of these tumours was not attempted.

Results

During the 48-year period of this study, 5698 Bahrainis were diagnosed with malignant neoplasms, of which 148 (2.6%) had primary oesophageal cancers, 95 (64.2%)

males and 53 (35.8%) females (a ratio of 1.8:1). The ages were recorded in 142 patients' files (Table 1): 12 (8.5%) were aged ≤ 40 years, 23 (16.2%) 41-50 years, 83 (58.5%) 51-70 years and 24 (16.9%) > 70 years. The mean age was 62 years. We did not encounter any patient > 90 years or < 20 years of age. For 6 males age was not recorded.

The lower third of the oesophagus was the most frequently involved site, diagnosed in 64 (43.2%) patients, followed by the middle third in 30 (20.3%) and the upper third in 25 (16.9%) patients (Table 2). Overlapping sites were recorded in 26 (17.6%) cases and the thoracic oesophagus was noted in 3 (2.0%) males. In all these sites, male preponderance was observed (95 males versus 53 females).

Squamous cell carcinoma was the most frequent histological type, diagnosed in 137 (92.6%) patients, followed by adenocarcinoma in 7 (4.7%), and carcinoma NOS (not otherwise specified) in 4 (2.7%) cases (Table 2). In the squamous cell carcinoma group, the sex ratio was approximately 2:1

Table 1 Age and sex distribution of the patients with oesophageal cancer, Bahrain, 1952-99

Age group (years)	Males (No.)	Females (No.)	Total no.	%
21-30	3	2	5	3.5
31-40	3	4	7	4.9
41-50	14	9	23	16.2
51-60	26	14	40	28.2
61-70	27	16	43	30.3
71-80	12	6	18	12.7
81-90	4	2	6	4.2
Total	89	53	142*	100.0

*The age was not recorded on the pathology reports of 6 male patients.

Table 2 The anatomic, histologic and sex distribution of 148 patients with oesophageal cancer, Bahrain, 1952-99

Site	Squamous		Adenocarcinoma		Carcinoma not otherwise specified		Total no. (n = 148)	%
	Males	Females	Males	Females	Males	Females		
Thoracic	3	0	0	0	0	0	3	2.0
Upper third	12	13	0	0	0	0	25	16.9
Middle third	20	10	0	0	0	0	30	20.3
Lower third	38	15	2	5	3	1	64	43.2
Overlapping	17	9	0	0	0	0	26	17.6
Total	90	47	2	5	3	1	148	100.0

(90 males and 47 females), while in the adenocarcinoma group, females ($n = 5$) were more affected than males ($n = 2$), a ratio of 2.5:1. No cases of lymphoma were found in this study.

Discussion

Primary oesophageal cancer ranks as the 10th most common malignancy in Bahrain, while in the Islamic Republic of Iran and Saudi Arabia it ranks fourth [10,14]. The data from Bahrain, showing a slight male preponderance, are similar to findings from the southern region of the Islamic Republic of Iran, Iraq, Qatar and Saudi Arabia [4,6-8,11,12,14]. The majority of the Bahraini patients presented between the ages of 51 and 70 years, similar to findings from Saudi Arabia, but dissimilar to an Iranian study where patients presented at < 45 years of age [6,14]. We did not try to correlate our findings with other factors such as alcohol, smoking, nutrition status, nature of job or profession. The relationships between oesophageal cancer and these parameters should be the subject of a separate future study.

Oesophageal carcinoma can occur along any portion of the oesophagus although it is most commonly seen in relation to areas of normal anatomical constriction, such as in the middle and lower third [15]. In the present study, a slightly increased frequency was noted in the lower third of the oesophagus (43.2%), similar to findings from the Islamic Republic of Iran and Qatar [4,12]. However, this contrasts with some earlier studies where the most frequent site (in 68% of patients) was reported to be the middle third [7,16]—a finding that may be attributed to differences in ethnic factors, regional environmental carcinogens, dietary habits, smoking, alcohol or exposure to an unknown regionally-specific pollutant [9]. It is worth noting that water polluted by petroleum products, polycyclic hydrocarbons, minerals and trace elements (environmental pollutants probably shared by all oil-producing regions of the Gulf) has been implicated in the higher incidence of oesophageal cancer in the Al Qasim region of Saudi Arabia [7].

In the etiology of oesophageal cancer, nitrosamines play a key role as initiators of the disease in humans [3]. Secondary factors, such as the role of alcohol in Europe and the United States of America, dietary deficiencies in the Islamic Republic of Iran and China, and mycotoxins in South Africa are thought to possibly promote neoplasia. Hence, a combination of several risk factors concentrated in the environment of one ethnic group may lead to a very high incidence of oesophageal cancers [3]. A plausible explanation for the higher frequency of oesophageal cancer on the Arab side of the Gulf than in the United States of America and some parts of Europe could be the influence of migration of people with similar genetic characteristics from Iran, where this form of cancer is common [1].

The histological pattern of oesophageal cancer in Bahrain is similar to that seen in other parts of the Gulf, with squamous cell carcinoma the most frequently occurring type, followed by adenocarcinoma [7,9,12]. Adenocarcinomas were seen exclusively in the lower third of the oesophagus. We did not find lymphomas in either the Bahrain cases or in the findings of studies undertaken in other Gulf countries.

Conclusions

Differences in the incidence and prognosis of cancer at various sites of the gastrointestinal tract continue to be prevalent worldwide [14,17]. It is therefore essential that prospective studies of data retrieved from the cancer registries of Gulf countries be analysed by sex, age, ethnic origin, histologic type, survival and time trend of patients with oesophageal cancer. This may demonstrate the biological differences of this type of cancer in the Middle East region. As oesophageal carcinomas usually present when the disease is at a clinically advanced stage, overall patient survival rates are low, thus, early detection should be the goal.

Oesophageal cancer is common in the Gulf area, a region that shares common ethnic, racial, environmental, dietetic, socioeconomic and cultural features. There is a need to compare regional similarities with international geographic patterns of the disease, and to undertake prospective studies to determine the possible association of local etiological and predisposing factors in this region. This will inform policies to implement long-term preventive measures aimed at decreasing the frequency of this type of cancer.

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EMRO's website for cancer information

We would like to draw our readers' attention to the WHO/EMRO website on cancer, which is part of the noncommunicable diseases website. The site provides data on the regional cancer situation, national cancer control programmes and the WHO/EMRO programme on cancer control and prevention, together with information on types of cancer, early detection, screening, diagnosis and treatment, pain relief and palliative care, cancer registries and practice guidelines. The site can be accessed at:

<http://www.emro.who.int/ncd/Cancer.htm>