

## **Demographic Profile of Patients Diagnosed with Breast Cancer at a Referral Center for Early Detection of Cancer in Iraq**

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### **ABSTRACT**

Breast cancer is the commonest type of malignancy among women worldwide. In our country, the breast is the leading cancer site among the Iraqi population in general. The study comprised 130 patients who were diagnosed as having mammary carcinoma at the Main Referral Center for Early Detection of Breast Tumours / Medical City Teaching Hospital in Baghdad. The highest frequency was displayed in the fifth decade of life; 13.8% of patients had a positive family history of the breast cancer, 42% had history of contraceptive pills consumption and a positive history of lactation was recorded in 80%. There was a significant association between the educational status and contacting the disease; about 70% of patients did not achieve education higher than the primary school level. Seventy percent of patients had their menarche before the age of 12 years, 83% had more than one child while 28.5% had abortion more than once. More than half of the study sample (53%) were diagnosed at stages II B and over at the time of presentation. BRCA 1 protein expression had strong association with family history of breast cancer and was demonstrated in 61.6% of the studied sample.

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The findings of this study justify increasing efforts for initiating public awareness campaigns and establishing comprehensive cancer control programs in Iraq focusing on screening and early detection of breast cancer

**Key Words:** Breast Cancer, Demographic Profile, Iraqi Patients.

## **INTRODUCTION:**

**Breast carcinoma is the most frequent cancer** among women in developing and developed regions of the world (1). In Iraq, it remains the commonest type of malignancy among the Iraqi population; accounting for approximately one third of the registered female cancers (2). Retrospective demographic native studies have shown that most patients with breast cancer still present with advanced stages with a likely prevalence of more aggressive tumour behavioural forms (3,4). There is an obvious increase in the incidence of breast cancer among younger age groups in Iraq; the peak frequency is usually reported in the age group 40-49 years (2-4).

As proposed by the World Health Organization, early detection and screening, especially when combined with adequate therapy, offer the most immediate hope for a reduction in breast cancer mortality (5). That was the basis for establishing of the “Iraqi National Program for Research and Early Detection of Breast Cancer” in an attempt to downstage this disease at the time of presentation. This report reviews the main demographic characteristics in 130 female Iraqi patients who were diagnosed as having breast cancer in the year 2010 at the Main Referral Training Centre for Early Detection of Breast Tumours in Baghdad.

## **PATIENTS & METHODS:**

The study included a total of 130 women who visited the Main Referral Training Center for Early Detection of Breast Tumours, Medical City Teaching Hospital in Baghdad, complaining of apparent breast lumps and in whom pathological examination revealed malignant changes. Those cases were randomly selected from the total population referred to the Center during 2010. The age of the women ranged between (28-79 years).

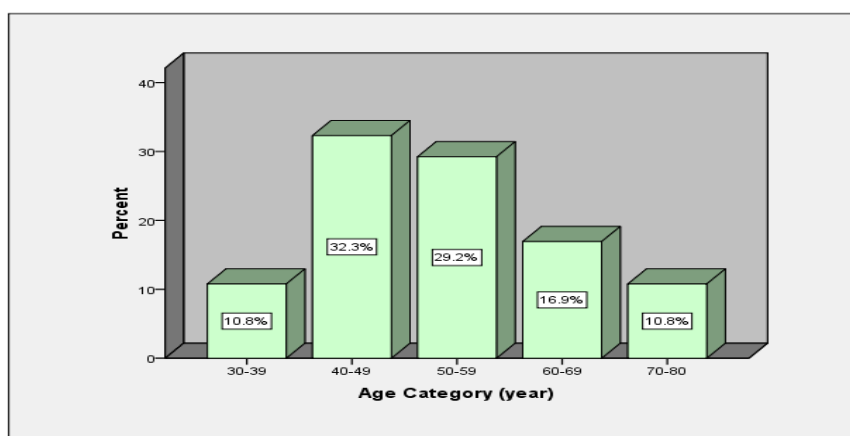
All patients were subjected to the triple assessment technique (physical breast examination) (PBE), mammography and / or ultrasonography and (FNAC). The main parameters included in the comparative study included family history of breast cancer, history of previous abortion, , age at the onset of menarche, educational status, obstetrical history including number of live births, abortions and history of breast feeding. Histopathological tissue examination of breast specimens belonging to patients cytologically diagnosed as having breast carcinoma was carried out using formalin fixed paraffin-embedded blocks, on which immunocytochemical analysis for BRCA 1 gene expression was performed. Staging of mammary carcinoma was classified according to the TNM staging system.

Statistical Analysis was completed using Statistical Package for Social Sciences version 17 (SPSSv17) Chi square test for goodness of fit was used to test for the significance of observed distribution and chi square test for independence was used to test the significance of association between discrete variables. Findings with P value less than 0.05 were considered significant.

**RESULTS:****Demographic and Clinical Characteristics of Breast Cancer Patients**

| Variable                        | Classifications       | N (%)      | X <sup>2</sup> | P      |
|---------------------------------|-----------------------|------------|----------------|--------|
| Number of Parity                | 0                     | 19 (14.6)  | 147.708        | 0.000  |
|                                 | 1                     | 3 (2.3)    |                |        |
|                                 | >1                    | 108 (83.1) |                |        |
| Educational Level               | Illiterate            | 30 (23.1)  | 33.138         | 0.000  |
|                                 | Primary               | 60 (46.2)  |                |        |
|                                 | Secondary             | 21 (16.2)  |                |        |
|                                 | Higher than Secondary | 19 (14.6)  |                |        |
| Age at Menarche (year)          | 10-12                 | 91 (70.0)  | 20.800         | 0.0003 |
|                                 | 13 & over             | 39 (30.0)  |                |        |
| Family History of Breast Cancer | Positive              | 18 (13.8)  | 67.969         | 0.0005 |
|                                 | Negative              | 112 (86.2) |                |        |
| Previous Abortion               | None                  | 70 (53.8)  | 26.877         | 0.000  |
|                                 | Once                  | 23 (17.7)  |                |        |
|                                 | > than once           | 37 (28.5)  |                |        |
| History of Contraception        | Positive              | 55 (42.3)  | 3.077          | 0.079  |
|                                 | Negative              | 75 (57.7)  |                |        |
| History of Breast Feeding       | Positive              | 104 (80.0) | 46.800         | 0.000  |
|                                 | Negative              | 26 (20.0)  |                |        |
| Total                           |                       | 130        |                |        |

this table shows that 13.8% of patients had a family history of the breast cancer. Approximately 70% of patients did not achieve education higher than the primary school level (the relationship being statistically significant). Gynecological history displayed that 70% of the patients had their menarche before the age of 12 years, 83% gave birth to more than one child, while 28.5% had abortion more than once. Interestingly, a positive history of lactation was recorded in 80%. However, there was insignificant relationship with contraceptive pills consumption among breast cancer patients (p-value > 0.05)



Age distribution of the Study Population.

The peak age frequency at the time of diagnosis of breast cancer in the total group studied was in the age category of 40-49 years ( 32.3% ) i.e. in the fifth decade of life. That was followed by the sixth decade (29.2%)

### **DISCUSSION:**

In Iraq, breast cancer is the commonest type of malignancy among the Iraqi population in general. It accounts for

approximately one third of the registered female cancers according to the latest Iraqi Cancer Registry (2) which shows a trend for the disease to affect younger age groups. Within the last two decades, there has been an obvious increase in the incidence rates of breast cancer, which became one of the major threats to Iraqi female health. Regrettably, many cases in Iraq tend to be diagnosed at advanced stages (3,4) with a likely prevalence of poorly differentiated pathological grades; and thus yielding low mortality incidence ratios (1-5).

In an attempt to control breast cancer in Iraq, following the Regional Cancer Control Programs proposed by WHO (5), and emphasizing the role of research as one of the basic pillars in the adoption of the regional cancer control strategy, a “National Breast Cancer Research and Early Detection Program” was established, under the authority of the Secretariat for the Council of Ministers. That program is chaired by the Ministry of Higher Education and Scientific Research which coordinates research initiatives in collaboration with the concerned Ministries; including the Ministry of Health.

In this study the peak age frequency of breast cancer occurred in the age group (40\_49 years). That continuing trend for this disease to affect younger generations has been illustrated in the Iraqi Cancer Registry (2) and other documented reports from our country (3,4) and others in the neighboring Arab world (6,7). WHO records revealed that approximately half of the cancers in the Eastern Mediterranean Region (EMR) occur before the age of 55 and that the age standardized incidence rates of all cancers in this region is expected to double as risk factor exposure increases. On the other hand the peak age

frequency of breast cancer in western countries is usually observed in the sixth decade and over (8).

In the current study positive family history was demonstrated in 13.8% of patients diagnosed as having breast cancer (the relationship being statistically significant). Close findings were recorded in an earlier study from Iraq (3). A positive family history of breast cancer reaching to 21% was observed in patients from Bahrain (9). That could be attributed to the consanguineous marriages commonly promoted throughout the EMR.

Measures of socioeconomic status such as education and income have long been recognized as risk factors for breast cancer . It is proposed that education could be regarded as surrogate of other unmeasured or poorly measured socially determined characteristics or exposures in cancer etiology (10) Our study clearly showed that there was a significant association between the educational status and contacting the disease; about 70% of patients did not achieve education higher than the primary school level. The same observation was reported in another local survey (11). Low level of education among breast cancer patients was illustrated as well in a study from Pakistan (12). That finding together with the late stage at presentation of the disease in developing countries of the world obviously reflect the poor health education of the general population and their ignorance regarding the significance of clinical breast examination and breast self examination and the importance of early medical consultation. History of recurrent abortion was observed among 28.5%% of our breast cancer patients in the present study. Retrospective studies suggested that induced abortion could lead to an increased risk of breast cancer attributing that to possible

association of hormonal imbalance (13). On other hand, other investigators showed that neither induced nor spontaneous abortion was associated with an increased incidence of breast cancer and that multiple abortions do not increase breast cancer risk (14). In fact one of the documented risk factors for breast cancer is early menarche. Evidence suggests that lifelong exposure to estrogens plays an important role in determining breast cancer risk through their influence on cell proliferation and DNA damage (15). In the current study 70% of patients recalled that they had started menstruation at the age period from (10-12) years. That significant finding was consistent with the results reported in an earlier study from Iraq (11).

Nulliparity has been identified as a risk factor for breast cancer and increasing parity has been inversely associated with the risk of breast cancer (16).. The protective effect of high parity corresponds to a decreasing number of undifferentiated mammary cells with each parity and could be observed later in life (17). However, in the present study, that effect was not clearly elicited; since 83 % of patients gave birth to two and more children. Our results were in accordance with another study from Bahrain (9).

Interestingly, a positive history of lactation was demonstrated in 80% of breast cancer patients in our study. Several studies found weak evidence of a protective effect of lactation on subsequent risk of breast cancer and concluded that the effect on breast cancer was limited to patients with premenopausal breast cancer (18). Previous studies from Iraq (11,19) showed that 69.8% and 63.4% respectively of breast cancer patients experienced lactation during their life. Many other risk factors for breast cancer are related to natural



hormones. Contraceptive pills could work by manipulating these hormones through inhibiting the pituitary gland and thus follicular stimulating hormone and luteinizing hormone. In the present thesis, history of consuming oral contraceptive pills

was displayed in 42.3% of patients; however, the relationship was not found to be statistically significant. Comparable frequency was observed in an earlier study from the Main

Training Centre for Early Detection of Breast Tumors (20). The issue of familial breast cancer has raised much attention in recent years due to its numerous medical and social implications following the identification of the tumor suppressor genes BRCA1 and BRCA2 and the increase in breast cancer risk associated with mutation of these genes. The mutations of BRCA1 have long been documented as an important tool in selecting patients for genetic screening (21). The high expressions of that marker displayed in the current study (61.6%) and in another recent report from Iraq (22) were close to those recorded by other investigators from Kuwait (23) and the developed world (24). While that could probably reflect the disparity in the selection criteria including the number of the studied populations and the variations in the detection methods used, nevertheless, the increased relative risk of developing the disease among the studied sample should be highly considered.

In the current study the relationship between positive BRCA1 expression and family history of breast cancer and/or other malignancies was statistically significant. That was demonstrated in 77.7% and 87.5% respectively. Similar findings were reported in another study from Portugal (25). However, a significant relationship between BRCA1 expression and age of patients diagnosed with breast

carcinoma was neither elicited in the current work, nor in earlier studies from our country (22) and Japan (21). In accordance with other investigators (27), no relationship as well was observed with the stage of disease at presentation.

Nevertheless, as displayed by others (26, 27) a significant

correlation was clearly noted between BRCA1 expression and histological grade of ductal carcinoma. It has been suggested that BRCA1 might be a valuable marker for identifying women with sporadic breast carcinoma at high risk of developing recurrence and who might be candidates for trials investigating new therapies in combination with standard adjuvant therapy (24):

In conclusion, the expanding burden of cancer in the EMR in general, and Iraq in particular, justifies the demand for establishing comprehensive national cancer control programs. Early detection of breast cancer, as a major approach to controlling the disease, could be achieved by raising the awareness of the general population about its symptoms and signs, educating health personnel, promoting relevant research, and ensuring the provision of readily accessible diagnostic services.

## **REFERENCES**

1. Globocan 2008, International Agency for Research on .1  
Cancer, WHO, Lyon, IARC Press, 2010.
2. Iraqi Cancer Registry 2008. Iraqi Cancer Board. Ministry of .2  
Health, Republic of Iraq, 2010.
3. Alwan N. Breast Cancer: Demographic Characteristics and .3  
Clinico-pathological Presentation of Patients in Iraq".  
*Eastern Mediterranean Health Journal* 2010; 16(11): 1073-  
1078.

4. Alwan N. DNA proliferative index as a marker in Iraqi .4  
aneuploid mammary carcinoma. *Eastern Mediterranean  
Health Journal* 2000, 6(5/6):1062–1072.
5. National Cancer Control Programs. Policies and Managerial .5  
Guidelines, 2nd. ed. Geneva, World Health  
Organization, 2002.
6. Fakhro A.E., Fateha B.E., Al -Asheeri N., Ehri A.: Breast .6  
cancer characteristics and survival analysis at Slamaniya  
Medical Compels. *Eastern Med Health J*, 1999; 5:430-439.
7. Abdul Hamid G, Tayeb MS & Bawazir AA. Breast cancer in .7  
south east republic of Yemen. *Eastern Mediterranean Health  
Journal*, 2001; 7(6):1012-1016.
8. Revised global burden of disease (GBD), WHO 2002 .8  
estimates. Geneva, World Health Organization, 2003  
(<http://www.who.int/healthinfo/bodgbd2002revised/en/index.html>,  
accessed 1 September 2009).
9. Al-Saad S., Al-Shinnawi H & Shamsi N. Risk factors of .9  
breast cancer in Bahrain *Med Bull* 2009; 31(2):1-11.
10. Liberatos P. and Kelsey J.: The measurement of social .10  
class in epidemiology, *Epidemiol. Rev*, 1988; 10:87-121.
11. Al- Ruffaee F.: Demographic and Clinicopathological .11  
study on the behavior of mammary carcinoma in three Iraqi  
governorate. M.Sc. Thesis (Pathology) supervised by Prof.  
Nada Alwan, Baghdad Col. of Medicine, Iraq, 2009.
12. Yusuf A., Khan J., Bhopal F. et al.: Level of awareness .12  
about breast cancer among females presenting to a general  
hospital in Pakistan. *J Coll Physician Surg Pak* 2001; 11:131-  
135.
13. Lazovich DE., Ann I et al.: Induced Abortion and breast .13  
cancer risk. *Artch. Epidemiology*, 2000, 11(1): 76-80.

14. Michel S , Karin B et al: Induced and spontaneous Abortion and incidence of breast cancer Among young women: A prospective cohort study. Archives of Internal Medicine. 2007, 167(8):814-820.
15. Zahid M., Saeed M., Gailkwad N., et al.: Inhibition of Catechol-O- methyltransferase increases estrogen DNA adduct formation. Free Radical Biology and Medicine 2007; 43(11):1534-1540.
16. Key T.J., Verkasalo P.k., Banks E.: Epidemiology of breast .cancer. Lancet Oncol.2001;2:133-140.
17. Clavel-Chapelon F., Launoy G & Auqueier A.: Reproductive factors and breast cancer risk. Effect of age at diagnosis. Annals of Epidemiology, 1995;5 (4):315-320.
18. Freud Enheim J., Marshall J., Uena J, et al: Lactation history and breast cancer risk. A.M. J. Epidemiol, 1997; 146:932-938.
19. Ameen A.: Breast cancer in Iraqi female patients; a clinicopathological and immunohistochemical study Thesis, supervised by Prof. Nada Alwan, Iraqi Board for Medical Specialization in Pathology. Iraq, 2009.
20. Al-Anbari S.S: Correlation of the clinic-pathological presentations in Iraqi breast cancer patients with the findings of Biofeld Breast Cancer Diagnostic System (BDS), HER2 and Ki.67 immunohistochemical expressions. Ph.D..Thesis (Pathology) supervised by Prof. Nada Alwan, Baghdad Col. of Medicine, Iraq, 2009.
21. Zakhartseva L.M, Gorovenko N.G and Podolskaya S.V.: Breast cancer immunohistochemical features in young women with BRCA1/2 mutations. Research Experimental Oncology 2009; September 174-178.

22. Abdulla W.: A prospective study for the detection of Cytomegalovirus and BRCA1 Gene in breast cancer using immunohistochemistry technique. M.Sc. Thesis (Technology in Medical Laboratory). College Council of Health and Medical Technology. Iraq, 2010.
23. AL-Mulla F., Abdul Rahman M., et al.: BRCA1 Gene expression in breast cancer: A correlative study between real time RT-PCR and immunohistochemistry. *Journal of Histopathology and Cytology*, 2005; 9:305-312.
24. Marcus JN, Wastson P., Page DL., Narod SA et al: Hereditary breast cancer : Pathobiology , prognosis and BRCA1 and BRCA2 gene linkage .*Cancer* 1996;77:697-709.
25. Fatima H .Vaz, et al.: Familial breast /ovarian cancer and BRCA1/2 genetic screening: The Role of immunohistochemistry as an additional method in the selection of patients. *Journal of Histochemistry and Cytochemistry*, 2007, Volume 55(11):1105-1113.
26. Qifeng Yang, Takeo Sakuria, et al.: Prognostic significance of BRCA1 expression in Japanese sporadic breast carcinoma .*American Cancer Society*, 2001; Vol. 92/Number 1:54-60.
27. Hiroko Yamashita et al .: Coexistence of HER2 over-expression and p53 protein accumulation is a strong prognostic molecular marker in breast cancer. *Breast cancer Research*, 2003; Vol.6, No. 1.

السمات الديموغرافية للمريضات المشخصات بسرطان الثدي في المركز  
التدريبى المرجعي للكشف المبكر عن الأورام في العراق

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ملخص البحث

يعد سرطان الثدي من أكثر السرطانات شيوعا في العراق. شملت الدراسة 130 مريضة تم تشخيصها بمرض سرطان الثدي في المركز التدريبى المرجعي للكشف المبكر عن أورام الثدي في دائرة مدينة الطب (بغداد). و تبين إن أعلى نسبة للإصابة حدثت في العقد الخامس من الحياة و إن 13.8% من المريضات كانت لديهن سوابق ايجابية في الأسرة، و قد سبق ل 42 % منهن إن تلقين معالجة هورمونية و ل 80% إن أرضعن. كما وجد ارتباط هام بمستوى التعليم حيث تبين أن النسبة المئوية الأعلى للإصابة سجلت عند اللواتي لم يحصلن على شهادة مدرسية أعلى من الابتدائية ( 70%). كما أوضح البحث ان نسبة عالية من المريضات وصلت إلى 70 % قد بدأن الحيض قبل سن 12 سنة، و أن 83% منهن قد أنجبن أكثر من طفل واحد بينما سبق ل 28.5 % من المريضات أن تعرضن للإجهاض أكثر من مرة كما أظهرت الدراسة إن 53 % من المريضات تم تشخيصهن في مراحل متأخرة من المرض (أي في مرحلة او أعلى). و كشفت الدراسة المناعية للعينة النسيجية للثدي المصابة بمرض السرطان أن معلم الورم الجيني BRCA 1 كان موجبا في 61.6 % من النماذج المفحوصة و الذي كان له ترابطا قويا مع التاريخ العائلي للمرض. و عليه فأن البيانات التي أظهرتها الدراسة البحثية تبرر بذل الجهود الحثيثة لتأسيس برامج وطنية شاملة للسيطرة على السرطان في العراق كما تؤكد على أهمية ترويج التوعية الجماهيرية للكشف المبكر عن سرطان الثدي.