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# Trends in epidemiology and management of breast cancer in developing Arab countries: A literature and registry analysis<sup>☆</sup>

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## KEYWORDS

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Awareness campaigns;  
Screening;  
Mastectomy;  
Radiation therapy  
facilities

**Abstract** *Background:* Registries and research on breast cancer in Arabic and developing countries are limited.

*Methods:* We searched PubMed, Medline, WHO and IAEA publications, national, regional, hospital tumor registries and abstracts. We reviewed and analyzed available data on epidemiological trends and management of breast cancer in Arab countries, and compared it to current international standards of early detection, surgery and radiation therapy.

*Results:* Breast cancer constitutes 13–35% of all female cancers. Almost half of patients are below 50 and median age is 49–52 years as compared to 63 in industrialized nations. A recent rise of Age-Standardized Incidence Rates (ASR) is noted. Advanced disease remains very common in Egypt, Tunisia, Saudi Arabia, Syria, Palestinians and others. Mastectomy is still performed in more than 80% of women with breast cancer. There are only 84 radiation therapy centers, 256 radiation oncologists and 473 radiation technologists in all Arab countries, as compared with 1875, 3068 and 5155, respectively, in the USA, which has an equivalent population of about 300 million. Population-based screening is rarely practiced. Results from recent campaigns and studies show a positive impact of clinical breast examination leading to more early diagnosis and breast-conserving surgery.

*Conclusions:* Breast cancer is the most common cancer among women in Arab countries with a young age of around 50 years at presentation. Locally advanced disease is very

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common and total mastectomy is the most commonly performed surgery. Awareness campaigns and value of clinical breast examination were validated in the Cairo Breast Cancer Screening Trial. More radiation centers and early detection would optimize care and reduce the currently high rate of total mastectomies. Population-based screening in those countries with affluent resources and accessible care should be implemented.

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## Introduction

Breast cancer is the most common cancer seen in women, constituting 22% of all cases worldwide. In 2000, the estimated number of new cases of breast cancer was 579,000 in developed countries and 471,000 in less developed countries.<sup>1</sup> Many differences with respect to age, stages at presentation, and biological characteristics exist between various countries. In the United States, approximately 50% of all women with newly diagnosed breast cancer are older than 63 years while in many so-called developing countries almost half of women with newly diagnosed breast cancer are younger than 50 years of age.<sup>2</sup> In-situ disease has become more common in the developed world<sup>3</sup> yet locally advanced and metastatic diseases at presentation remain very common in the developing countries.<sup>4</sup>

The Arab world has a total population of approximately 301,227,000 in the year 2004, living in 22 countries spread across Northern Africa and Western Asia, including the Middle East.<sup>5</sup> Data from Arab countries on breast cancer vary according to region and country. Many Arab countries have witnessed great urban development and scattered industrialization. Political instability, military conflicts, and poor planning have kept the majority of the Arab peoples away from enjoying the medical advances of the second half of the twentieth century. Investment in research has lagged behind and remained a matter of individual and institutional motivation. Arab countries spend 0.15% of their gross domestic product on research and development as compared to the world average of 1.4%.<sup>6</sup> Some countries have allocated large amounts of money for medicine and research.<sup>7</sup> Like many developing countries, they have had other health priorities such as control of infectious diseases and childhood illnesses. However, the World Health Organization (WHO) has recently acknowledged that non-communicable diseases have become a priority for health care in many developing countries.<sup>8,9</sup> Cancer remains a taboo in most Arab countries. The recent explosion of knowledge and information through the media and internet have helped change some attitudes, but most people still refer to it as "that other disease" and remain afraid of mentioning it by name.

We undertook this study to determine the particular aspects and status of research on breast cancer in Arab countries. We aimed at outlining proficiencies and deficiencies in order to help improve breast cancer care in Arab developing countries where almost 150 million women live.

## Methods

We searched PubMed, Medline and reviewed published literature, International Agency for Research on Cancer

(IARC) publications, data from national and regional cancer registries where available, international and regional cancer meetings, institutional websites, and International Atomic Energy Agency records for radiation therapy. We looked at percentages of breast cancer cases, incidence rates, age-standardized incidence rates (ASR), stages at presentation, and methods of diagnosis, availability of fine-needle aspiration (FNA) and core biopsy, frozen section, breast conservation versus mastectomy, multimodality management, availability of screening, mammography, technical and professional expertise, availability of chemotherapy, radiotherapy, hormonal therapy, participation in international trials, performance of own trials, infrastructure for supportive care for breast cancer patients and patient support groups.

## Results

Scarcity of data was remarkable. Only three Arab countries were listed in IARC Cancer in five continents,<sup>10</sup> namely Algeria, Kuwait and Oman. Most countries either have a national registry or regional registry. Some countries have no data; Most data are published in peer-reviewed journals or in local journals, meeting abstracts, or posted on websites. We summarize all the available information on breast cancer in Arab countries in Tables 1 and 2.

### Breast data from selected countries

#### Egypt

National Cancer Institute in Cairo registry reported breast cancer to represent 35.1% of female cancers. An ASR of 49.6 in the region of Gharbiah, Egypt in 2002 was reported. Extensive disease at presentation was reported.<sup>11–15</sup> A recent article about breast cancer in Cairo indicates a higher than expected detection rate of 8 per 1000 breast cancer cases upon first screening of a target group of 4116 invited women aged 35–64 living in a geographically defined area in Cairo, which suggests that many women in the community with early but palpable breast cancer fail to seek medical attention until their cancer is advanced.<sup>16</sup> National Cancer Institute of Cairo data showed breast cancer stages III and IV to be around 80–90% while it became 60% during this study. This study showed benefit from clinical breast examination (CBE) and reduction of the incidence of locally advanced disease, and improvement of breast-conserving surgery rates.<sup>14</sup>

#### Jordan

In 1997, breast cancer constituted 14.2% of all cancer cases in women. Crude ASR was calculated at 21.3/100,000 in 1997.<sup>17,18</sup>

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