

# Epidemiology of Prostate Cancer in United Arab Emirates

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## Summary

**Objective:** To evaluate the magnitude of prostate cancer in the United Arab Emirates (UAE). **Design:** A descriptive retrospective study. **Setting:** Tawam and Al-Ain Teaching Hospitals, Al-Ain Medical District, UAE. **Subjects:** Analysis based on patient admissions into the main referral teaching hospital, categorizing age, nationality groups and type of cancer. All prostate cancer patients, diagnosed and treated at Tawam and Al-Ain Hospitals during the period from 1982 to 2000, are included in the study and consisted of 84 subjects. **Results:** The study series consisted of 84 patients with the ages ranging from 38 to 81 years with a median age of 56 years and a mean and standard deviation of  $56.5 \pm 12.5$  years. The study revealed that majority of the patients ( $n=33$ , 39.2%) were diagnosed between 51 to 60 years of age. The majority of our patients were UAE nationals (44.0%), followed by patients from neighboring countries i.e. Oman, Yemen, Syria, Jordan and Egypt (40.5%). The initial pathological diagnosis was confirmed mainly by Trucut Needle Biopsy in the majority of patients ( $n=48$ , 57%), TURP ( $n=15$ , 18%), Open Prostatectomy ( $n=4$ , 5%) and others i.e. lymph node, bone marrow, and pleural biopsies and high PSA ( $n=17$ , 20%). The majority of our patients (77.7%) presented with an advanced disease and received hormonal treatment while 16.6% received radical radiotherapy and 5.5% had radical prostatectomy. According to our analysis the annual incidence of prostate cancer is 4.5/100 000 male population. **Conclusion:** The prevalence of prostatic carcinoma in the UAE, like other Arabian Gulf and Asian countries, is very low compared to Western Countries despite the high intake of calories and consumption of animal fat. However, genetics and environmental factors believed to be involved in the complex etiology of prostate cancer in UAE are not clear yet, and awaiting investigation.

**Key Words:** Epidemiology, Prostate cancer, Incidence, United Arab Emirates

## Introduction

Epidemiological observations indicate that environment and life style are the major determinants of the geographical patterns of cancer<sup>1</sup>. During the last two decades, the United Arab Emirates (UAE) like other Arabian Gulf countries had witnessed a rapid development in many aspects of life. As a result of increasing development and civilization, the major public health problems have also increased<sup>2</sup>. The rapid growth and changing environmental and social

conditions in the UAE have affected the prevalence and pattern of cancer. The widespread availability of modern medical facilities and increasing public awareness of cancer have made possible the detection and reliable diagnosis of cancer in UAE. The developments in socio-economics and health in these countries have played an important role in increasing the life expectancy and popularizing the lifestyle associated with smoking, obesity and hypertension. All these factors indicate that UAE like many other developing countries will show an increasing

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proportion of the world's cancer burden<sup>3</sup>. Unfortunately, there has been no clear strategy to prevent this disease in the UAE community<sup>4</sup>.

Clinically apparent prostate cancer is very common both in North America and Europe (especially in Scandinavian countries)<sup>5</sup>, while currently it is considered to be rare in Asian countries<sup>6</sup>. Latent prostate cancer on the other hand is probably similar worldwide, but the evolution into overt clinical disease seems to be variable in different parts of the world<sup>7</sup>. The differences may be explained by genetic, environmental, dietary and socio-economic factors. Recently however an increase in both the incidence and mortality of prostate cancer have been observed in both high and low risk countries<sup>8,9,10</sup>. The lowest incidence of prostate cancer was seen among Chinese<sup>10</sup> and Indonesian men<sup>11</sup>, and the highest in black Americans<sup>12</sup>. The increase in incidence of prostate cancer in the Western countries is in part, but not fully, related to improvement in the methods of early detection of the disease, and in Asian countries it is probably due to westernization of both their diet and life style<sup>13-16</sup>.

Very little information can be found about prostate cancer in some Arabian countries<sup>13,16,17</sup>, according to our knowledge there is no similar data available in UAE. The aim of this study is to investigate and to evaluate the magnitude of prostate cancer in UAE and to compare the pattern of prostate cancer with other available Arabian Gulf and Western countries.

## Materials and Methods

The total population of the UAE according to the Ministry of Health Annual Report in 1998 was about 2,759,000 and over 70% were expatriates. The National Cancer Registry for the UAE was established at the 1998. Tawam Hospital is a teaching and cancer referral hospital with over 250-beds and Al-Ain Hospital is also a teaching hospital with 700 beds. All patients seen at both hospitals who have a histologically confirmed malignancy are entered in the medical records of both hospitals. The study was designed as a descriptive prevalence study using medical records. The study was proposed to include all cases of prostate cancer who attended and were admitted at Tawam and Al-Ain Hospitals for the period of over 18 years which was

from January 1982 to December 2000. Data were obtained from the Pathology Department in Al-Ain Hospital and Urology Department of Tawam Hospital. Cases were coded according the World Health Organization's International Classification of Diseases, 10<sup>th</sup> Revision, Clinical Modifications (ICD10-CM). Data collected from the hospital records included 84 new patients for the period of over 18 years. The patients were reviewed and their age, nationalities, Prostatic Specific Antigen (PSA) result at the time of diagnosis, method of diagnosis, histological grade of the specimen, mode of presentation, stage at present and method of treatment were noted.

## Results

The study series consisted of 84 patients and their ages ranged from 38 to 81 years with a median age of 56 years and a mean and standard deviation of  $56.5 \pm 12.5$  years. Ten common types of cancer in males in UAE according to age-adjusted incidence are given in Figure 1. The most common male malignancy was lung and followed by stomach, prostate, colorectal, Non-Hodgkin's lymphoma, bladder, liver, thyroid, oral cavity and leukemia.

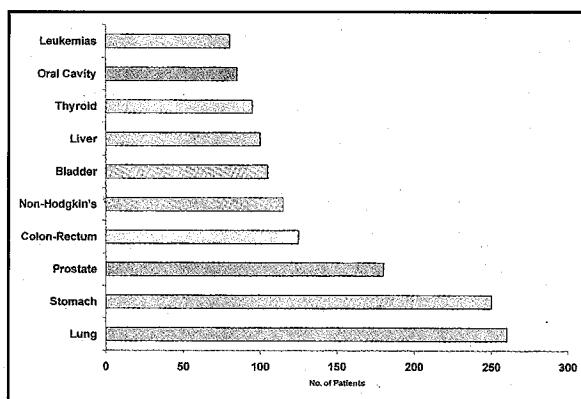
Figure 2 shows age distribution of patients with prostate cancer at first visit for a period between 1982 and 2000. It will be observed that majority of the patients ( $n=33$ , 39.2%) were in the age group (51 - 60) years, followed by those in the age group (61-70) years ( $n=19$ , 22.6%) and then the age group (71-80) years ( $n=18$ , 21.4%). Figure 3 presents the nationality distribution of prostate cancer in our patients. The majority of our patients were UAE nationals (44.0%) and followed by nationals of neighboring countries namely Oman, Yemen, Jordan, Syria and Egypt (40.5%).

The initial pathological diagnosis was confirmed mainly with Trucut Needle Biopsy in the majority of patients ( $n=48$ , 57%), TURP ( $n=15$ , 18%), Open Prostatectomy ( $n=4$ , 5%) and others i.e. lymph node, bone marrow, and pleural biopsies and high PSA ( $n=17$ , 20%). The majority of our patients (77.7%) presented with an advanced disease and received hormonal treatment while 16.6% received radical radiotherapy and 5.5% had radical prostatectomy.

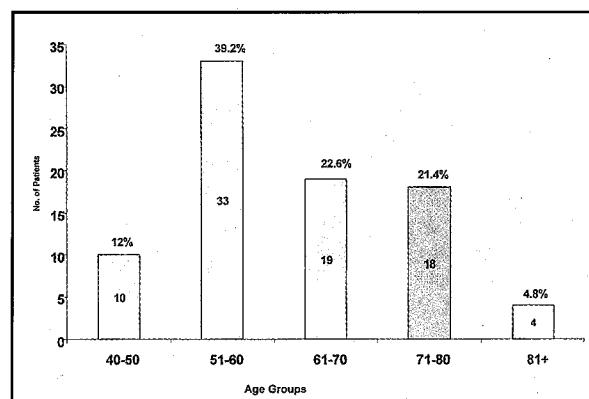
**Table I: Summary of the reported incidence of prostate cancer in Arabian Gulf Countries**

Authors	Country	Year	Incidence
Parkin et al. <sup>10</sup>	Kuwait	1997	6.5 / 100,000 male
Hanash et al. <sup>13</sup>	Saudi Arabia	2000	3.1 / 100,000 male
Kehinde <sup>16</sup>	Oman	1998	3.3 / 100,000 male
Kakil *	Qatar	2000	6.6 / 100,000 male
Ghafoor et al. (present study)	UAE	2000	4.5 / 100,000 male

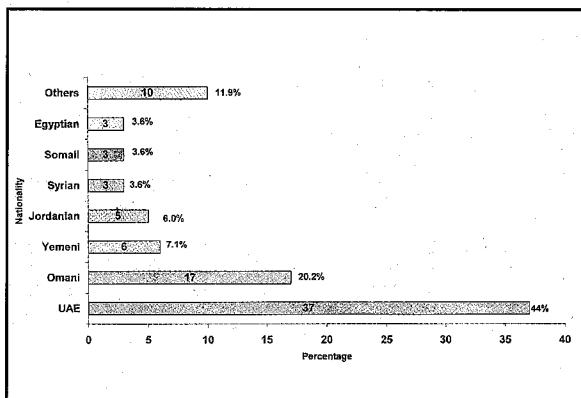
\* Personnel Communication



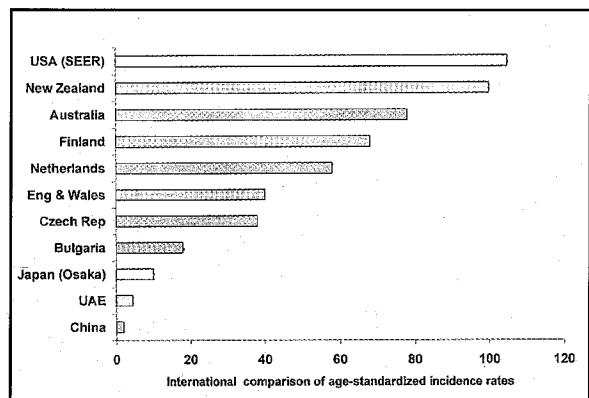
**Fig 1: Ten common types of cancer in males in UAE (1982-2000)**



**Fig 2: Age Distribution of Patients with Prostate Cancer at first visit (N=84 Patients)**



**Fig 3: Nationalities of Patients with Prostate Cancer (N=84 patients)**



**Fig 4: International Comparison of Prostate Cancer for the age Standardized incidence rates**

Source:[http://www.cancer.ca/ccs/standard/0\\_2704\\_3172\\_367655\\_16546\\_langId-en\\_00.html](http://www.cancer.ca/ccs/standard/0_2704_3172_367655_16546_langId-en_00.html)  
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## Discussion

Tawam Hospital is the Oncology Referral Center for the UAE, and so we are likely to see the majority of patients with malignant disease in the UAE. The national cancer registry was established in 1998. Although we have no precise data available before 1998 and it is possible that some of the patients treated in various hospitals all over UAE may not have been referred to Tawam Hospital, but being the only oncology center in the country we believe that almost all of the patients with cancer of the prostate are referred at some stage for treatment and follow-up to Tawam hospital. In our study, 15 patients (17.8%) preferred to go abroad for treatment but their follow up treatment was at Tawam hospital. Although it is difficult, based on our data, to calculate accurately the incidence of prostate cancer in the UAE, we feel it is low when compared to Western countries. This is supported by the facts that we saw only 84 patients with prostate cancer over a period of 18 years and only a mean of 21 newly diagnosed prostate cancers per year were registered in the UAE National Cancer Registry during the last three years.

In most parts of the world, males form about 50% of the total population, but in the UAE, according to the Ministry of Health's Annual Report in 1998, 68% of the population were males of young age group which may be a contributing factor for the low incidence of prostate cancer in UAE, a disease that is known to develop in elderly males. In our study, the majority of patients were above the age of 50 years. Our results seem to be comparable to those recently published from Arabian Gulf Countries<sup>13,17</sup>. The summary of reported incidence of prostate cancer in Arabian Gulf States is given in Table I. Our results are consistent with those from previous studies in Kuwait<sup>10</sup>, in Saudi Arabia<sup>13,17</sup>, in Sultanate of Oman<sup>16</sup>, and in Qatar.

The incidence of prostate cancer in the Arabian Gulf countries is substantially lower than USA (SEER), Australians and New Zealanders, European Countries, and Asian countries, (Figure 4). As can be seen from Figure 4, prostate cancer rates are similar in USA, New Zealand & Australian and Europe. In these countries, there is a dramatic increase in the rates compared with Arabian Gulf Countries.

There is a definite correlation between high fat diet and prostate carcinoma<sup>13-16</sup>. The low incidence of prostate cancer in Arabian Gulf States, Kuwait<sup>10</sup>, Saudi Arabia<sup>13,17</sup>,

Sultanate of Oman<sup>16</sup> and UAE made us postulate a protective effect of the standard local diet, which is more or less similar in these countries<sup>13</sup>. There could be possible genetic factors. The role of BRCA1, BRCA2 and other genetic factors have not been studied in this population. However, this cannot be proven and further studies are required to evaluate possible protective dietary influences, genetic and environmental factors. The increase in consumption of fast food among the younger generation in both Saudi Arabia and UAE may have a negative impact on this low incidence of prostate cancer in the future.

The majority of our patients (77.7%) presented with advanced disease. To obviate this, physicians, caring for these patients should be aware of this and meticulous evaluation and screening for early prostate cancer should be adopted.

The prevalence of prostate cancer is low in UAE, similar to the pattern observed in other Asian populations<sup>10</sup>. The incidence varies widely between countries and ethnic groups. Differences in genes associated with androgen metabolism or inherited susceptibility may explain some of this variability.

The prevalence of prostate cancer appears to be low in the UAE and the recently established national cancer registry should further verify this in the future. This however requires the cooperation of all hospitals concerned in sending their data to the cancer registry. Since prostate cancer is rare in the UAE and to guarantee optimal treatment for these patients, we feel that all of them should be referred to one center where all modalities of treatment are available. Future research should be set up and directed at finding the local protective factors against prostate cancer as this will help in prevention and control and prevention of future increase in prostate cancer.

## Conclusion

The prevalence of prostatic carcinoma in the UAE, like other Arabian Gulf and Asian Countries, is very low compared to Western countries in spite of a high intake of calories and consumption of animal fat. However, genetics and environmental factors believed to be involved in the complex etiology of prostate cancer in UAE are not clear yet, and awaiting investigation.

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