

Cancer Epidemiology in Lebanon

Ali I. Shamseddine*[†], Khaled M. Musallam*

**Department of Internal Medicine, Hematology & Oncology Division,
American University of Beirut Medical Center, Beirut, Lebanon*

Abstract

The main obstacle facing cancer preventive strategies worldwide is a lack of well conducted epidemiological studies to guide local and international efforts for disease control. In Lebanon, long due political strain has added yet another obstacle to the development of methodologies aiming to collect data on cancer epidemiology. However, through several efforts dated from the 1960s the picture is becoming clearer. We herein review the outcome of all such efforts and their interpretation as a guide for future preventive strategies.

Keywords: Lebanon, Cancer, Epidemiology

Introduction

Lebanon, officially the Republic of Lebanon, is a country in Western Asia on the eastern shore of the Mediterranean Sea. Lebanon's location at the crossroads of the Mediterranean Basin and the Arabian hinterland has dictated its rich, sometimes violent history, and shaped its unique cultural identity of religious and ethnic diversity. Following the end of civil war in Lebanon in 1990, there has been a proliferation in the number of medical institutions as well as marked improvement and modernization of various medical diagnostic equipment as well as a significant increase in the number of oncology specialists in the country. At the national level,

there is an overall increase in the crude incidence rates of all cancers over the past 15 years.

Cancer epidemiology in Lebanon

The first data on cancer incidence in Lebanon was undertaken in 1966 by Abou-Daoud¹ and was based on pathology reports from the eight institutions where histopathological diagnoses were made. The reported crude incidence rates were 102.8 per 100,000 in males and 104.1 per 100,000 in females.¹ Later on, several attempts were made to establish hospital-based registries in Lebanon and to examine the characteristics of major sites of cancer incidence; however, results were inconsistent.^{2,3}

In 1998, the Lebanese Cancer

♦Corresponding Author:

Ali I Shamseddine, MD, Head
Hematology & Oncology
Division, Department of
Internal Medicine, American
University of Beirut Medical
Center
P.O. Box: 11-0236, Beirut 1107
2020, Lebanon
Tel: +961-1-350000
Fax: +961-1-370814
E-mail: as04@aub.edu.lb



Epidemiology Group (LCEG), a network of all hospitals with oncology specialties and all pathology laboratories was established in an attempt to examine cancer incidence rates at the national level; data that was lacking for over three decades. This was the first dataset on cancer incidence to become available in post war Lebanon. The study results were based on a total of 4,388 cases diagnosed during the year 1998.⁴ The overall crude incidence rate for all cancers combined was 141.4 per 100,000 among males and 126.8 per 100,000 among females. This increase, in comparison to the data by Abou-Daoud,¹ reflected long term changes in lifestyle and in the prevalence of risk factors coupled with an increase in life expectancy approaching to 69 years among males and 72 years among females as reported in the study.⁴ The most frequently reported malignancies among males were: bladder (18.5%), prostate (14.2%), and lung (14.1%)

cancers; and among females: breast (33%), colon (5.8%) and corpus uteri (4.8%) cancers.⁴ Sex differentials in incidence rates were highest for tobacco-related cancers (lung, larynx and bladder).⁴

In 2002 there was an attempt to start a National Cancer Registry (NCR) that was hampered by financial constraints, political instability and bureaucratic difficulties. These obstacles have resulted in an incomplete report titled "Cancer in Lebanon 2002". The National Cancer Registry (NCR) in Lebanon was re-established as an institution of the Ministry of Public Health (MOPH) as decreed by the Minister in May 2005. A "Cancer 2003" report was published in June 2006 and a "Cancer 2004" report was made available in 2008.⁵

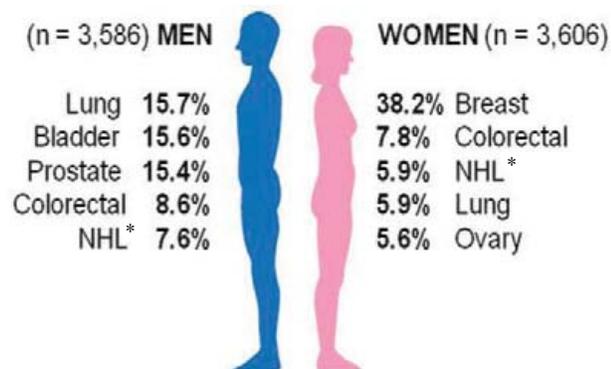
In 2004, the population of Lebanon was estimated at about 3.9 million, distributed in 25 cazas in six mohafazats (governorates) (Figure 1).

MOHAFAZAT and CAZA	n	%
BEIRUT	399,554	10.12
MOUNT-LEBANON		
Aley	487,791	12.36
Baabda	499,927	12.67
Chouf	164,756	4.17
Jbeil	155,850	3.95
Kesrouan	129,010	3.27
Metn	84,010	2.13
Subtotal	1,521,344	38.55
NORTH-LEBANON		
Akkar	256,277	6.49
Batroun	258,346	6.55
Becharre	55,568	1.41
Koura	128,538	3.26
Minieh/Dinnieh	56,851	1.44
Tripoli	40,949	1.04
Zghorta	19,866	0.50
Subtotal	816,396	20.69
SOUTH-LEBANON		
Jezzine	235,295	5.96
Saida	250,386	6.34
Tyre	22,685	0.57
Subtotal	508,367	12.88
NABATIEH		
Bent Jbeil	99,458	2.52
Hasbaya	57,100	1.45
Marjayoun	44,223	1.12
Nabatieh	20,991	0.53
Subtotal	221,772	5.62
BEKAA		
Baalbeck	195,789	4.96
Hermel	141,313	3.58
Rashaya	65,839	1.67
West Bekaa	28,791	0.73
Zahleh	47,177	1.20
Subtotal	478,909	12.14
TOTAL	3,946,342	100

Figure 1. Distribution of the population of Lebanon in 25 cazas in 6 mohafazats.

Around 50.5% of the population were females, 29% were children less than 15 years of age, and 7% were senior citizens aged 65 or above. Patterns of cancer cases diagnosed in 2003 (n=7,142) and 2004 (n=7,197) were described.⁵ Of the 7,197 cases diagnosed in 2004, 3,606 (50%) were women and 3,586 (50%) were men. The median age at diagnosis for women was 56 years versus 63 years for men.⁵ This younger age of diagnosis in women has been observed in Lebanon since the 1960s.¹ In 2004, breast cancer was the most commonly diagnosed cancer in Lebanon (19.7%) representing 1 in 5 for the entire case-load of all cancers, second most commonly diagnosed was lung (10.8%) followed by bladder (9.3%), colorectal (8.2%), and prostate (7.7%) cancers. Cancers with ill-defined sites constituted 1.2% of the total case-load in 2004. The five most frequently diagnosed cancer sites in men and women in 2004 are summarized in Figure 2.⁵

There has been a sharp rise of the adjusted age-standardized rates (ASRs) in both sexes between 1998 and 2004 with an approximate increase of 60% in the reported cases. For males an ASR of 179.3 per 100,000 was observed with the highest ASR in lung cancer (28.5 per 100,000) followed by bladder (28 per 100,000) and prostate (27.6 per 100,000) cancers.⁵ For women the ASR was 190.3 per 100,000 with the highest ASR noted for breast (69.15 per 100,000) followed by lung (10.75 per 100,000) and Non-Hodgkin's lymphoma (10.6 per 100,000).⁵



*NHL: Non-Hodgkin Lymphoma.

Figure 2. Most commonly occurred tumors in male and female cancer cases in 2004.

The data for cancer case load in Lebanon for the years 2005-2008 is under preparation.

Insight into risk factors and prevention

National trends in lung cancer incidence and mortality reflect maturity of the smoking epidemic in men but the trend in women is still gradually increasing. Smoking prevalence rates among men were in the range of 50% to 60%.⁴ In women, smoking prevalence increased from 28% in the 1960s to 35% in 1992.⁴ A more recent report, the 2005 Global Youth Tobacco Survey in Lebanon which surveyed 3,314 Lebanese school children aged 13-15 years, stated that the rate of use for any tobacco product was 60.1%; for cigarettes the rate was 10% and for other tobacco products it was 59%.⁶ Approximately 80% of students lived in homes where others smoked.⁶

The pattern of ASRs for the ten leading sites showed some singularities in comparison to other developed and developing countries. In sharp contrast to countries of the region and worldwide, bladder cancer incidence rates in Lebanon are notably high, in particular among males (28.7 per 100,000)⁵ This observation was attributed to smoking habits and probably to caffeine consumption that is socially tagged to cigarette smoking in Lebanon.⁷ The relatively high ASR for prostatic cancer, 21.5 per 100,000 in 1998 and 27.6 per 100,000 in 2004, may be attributed to the national public awareness campaigns promoting screening for prostate cancer since 1994.⁵

ASR for breast cancer in Lebanon was 46.7 per 100,000 in 1998 and rose to 69 per 100,000 in 2004.^{4, 5} Although this figure remained lower than that observed in developed countries, it was substantially higher than in other developing countries of the region or the non-Jewish population in Israel. This was attributed to the wide adoption of screening programs, and to better awareness of breast cancer and its early signs.^{8,9} Almost 50% of breast cancer patients in Lebanon are below the age of 50 years, with a median age of 52 years.⁵ More importantly, breast cancer below the age of 40 is estimated to represent 22% of the cases in Lebanon while it is

estimated to represent 6% of cases in western populations (data on file).¹⁰ This official notification calls for breast self-examination (BSE) every month starting at age 20, and a clinical breast examination (CBE) performed by a physician every three years between the ages of 20 and 40 years. Starting at age 40, an annual CBE and mammography are recommended in Lebanon.^{8,9}

Future perspectives

Current data in Lebanon calls for prioritizing prevention and control through national programs in the following perspective:

First: Improving annual breast screening programs through proper funding and improving quality and training programs for personnel to assure high quality mammograms.

Second: The predominance of smoking-related cancer highlights the importance of primary prevention programs by applying restrictive policies on cigarette and nargileh smoking.

Third: Applying prevention and screening policies for colorectal cancers.

Fourth: There is an urgent need to examine the reasons behind the notably high incidence of bladder cancer.

References

1. Abou-Daoud KT. Morbidity from cancer in Lebanon. *Cancer* 1966;19(9):1293-300.
2. Adib SM, Mufarrij AA, Shamseddine AI, Kahwaji SG, Issa P, El Saghir NS. Cancer in Lebanon: An epidemiological review of the American University of Beirut Medical Center Tumor Registry (1983-1994). *Ann Epidemiol* 1998;8(1):46-51.
3. Ghosn M, Tannous R, Gedeon E. The cancer registry at the Hotel Dieu de France Hospital. *J Med Liban* 1992;40(1):4-10.
4. Shamseddine A, Sibai A, Gehchan N, Rahal B, El Saghir N, Ghosn M, et al. Post war Lebanon: Findings from the first national population-based registry, 1998. *Ann Epidemiol* 2004;14(9):663-8.
5. National Cancer Registry (NCR). Cancer in Lebanon 2004 with an update of 2003. Available from: <http://cms1.omsar.gov.lb/en/HealthPrevention/EpidemiologicalSurveillanceUnit/Cancer/>
6. Saade G, Abou Jaoude S, Afifi R, Warren CW, Jones NR. Patterns of tobacco use: Results from the 2005 Global Youth Tobacco Survey in Lebanon. *East*

7. *Mediterr Health J* 2008;14(6):1280-9.
7. Abou-Daoud KT. Cancer of the bladder and cigarette smoking, coffee, and alcohol drinking in Lebanon. *J Med Liban* 1980;31(3):251-7.
8. Adib SM, El Saghir NS, Ammar W. Guidelines for breast screening in Lebanon: Public health communication. *J Med Liban* 2009;57(2):72-4.
9. Adib SM, Sabbah MA, Hlais S, Hanna P. Research in action: Mammography utilization following breast cancer awareness campaigns in Lebanon 2002-2005. *East Mediterr Health J* 2009;15(1):6-18.
10. Shamseddine AI. American University of Beirut Medical Center - Tumor Registry. Available from: <http://www.aub.edu.lb/~webhcc>