Age at diagnosis of breast cancer in Arab nations

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A B S T R A C T

The impression among Arab Physicians dealing with breast cancer is that it presents at an earlier age and at a more advanced stage as compared to western countries. However, the statistical data to support this impression is remarkably scarce.

Method: We performed a comprehensive literature review of reports of breast cancer in Arab countries. Articles were identified from Saudi Arabia, Bahrain, Qatar, Kuwait, Emirate, Oman, Yemen, Iraq, Syria, Jordan, Lebanon, Egypt, Libya, Algeria, Tunis, Morocco, and Sudan.

Results: Twenty eight articles were identified and reviewed. The average age at diagnosis of breast cancer was available in 18 articles; the average age was 48 (SD = 2.8), range 43–52, median 48.5 and mode 45 years among the 7455 patients included. The median age of diagnosis of breast cancer was available in 8 articles; here, the average age was 45.4 (SD = 4.8), range 40–54.5, median 44.5 years among the 5379 patients included. The percentage of patients that were younger than 50 years old was reported in 11 articles from 8 countries and included 5144 patients; 65.5% (SD = 11) were less than 50 years old (range 49–78%, median = 66%).

Discussion: In this literature review, the average age at presentation of breast cancer in Arab countries appears to be a decade earlier than in western countries. If this is true, this has important implications for screening and cancer management strategies in these countries, including the ideal age at which to begin screening. Adoption of Western guidelines "without critical amendment" in planning breast cancer programs will waste resources without achieving desired outcomes. Determination of the true frequency and age of onset of breast cancer in Arab women should be an important research priority.

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1. Introduction

The Arab world has a population of approximately 301,227,000 (2004), living in 22 countries spread across Northern Africa and Western Asia, including the Middle East.[1] Originating in the Arab peninsula, population migration has continued throughout history. Arabs share common demographic features that include high rates of consanguinity, large family size and rapid population growth. There is a high frequency of autosomal recessive disorders and an increased frequency of homozygocity for autosomal dominant traits which have made certain disorders more prevalent in Arabs, for example, renal osteoporosis and renal tubular acidosis, Meckel's syndrome, and autosomal recessive severe childhood muscular dystrophy.[2] Breast cancer is the most common cancer among women in Arab countries.[1] Even so, the exact volume and burden of the disease is not known.

The impression among Arab physicians dealing with breast cancer is that it presents at an earlier age and at a more advanced stage than in western countries. However, the statistical data to support this impression is remarkably scarce. Most cancer registries in Arab countries are not publically available, data may not be gathered consistently, and data is not available or used to answer research questions.

Breast cancer that presents at a younger age generally has more aggressive cellular features resulting in more aggressive clinical behaviour, more advanced stage at presentation, and poorer prognosis.[3] Treatment strategies are therefore also more aggressive, and often include chemotherapy and radiation in addition to surgery. Age at diagnosis therefore has important implications when planning breast cancer treatment units in terms of personnel, drugs, equipment and financial resources.

In addition, before the availability of breast imaging, the control of breast cancer relied entirely on the successful treatment of palpable disease. Today breast cancer control is significantly improved by the ability to diagnose the disease at a more favourable stage, such as when cells have not crossed the basement membrane (in situ), or when the invasive disease is too small to be

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palpable. Population-based breast screening programs using mammography have reduced breast cancer mortality in western countries;[4] the implementation of screening programs in Arab nations is inevitable. Age at diagnosis will critically impact the choice of screening strategy. If breast screening programs are to be implemented in Arab countries, at what age should mammographic screening be started, and is mammography the best imaging modality?

By reviewing the available literature produced by researchers in Arab countries, we aim to use evidence-based information to test the hypothesis that the presentation of breast cancer occurs at a younger age group in Arab women.

2. Materials and methods

All available abstracts and articles about breast cancer that discussed age at diagnosis of breast cancer in Arabs, either as its primary subject or considered within the context of that article, have been reviewed. An information specialist through Medline and Embase performed a systematic search. In addition, a personal search was done for each Arab country. Search terms used included "Age at diagnosis of breast neoplasm, Breast tumour, breast cancer, intraductal, nonifiltrating, lobular"; these were combined with "Arabs, middle east and each country included". Specific countries included are Saudi Arabia, Bahrain, Qatar, Kuwait, Emirate, Oman, Yemen, Iraq, Syria, Jordan, Lebanon, Egypt, Libya, Algeria, Tunis, Morocco, and Sudan. The data searched for were average, median and percentage of the population under study that is younger than 50 years old at the time of diagnosing breast cancer. Patients in the articles that were discussed under specific groups like male breast cancer, breast cancer in pregnancy, familial breast cancer, pre or postmenopausal breast cancer, breast cancer related to BRCA genes were not included in this search. Data were collected on Access form – Microsoft 2007 and analysed. Some Countries were also excluded because published articles mentioning age at diagnosis of breast cancer could not be traced (Syria, Morocco and Iraq).

3. Results

On Medline search (1950–2008, 1st week of November), 77 abstracts were produced using the search strategy. Only 4 met the criteria for inclusion. On Embase search (1980–2008 week 47) 35 abstracts were produced with 7 meeting the inclusion criteria. Two were excluded, however, because data regarding age was not mentioned in 1, while the other article could not be traced. The other 19 articles were produced after specific search per country in Medline and Yahoo. An additional 2 articles were excluded because the study used the age of 45 years as the cut-off rather than 50 years of age. After all exclusions, there were 28 article included. Table 1 summarizes the results.

3.1. Average age at diagnosis of breast cancer

The average age at diagnosis of breast cancer was available in 18 articles from 11 countries (Egypt (1), Emirate (2), Jordan (3), Kuwait (1), Lebanon (1), Oman (1), Qatar (1), Saudi Arabia (1), Sudan (1), Tunis (5) and Yemen (1)) (Table 1). From these articles, the average age was 48 (SD = 2.8), weighted average was 49.8, range 43–52, median 48.5 and mode 45 years. The total number of patients included in these studies was 7455 (Table 2).

3.2. Median age at diagnosis of breast cancer

The median age of diagnosis of breast cancer was available in 8 articles produced in 4 countries (Bahrain (1), Egypt (1), Saudi Arabia (5) and Tunis (1)). From these articles, the average age was 45.4 (SD 4.8), weighted average 49.4, range 40–54.5, median 44.5 years. The total number of patients included was 5379 (Table 2).

For all averages and medians (pooled average and median), the weighted average was 49.6 for total number of patients of 12,839 (Table 3).

Table 1
Age at diagnosis of breast cancer in Arab countries.

Country	Author	Year published	Study design	Period patients	Average	Median	<50 (%)
Algeria	Nancy[5]	2008	Case series	NA			66
Bahrain	Al Saad[6]	2006	Case series	1999–2005	35	50	67
Egypt	Bedwani[7]	2001	Case series	1990–2000	2860	54.5	
	Hussein[8]	2004	Cross sectional	NA	53	43	
Emirate	Denic[9]	2005	Case control	NA	72	49	
	Thanaa[10]	1997	Case series	NA	228	48	
Jordan	Abu Salem[11]	2002	Case series	1998–2001	44	46	
	Amr[12]	1985	Case series	NA	45		
	Dajani[13]	1987	Case series	1980–1985	228	45	
Kuwait	Paszko[14]	1993	Case series	NA	315	52	78
Lebanon	El saghir[15]	2002	Case series	1983–2000	2673	50	49
Libya	Akhtar[16]	1993	Case series	1981–1985	335		72.3
Oman	Al-Moundhri[17]	2004	Case series	1996–2002	152	48	
Qatar	Rasul[18]	2003	Case series	1991–2001	70	48	
Saudi Arabia	Al Idrissi[19]	1992	Case series	1981–1990	130	40	66
	Elkum[20]	2007	Case control	1986–2002	867	45	
	Ezzat[21]	1999	Case series	1981–1991	315	46	64
	Ibrahim[22,23]	1998	Case series	1985–1995	292	42	78
		2005	Case series	1992–2001	780	42	78
	Mansoor[24]	2001	Case series	NA	300	49	
Sudan	KD AwadelKarim[25]	2007	2 Case Series	2004–2005	114	52	51
Tunis	Ayadi L[26]	2008	Case series	2000–2004	155	52	51.6
	Ben Ahmed[27]	2002	Case series	1990–1998	729	50	
	Labidi[28]	2000	Case series	1994–2000	100	44	
	Maalej M[29,30]	1999	Case series	1994	689	50	
		2008	Case series	2004	1437	51	
	Sahraoui[31]	2006	Case series	1993–2002	41	45	
Yemen	Althobhani[32]	2006	Case series	NA	155	45	