
**Cairo University**
**Faculty of Medicine**
**Department of Pathology**

# Pathological and statistical study of breast cancer

Thesis
Presented by

***Marwa Mohamed Sayed Ahmed***

M.B.B.Ch. Cairo University
Resident of Pathology, Faculty Of Medicine, Beni-Suef. University

Under supervision of :

***Prof. Dr. Magdy Mourad Mansy***

Professor Of Pathology

Faculty Of Medicine, Cairo University

***Prof. Dr. Sahar Mohamed Talaat***

Professor Of Pathology

Faculty of Medicine, Cairo University

***Dr. Wesam Maghawary Ismail***

Lecturer Of Pathology, Faculty Of Medicine ,

Beni-Suef University

Faculty Of Medicine
Cairo University
2010

# ABSTRACT

This study aims at registering the incidence of breast cancer cases were received by the pathology department in El Kaser El Aini Hospital, during the period from January 1, 2004 till December 31, 2008. During this period 472 female breast cancer cases were collected. The female breast cancer incidence found to be 22 % . Age ranged from 22 to 87 years. 390 cases (82.5 %) were invasive duct carcinoma, 42 cases (9%) were invasive lobular carcinoma, 9 cases (2%) were mixed type, 26 (5.5%) cases were duct carcinoma insitu, 4 (1%) cases were Paget's disease and 1 (0.2%) case was lobular carcinoma insitu. Statistically significant results were obtained.



**Key words:**

Breast Cancer

# ACKNOWLEDGMENTS

First and foremost thanks to God , the most beneficent and merciful.

I would like to express my deepest gratitude and appreciation to professor **Dr. Magdy Mourad Mansi,** Professor of pathology , faculty of medicine, Cairo university for his guidance to me as a post-graduate student that maintained my focus and for providing the freedom to develop and express my own scientific ideas which was of great importance to me to raise my individual abilities.

I am very much indebted to professor **Dr. Sahar Talaat,** Professor of pathology , faculty of medicine, Cairo university for her kind supervision, great help& guidance. Her expertise and helpful insights on this project helped to complete my work during all this period.

Special gratitude is due to **Dr. Wesam Ismail**, Lecturer of pathology, faculty of medicine, Beni-Suef University for her encouragement and teaching assistance. I take this opportunity to extend my most sincere gratefulness for her patience.

Thanks are due to all the people in our department of pathology, faculty of medicine, Cairo University for their support.

Finally, I would like to express my immeasurable appreciation to two unconditionally devoted people for their love, trust, inspiration and understanding, my parents. This thesis is dedicated to them.

**The Candidate**

# CONTENTS

**Page**

# LIST OF FIGURES

# LIST OF GRAPHS

# LIST OF TABLES

# Introduction

Breast cancer is considered to be the second most common type of cancer after lung cancer (10.4% of all cancer incidence) and the fifth most common cause of cancer death. Worldwide, breast cancer is the most frequently diagnosed life-threatening cancer in women (25% of all female malignancies) ***(Parkin et al., 2005).***

Because the breast is composed of identical tissues in both males and females, breast cancer also occurs in males, but with much lower incidences (approximately 100 times less common than in women), however with the same statistical survival rates as women ***(Cavalieri et al., 2006).***

According to the WHO, over one million breast cancer cases are diagnosed yearly. The incidence rates have been climbing steadily in industrialized countries since the 1940s with an estimated rate of 0.5% annual increase since 1990 ***(Alex &Nixon, 2009).***

Incidence rates of breast cancer vary widely throughout the world, the highest being observed in North America. High rates are also observed in Western Europe, Australia and New Zealand. In contrast, low rates are found in most African and Asian populations ***(Ravichandran &Al-Zahrani, 2009).***

The incidence of breast cancer has gradually been rising, since the introduction of screening mammography in the 1980s, thus allowing early detection of breast cancers too small to be felt, before they become symptomatic. Moreover, in some regions of Asia, a rising in incidence

has also occurred and has been attributed, at least in part, to a "Westernization" of lifestyle. While the mortality associated with breast cancer has declined slightly. This may be due to changes in the biology of tumors (e.g., a greater proportion of estrogen-receptor–positive tumors), earlier presentation as a result of screening and education of the public, and improvements in treatment ***(Ries et al., 2002).***

The risk of developing breast cancer continues to rise as women get older. 80% of cases occur in post-menopausal women. It is extremely rare in children and adolescents, accounting for about less than 0.1% of breast cancers and less than 1% of pediatric cancers ***(Gutierrez et al., 2008).***

Typically, the first symptom of breast cancer is a painless lump (more than 80% of cases) usually noticed by patient or a physician or by mammography. Other symptoms can be seen as skin dimpling, nipple retraction, or spontaneous nipple discharge ***(Manual, 2008).***

Occasionally, breast cancer presents as metastatic disease, symptoms are dependant on the location of metastasis. Common sites of metastasis include bone, liver, lung and brain ***(Lacroix, 2006).***

Prognosis of breast cancer is generally relatively good due to screening programs, as the purpose of screening is to detect cancers at an earlier stage, when treatment is more effective. It has been found that poor prognosis is associated with late-stage, high grade, triple negative tumors as well as young age**.** The survival rate is commonly categorized according to stages at diagnosis. The current survival rates for all breast cancer stages are: Five-year survival rate 86% ***(Hickey et al., 2009)***.

# AIM OF THE WORK

● Production of an accurate survey of breast cancer cases received by Kasr El Aini Hospital.

● Evaluation of all cases using the latest American Joint committee on Cancer's(AJCC)TNM staging system based on data obtained from pathological sheets.

● Statistical evaluation and correlation between clinical patient data available in the request sheets and pathological finding for prognosis.

● Comparing incidence of breast cancer among Egyptian female patients with registries of other centers, in trial to detect any special epidemiologic features among Egyptian patients

# EPIDEMIMOLOGY OF BREAST CANCER

## A- INCIDENCE AND GEOGRAPHIC DISTRIBUTION

Breast cancer is the most common cancer in women in developed Western countries and is becoming ever more significant in many developing countries. Although incidence rates are increasing, mortality rates are stable, representing an improved survival rate. This improvement can be attributed to effective means of early detection, mainly mammography, as well as to significant improvement in treatment options ***(Althuis et al., 2005)***.

Breast cancer incidence varies widely within regions and countries, likely due to differences in racial and ethnic make-up, health resources, and lifestyle patterns. The incidence rate of breast cancer reported to be in the United States 103 per 100,000, in Israel 101.6 per 100,000, in Western Europe 85 per 100,000, in African countries 23 per 100,000 and in East Asian have the lowest rates about 20 per 100,000. In Egypt, breast cancer rates are intermediate when compared to rates across the world. Overall, there is an age adjusted incidence rate of 49.6 per 100,000 women ***(Dey et al., 2010)***.

The most widely cited reason for the global increase in breast cancer is the "Westernization" of the developing world. The term encompasses generally desirable changes (socioeconomic improvements that increase life expectancy and allow women reproductive control) as well as the adoption of less desirable habits (dietary changes, decreased exercise), all of which could increase breast-cancer risk. In affluent Western countries, women have relatively high social status, tend to delay childbearing, have relatively few children and, until recently, commonly used hormone-replacement therapy (HRT). Some such

behavioral factors delayed childbearing, lower parity, and reduced breast-feeding are becoming more prevalent in lower-income countries. The challenge is to understand how these reproductive risk factors, which are primarily associated with an increased risk of postmenopausal breast cancer, relate to incidence and mortality in lower-income countries, where rates of postmenopausal breast cancer are much lower than in Western countries ***(Porter, 2008)***.

## EGYPT

In Egypt, breast cancer is the most common cancer among women, representing 18.9% of total cancer cases (35.1% in women and 2.2% in men) among the Egypt National Cancer Institute (NCI) series of 10 556 patients during the year 2001, with an age-adjusted rate of 49.6 per 100 000 population. Median age at diagnosis is one decade younger than in countries of Europe and North America and most patients are premenopausal. Tumors are relatively advanced at presentation. This is referred to the lack of breast cancer information as well education and related support services in Egypt **(Omar et al., 2003)**.

According to the World Health Organization,(WHO) the number of breast cancer cases in developing countries will increase dramatically by the year 2050. Egypt is likely to see an increase in this disease burden unless effective programs for early detection and control are implemented. Many women, especially those who are medically underserved, still do not understand the importance of regular mammograms, or how and where to get one. From October 2007 through October 2008, 11,414 women were screened for breast cancer, Two hundred forty four (2.13%) women were radiologically positive for cancer; of these, only 112 (45.9%) women agreed to be recalled for

assessment; of these, 49.1% were confirmed to be true positive. Although Cairo is the most developed city in Egypt, there is lack of breast cancer awareness, especially in the underserved areas. Breast cancer is now a priority for the Ministry of Health, with four more vans and 10 fixed Full Field Digital Mammography (FFDM) units to be implemented during the 2009 year. A 5-year plan has been established to cover all 29 Egyptian Governorates ***(Salem et al., 2009)***.

## AFRICA

Although breast cancer is the most common neoplasm among women in developing countries, if Africa is taken as a whole it ranks second most frequent to cervical cancer. However, it is the most common malignancy in North Africa and in urban settings within the sub-Saharan region such as Abidjan (Côte d'Ivoire) ***(Bray et al., 2004)***.

## MIDDLE EAST

Breast cancer is the leading cause of all deaths from cancer among Israeli women. In Israel 28% of breast cancer cases diagnosed before the age 50 years, this reflects the high prevalence of hereditary breast cancers in Jewish women. This high incidence may be attributed to the high incidence of BRCA1–2 germ line mutations in Jewish patients ***(Rennert et al., 2007)***.

Approximately 60% of Jews are Ashkenazi (Eastern European). 12% of breast cancer cases are Ashkenazi Jewish women and 2% of all Ashkenazi women showed gene mutations in BRCA1-2 genes. In Ashkenazi Jewish breast cancer patients with family history of breast and ovary cancer, 45% carried a mutation in one of these genes. The mutations