



Prostate Cancer in the Arab World: A View From the Inside

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Abstract

The rates of prostate cancer vary by more than 50-fold across different international populations. The aim of this review was to explore the differences in epidemiology and risk factors between the Middle Eastern Arab countries and some of the developed countries in Europe and North America. The age-standardized incidence rate of prostate cancer in the Arab countries is still lower than that in the Western countries, but is steadily increasing with time. Several factors come into play to explain this difference. There are health care systems-related factors such as the lack of good population-based registries, and population-related factors. The latter include the relatively young age structure in the Arab countries, lower reported androgen and prostate-specific antigen levels in Arab men, the effect of genetic differences on prostate cancer risk, the metabolic syndrome paradox, and the protective effect of the Mediterranean diet on a subset of the Arab population. In conclusion, the study of prostate cancer in the Arab world represents a challenge with the currently available cancer care systems and the increase in the burden of the disease. A multi-national prospective study to investigate the epidemiology of prostate cancer in the Middle East, with specific attention to country/geographic variability along with a comparative analysis to that of the Western hemisphere is needed.

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Introduction

Prostate cancer is the number one cancer in developed countries and the second most common cancer among men worldwide.¹ The rates of prostate cancer vary by more than 50-fold between different international populations.² This has been associated with variations in screening practices and the difference in the magnitude of various prostate cancer risk factors in each population. In this review we focus on the epidemiology of prostate cancer in the Middle East and provide an analysis of the possible factors that affect the difference in incidence of prostate cancer between developed countries such as the United States of America (US) and the Middle Eastern Arab region.

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Evidence Acquisition

A literature search in English was performed using PubMed and Google Scholar in January 2015 using the following search terms: "prostate cancer," "epidemiology OR risk factors," and "Middle East OR Arab." Relevant articles, from 1984 to 2015, on prostate cancer in the Arab world were selected. Special attention was given to studies that investigated the disease epidemiology and risk factors in the Arab world.

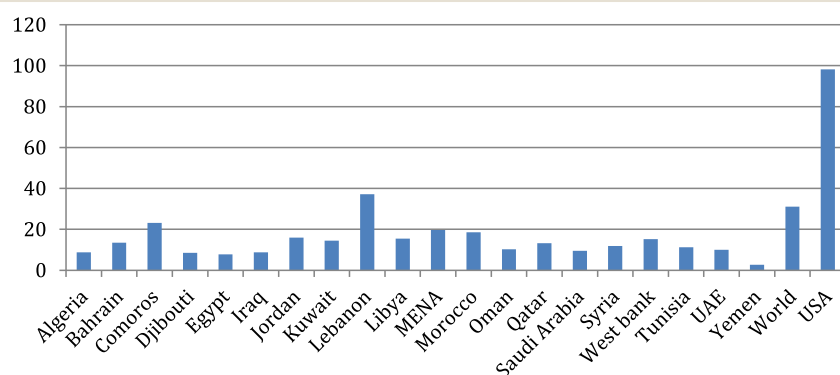
Epidemiology in the Middle East

The incidence of prostate cancer is low in Asia, intermediate in most of Africa and Eastern Europe, and high in Western Europe and North America.³ As for the incidence in Middle Eastern Arab men, the age-standardized incidence rate (ASIR), as low as 3 per 100,000, was recorded in Qatar in 2006,⁴ compared with an ASIR of 147.8 per 100,000 in the US,⁵ according to the Surveillance, Epidemiology, and End Results (SEER) database.

The low incidence of prostate cancer among men of Middle Eastern origin is also evident in the first-generation immigrants in several countries such as Australia,⁶ Sweden,⁷ and The Netherlands,⁸ and in California.⁹ However, of note is that this difference tends to diminish with each generation.^{6,9} For example,

Prostate Cancer in the Arab World

Figure 1 Age-Standardized Incidence Rate of Prostate Cancer in the Middle East and North Africa (MENA) Countries Compared With the United States (USA)



Abbreviation: UAE = United Arab Emirates.

Data from International Agency for Research on Cancer. World Health Organization. GLOBOCAN 2012: Estimated Incidence, Mortality and Prevalence Worldwide in 2012. All Cancers (Excluding Non-Melanoma Skin Cancer). Available at: http://globocan.iarc.fr/Pages/fact_sheets_cancer.aspx.

when Nasseri et al studied cancer incidence in the Middle Eastern Arab population in California, they found that the prostate cancer rate was 11-fold higher in the Arab individuals in California than the reported rates from the Middle Eastern countries themselves.⁹ The authors attributed this to several factors including acculturation to the lifestyle of the host country⁹ and possible underreporting of good quality data in most of the Middle Eastern countries because of the lack of organized cancer-based registries.¹⁰

Figure 1 shows the lower ASIR of prostate cancer in the Middle East and North Africa (MENA) countries compared with Western countries such as the US based on GLOBOCAN 2012 data.¹¹ In 2005, during the sixth International Consultation on Prostate Cancer and Prostatic Diseases, sponsored by the International Union Against Cancer, concerns were raised regarding the future increase in the incidence of prostate cancer in Asia and the Middle East. This notion was spurred by the observed trends of prostate cancer in the Middle East and Southeast Asia. The meeting synopsis clearly depicted an alarming increase in the incidence rate in Lebanon, exceeding that of Korea and Japan.

Although the incidence and mortality rates for prostate cancer in the US and other developed countries are decreasing, the limited reports from the Middle East have shown an unexpected increase in incidence and mortality rates for prostate cancer in our part of the world.¹¹ In Lebanon for example, the ASIR increased from 29.9 per 100,000 in 2003 to 39.2 per 100,000 in 2008.¹² As for the survival, several studies have used the age-standardized mortality rate (ASMR) to ASIR ratio, known as the mortality rate to incidence rate ratio (MR:IR), as an indicator of survival.¹³ Table 1 shows the ASIR and ASMR of several countries in the MENA region compared with European countries, the US, and Japan, based on the GLOBOCAN 2012 database on prostate cancer.¹¹ Based on this, Shahait et al used the MR:IR ratio, from the GLOBOCAN 2012 database on prostate cancer (MR:IR ratio being inversely proportional to the survival), and they found that the population-averaged MR:IR ratio was 0.5 in the MENA region

Table 1 The ASIR and ASMR of Prostate Cancer in the MENA Countries Compared With European Countries, Japan, and the United States (USA)

Country	ASIR	ASMR
Algeria	8.8	4.9
Bahrain	13.5	6.5
Comoros	23.2	21
Djibouti	8.5	8
Egypt	7.8	5.1
Iraq	8.7	6.4
Jordan	15.9	8.3
Kuwait	14.5	3
Lebanon	37.2	17.1
Libya	15.5	7.5
MENA	19.7	10.2
Morocco	18.5	12.9
Oman	10.2	6.3
Qatar	13.2	6
Saudi Arabia	9.5	4.8
Syria	11.9	—8
West bank	15.2	—
Tunisia	11.3	6
UAE	10	5.6
Yemen	2.7	2.3
World	31.1	7.8
USA	98.2	9.8
Japan	30.4	5
Southern Europe	58.6	10
Northern Europe	85	14.5

The data for MENA region and USA is shown in bold because it's the data that was used to show the difference between our MENA region and the USA regarding the MR:IR ratio.

Abbreviations: ASIR = age-standardized incidence rate; ASMR = age-standardized mortality rate; MENA = Middle East and North Africa; UAE = United Arab Emirates.

Data from International Agency for Research on Cancer. World Health Organization. GLOBOCAN 2012: Estimated Incidence, Mortality and Prevalence Worldwide in 2012. All Cancers (Excluding Non-Melanoma Skin Cancer). Available at: http://globocan.iarc.fr/Pages/fact_sheets_cancer.aspx.

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