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# Epidemiological Study of Breast Cancer among Iraqi Women in Oncology Teaching Hospital in Medical City in Baghdad for 2018

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**Abstract** | **Original Research Article**

***Objective:*** Breast cancer is the most common cancer among women and one of the most important causes of death among them. Aim: Detecting breast cancer in Oncology teaching hospital in medical city in Baghdad. ***Methods:*** This is a cross sectional study. Medical notes and histo-pathological reports of patients with confirmed diagnosis of breast cancer between January 2018 to January 2019, were reviewed for age and Site. ***Results:*** A total of (728) patients were included in this study. The ages which show high prevalence were (41-60) years ($x^2$=6.483 p< 0.01) (62.6%) and (61-80) years ($x^2$= 8.314 p< 0.01) (21.1%) which show significant relationship between age and breast cancer. Most cases were detected in Baghdad ($x^2$= 9.206, p< 0.01) (78.7%), then Dyala ($x^2$=5.344, p<0.05) (7.2%) and Wasit ($x^2$= 4.372, p< 0.05) (5.2%) site show significant role on breast Cancer. ***Conclusions:*** Breast cancer increased in Iraqi females especially in the last few years due to deterioration of health status in Iraq and lack of health awareness, beside the physical destitution which help in increasing the incidence of this type of cancer among Iraqi females.

**Keywords:** Breast cancer, epidemiology, Iraq.



## INTRODUCTION

Breast cancer is the most common type of cancer diagnosed in women. Over the last 25 years, mortality has decreased by 36% leading to an increase number of breast cancer survivor [1]. Currently breast cancer is the most leading cause of cancer death with 198,000 deaths per annum which represents 15.4% of all deaths in developed regions after that of lung cancer [2]. The incidence and mortality rates of breast cancer vary considerably across countries and highest in Europe and North America and lowest in Asia [3]. With age standardized incidence rates (per 100,000) population of (17.0) in (1975) compared with (44.4) in (2005) according to the monitoring of cancer incidence in Japan (MCIJ) projects [4]. According to the international Agency for cancer Research and GLOBOCAN (2008), the age standardized incidence rates (ASR) in Iraq was (31.1/100,000) similar as compared to the countries surrounding Iraq, Kuwait (47.7), Saudia Arabia (22.4), Jordan (47.0), Syria( 23.0), Iran (18.4), Turkey (28.3)[5]. Breast cancer begins either in the breast tissue made up of glands for milks production called lobules or in the ducts that connect the lobules to the nipple. It is multifactorial disease and various factors contribute to its occurrence [6]. Although the disease occurs all over the world, it's incidence, mortality and survival rates vary considerably among different parts of the world which could be due to many factors such as population structure, life style, genetic factors and environment [7]. Changes in risk factors have to lead to an increase in prevalence of breast cancer which is increasing every day [8]. According to WHO recent reports estimates the breast cancer-related mortality was the leading causes of death among women [9]. This study tried to present the breast prevalence and incidence rate among Iraqi females in different areas of Iraq during 2018.

## MATERIALS AND METHODS

### Study design

A survey of breast cancer in Iraqi females during 2018 was designed in order to determine the age and incidence rate through 2018.

## METHODS

Data of 728 patients collected from the register of pathological laboratory and from the medical records of patients from oncology teaching hospital in medical city in Baghdad during the period of one year from January 2018 to January 2019.The information included age ranged from ( 1-99 years) and

from different sites in Iraq exclusion criteria: recurrence, pregnancy.

## DATA

All the data were analyzed by the statistical Analysis System-SAS (2012) program was to detect the effect of difference factors in study parameters. Chi-square test was used to significant compare between percentage (0.05 and 0.01 probability) in this study [10].

## RESULTS

A total of 728 subjects were diagnosed with breast cancer in the oncology teaching hospital in medical city in Baghdad during 2018. The data showed high percentage and prevalence age specific rate in the range (41-60 years) ($x^2$=6.483, p<0.01) (62.6%) then the age range (61-80 years) ($x^2$=8.314, p< 0.01) (21.1%) which both showed high prevalence and percentage as shown in (Table 1) and (Table2).

**Table-1: Show the percentage of age specific ranges in this study.**

| Age range | Percentage |
|---|---|
| 1-20 years | 0.41% |
| 21-40 years | 15.1% |
| 41-60 years | 62.6% |
| 61-80 years | 21.1% |
| 81-90 years | 0.6% |

**Table-2: Frequency of breast cancer for one year (2018)**

| months | 1-20 y (%) | 21-40y (%) | 41-60y (%) | 61-80y (%) | 81-99y (%) | Total | Chi-Square($x^2$) |
|---|---|---|---|---|---|---|---|
| **1** | **0 0%** | 11 20% | 33 66% | 11 20% | 0 0% | 55 | 11.636** |
| **2** | **0 0%** | 10 11.6% | 48 55.8% | 28 32.5% | 0 0% | 86 | 9.752** |
| 3 | 1 1.8% | 13 24.0% | 34 62.9% | 6 11.1% | 0 0% | 54 | 11.358** |
| 4 | 1 2.5% | 3 7.5% | 30 75% | 5 12.5% | 1 2.5% | 40 | 14.074** |
| **5** | **0 0%** | 10 16.9% | 38 64.4% | 11 18.6% | 0 0% | 59 | 11.208** |
| 6 | **0 0%** | 7 13.2% | 35 66.0% | 9 16.9% | 2 3.7% | 53 | 12.428** |
| 7 | **0 0%** | 6 13.0% | 30 65.2% | 9 19.5% | 1 2.17% | 46 | 11.952** |
| 8 | **0 0%** | 9 18.75% | 34 70.8% | 5 10.4% | 0 0% | 48 | 14.609** |
| 9 | **0 0%** | 11 1.2% | 58 64.4% | 21 23.3% | 0 0% | 90 | 12.327** |
| 10 | **0 0%** | 12 21.8% | 34 61.8% | 9 16.3% | 0 0% | 55 | 11.054** |
| 11 | **0 0%** | 6 7.2% | 49 59.0% | 27 32.5% | 1 1.2% | 83 | 10.774** |
| 12 | 1 1.6% | 10 16.9% | **35 59.3%** | 13 22.0% | 0 0% | 59 | 11.258** |
| **Chi-Square(x')** | **0.783 NS** | **7.529**** | **6.483**** | **8.314**** | **0.831 NS** | …. | …….. |
| **(P<0.01), NS: Non-Significant.**** | | | | | | | |

**Table-3: Frequency of breast cancer in different sites in Iraq**

| Months | (Bag.) | (Was.) | (Mos.) | (Anb.) | (Dya.) | (Kar.) | (Bab.) | (Nas.) | (Dew.) | (Mes.) | (Nej.) | (Sal.) | Total | Chi-Square ($x^2$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1** | 49 89.09% | 1 1.8% | 1 1.8% | 1 1.8% | 0 0% | 1 1.8% | 0 0% | 0 0% | 0 0% | 0 0% | 0 0% | 2 3.6% | 55 | **13.571 **** |
| **2** | 66 76.7% | 5 5.8% | 0 0% | 3 3.4% | 8 9.3% | 2 2.3% | 0 0% | 1 1.16% | 0 0% | 0 0% | 0 0% | 1 1.16% | 86 | **12.094 **** |
| **3** | 47 87.03% | 0 0% | 1 1.8% | 1 1.8% | 3 5.5% | 0 0% | 1 1.8% | 0 0% | 1 1.8% | 0 0% | 0 0% | 0 0% | 54 | **14.064 **** |
| **4** | 28 84.8% | 1 3.03% | 0 0% | 1 3.03% | 2 6.06% | 0 0% | 0 0% | 0 0% | 0 0% | 0 0% | 0 0% | 1 3.03% | 33 | **13.378 **** |
| **5** | 46 77.9% | 1 1.6% | 0 0% | 4 6.7% | 7 11.8% | 0 0% | 0 0% | 0 0% | 0 0% | 1 1.6% | 0 0% | 0 0% | 59 | **12.502 **** |
| **6** | 38 71.6% | 3 5.6% | 0 0% | 0 0% | 8 15.0% | 1 1.8% | 0 0% | 0 0% | 0 0% | 0 0% | 1 1.8% | 1 1.8% | 53 | **12.215 **** |
| **7** | 32 69.5% | 8 17.3% | 0 0% | 0 0% | 5 10.8% | 0 0% | 0 0% | 1 2.17% | 0 0% | 0 0% | 0 0% | 0 0% | 46 | **10.663 **** |
| **8** | 38 79.1% | 4 8.3% | 0 0% | 1 2.08% | 3 6.25% | 0 0% | 0 0% | 0 0% | 0 0% | 2 4.16% | 0 0% | 0 0% | 48 | **13.042 **** |
| **9** | 75 83.8% | 4 4.4% | 3 3.3% | 0 0% | 5 5.5% | 0 0% | 0 0% | 0 0% | 0 0% | 1 1.1% | 0 0% | 2 2.2% | 90 | **14.281 **** |
| **10** | 52 83.8% | 1 1.6% | 0 0% | 3 4.8% | 3 4.8% | 0 0% | 1 1.6% | 0 0% | 0 0% | 1 1.6% | 0 0% | 1 1.6% | 62 | **13.749 **** |
| **11** | 61 73.4% | 4 4.8% | 2 2.4% | 3 3.6% | 5 6.02% | 1 1.2% | 0 0% | 0 0% | 1 1.2% | 0 0% | 1 1.2% | 5 6.02% | 83 | **11.930 **** |
| **12** | 41 96.4% | 6 10.1% | 2 3.3% | 1 1.6% | 4 6.7% | 1 1.6% | 1 1.6% | 0 0% | 0 0% | 1 1.6% | 0 0% | 2 3.3% | 59 | **15.611 **** |
| **Chi-Square ($x^2$)** | **9.206 **** | **4.372*** | **0.776 NS** | **2.361 NS** | **5.344 *** | **0.625 NS** | **0.609 NS** | **0.538 NS** | **0.688 NS** | **0.541 NS** | **0.592 NS** | **2.363 NS** | | ….. |

Baghdad showed higher frequency of breast cancer ($x^2$= 9.206, p<0.01) and higher percentage (78.7%) then Dyala ($x^2$= 5.344, p< 0.05) and percentage (7.2%) then Wasit ($x^2$= 4.372, p< 0.05) and percentage (5.2%) than other sites in Iraq. As shown in Table (3) and Table (4).

**Table-4: percentage of breast cancer in different sites in Iraq**

| Site | Percentage |
|---|---|
| Baghdad (Bag.) | 78.7% |
| Wasit (Was.) | 5.2% |
| Dyala (Dya.) | 7.2% |
| Mosil (Mos.) | 1.2% |
| Anbar (Anb.) | 2.47% |
| Karbala (Kar.) | o.82% |
| Babil (Bab.) | 0.54% |
| Naserya (Nas.) | 0.2% |
| Dewania (Dew.) | 0.2% |
| Mesan (Mes.) | 0.8% |
| Nejaf (Nej.) | 0.2% |
| Salahden (Sal.) | 2.06% |

## DISCUSTION

Breast cancer in the world is the leading cause of cancer death in women. From our results the age ranges (40-61 years) and (61-80 years) showed higher percentages (62.6%, 21.1%) respectively than other ages, this related to many factors like earlier age at menarche has been consistently associated with increased risk of both premenopausal and postmenopausal breast cancer. Early menarche may be associated with more rapid onset of regular ovulatory menstrual cycles and hence greater life time exposure to endogenous hormones [11]. Evidence also suggests that early menarche may relate to higher postmenopausal estrogen levels [12]. In fact the risk of breast cancer is increased for the first decade following the first pregnancy. The proliferation of breast cells during the first pregnancy results in differentiation into mature breast cells prepared for lactation, but this proliferation may also lead to growth of mutated cells and excess risk over the next decade [13]. Also some permanent glandular epithelium change in the biological properties of mammary cells, that mean more DNA mistakes have occurred that will be propagated with the proliferation of mammary cells during pregnancy [14].Over 50 epidemiological studies have evaluated the relationship between oral contraceptive use and breast cancer risk, the relationship depends on family history of breast cancer, weight, alcohol intake[15], also high fat intakes increase risk which cause a greater weight gain in old ages[16]. Among postmenopausal women, physical activity may lower breast cancer risk by reducing fat stores, which convert androstenedione to estrone. Physical activity may also increase levels of sex-hormone- binding globulin (SHBG) which would reduce bio available estrogen [17]. Iraqi women have less chance than European women in physical practices due to customs tradition of Iraqi committee. Postmenopausal adiposity is an established risk for postmenopausal breast cancer [18], or highest body mass index (BMA) and lowest energy expenditure may combined to more than double the risk of breast [19]. Results from study by Seo *et al.* suggested that obesity may modify the structure of adipose tissue in breast cancer which promotes breast tumorigenesis by altering mammary extracellular matrix (ECM) mechanics [20]. The study illustrated increase the percentage of breast cancer in Baghdad (78.7%), then Dyala (7.2%) and Wasit (5.2%). In Baghdad the increasing percentage due to increase exposure to radiation due to different wars that Iraq pass through. While in Dyala and Wasit beside the previously mentioned factors is exposure to organochlorines which include pesticides which were used in agricultural process, these chemicals are weak estrogen and may act as estrogenic agents in breast tissue, thereby increase breast cancer risk by mimicking endogenous estradiol [21]. Baghdad the capital have civilized behavior like smoking, eating fast food which cause obesity, beside Baghdad contains many oncology centers which can detect breast cancer and other cancers.

## REFERENCES


1. De Santis CE, Fedewa SA, Goding Sauer A, Kramer JL, Smith RA, Jemal A. Breast cancer statistics 2015, convergence of incidence rates between black and white women. *CA Cancer J.Clin. 2016*: 66(1): 31-42.
2. LY M, Antonie M, Andre F, Callard P, Bernaudin JF, Dialla DA, Breast cancer in Sub-Saharan African women. *Bul l. Cancer. 2011*:98(7): 797-806.
3. 3-Ferlay J, Shine HR, Bray F, Forman D, Mathers C, Parkin DM. GLOBOCAN 2008. Cancer incidence and mortality word wide: IARC Cancer Base No. 10. Lyon. International agency for research on cancer. 2010.
4. Matsuda T, Marugame T, Kamol K, Katanoda K, Ajiki W, Sobue T. Cancer incidence and incidence rates in Japan 2005: Based on data from 12 population- based cancer registries in the monitoring of cancer incidence in Japan (MCJI) project. *Jpn. J. Clin. Oncol. 2011:* 41: 139-47.
5. Zendehel M, Niakan B, Keshtkar A, Rafiei E, Salamat F. Subtypes of Benign Breast disease as a risk factor for breast cancer: A systemic Review and meta-analysis Protocol. *Iran J. Med. Sci: 2018*: 43 (1):1-8.
6. Hortobagyi GN, de la Garza Salazar J, Pritchard K, Amadori D, Haidinger R, Hudis CA, Khaled H, Liu MC, Martin M, Namer M, O'Shaughnessy JA. The global breast cancer burden: variations in epidemiology and survival. Clinical breast cancer. 2005 Dec 1;6(5):391-401.

7. Parkin DM, Fernandez LM. Use of statistics to assess the global burden of breast cancer. *Breast J 2006*, 12 (51): 570-580.
8. Si W, Li Y, Han Y, Zhang F, Wang Y, Li Y, Linghu RX, Zhang X, Yang J. Epidemiological and clinicopathological trends of breast cancer in Chinese patients during 1993 to 2013: A retrospective study. Medicine. 2015 Jul;94(26).
9. World Health Organization. Country Profiles for cancer. 2014. In http//www. WHO.int/cancer/country profiles/caf-fr. Pdf. Accessed 18 Dec. 2015.
10. SAS 2012. Statistical Analysis System. User's Guide Statistical version 9.1 Th ed .SAs. Inst. Inc. Cary. N.C. USA.
11. Bernstein L, Ross RK. Endogenous hormones and breast cancer risk. Epidemiol Rev. 1993,15(1): 48.65 (Medline).
12. Wu AH, Stanczyk FZ, Seow A, Lee HP, Yu MC. Soy intake and other lifestyle determinants of serum estrogen levels among postmenopausal Chinese women in Singapore. Cancer Epidemiol Biomarkes Prev. 2002 Sep. 11(9): 844-51 (Medline).
13. Rosner B, Colditz GA, Willett WC. Reproductive risk factors in a prospective study of breast cancer: the Nurses' Health Study. American journal of epidemiology. 1994 Apr 15;139(8):819-35.
14. Rosner B, Colditz GA. Nurses healthy study log-incidence mathematical model of breast cancer. *J Nati Cancer Inst. 1996 Mar* 20, 88 (6): 359-64.
15. Breast Cancer and hormonal contraceptives: Collaborative reanalysis of individual data on 53297 women with breast cancer and 100239 women without breast cancer from 54 epidemiological studies. Collaborative Group on Hormonal Factors in Breast Cancer. Lancet 1996 Jun 22. 347(9017): 1713-27.
16. Berkey CS, Rockett HR, Willett WC, Colditz GA, Milk, diary fat, dietary calcium and weight gain: A longitudinal study of adolescents. Arch Pediatr Adolesc Med. 2005 Jun. 159 (5): 543-50.
17. MC Tiernan A. Mechanisms linking physical activity. 2002.
18. Vainio H, Kaaks R, Bianchini F. Weight control and physical activity in cancer prevention: international evaluation of the evidence. European journal of cancer prevention: the official journal of the European Cancer Prevention Organisation (ECP). 2002 Aug; 11:S94-100.
19. Endogenous Hormones Breast Cancer Collaborative Group. Body mass index, serum sex hormones, and breast cancer risk in postmenopausal women. Journal of the National Cancer Institute. 2003 Aug 20;95(16):1218-26.
20. Seo BR, Bhardwaj P, Choi S, Gonzalez J, Eguiluz RC, Wang K, Mohanan S, Morris PG, Du B, Zhou XK, Vahdat LT. Obesity-dependent changes in interstitial ECM mechanics promote breast tumorigenesis. Science translational medicine. 2015 Aug 19;7(301):301ra130-.
21. Gammon MD, Santella RM, Neugut AI, Eng SM, Teitelbaum SL, Paykin A, Levin B, Terry MB, Young TL, Wang LW, Wang Q. Environmental toxins and breast cancer on Long Island. I. Polycyclic aromatic hydrocarbon DNA adducts. Cancer Epidemiology and Prevention Biomarkers. 2002 Aug 1;11(8):677-85.