DOI Number: 10.37506/v20/i1/2020/mlu/194724

Potential Risk Factors of Breast Cancer among Women Attending Teaching Hospitals in Babylon Province

Hasan Alwan Baiee[1], Zainab Fadhil Kizar[2], Huda salman Jasim[2] Suha Sheehan Jasim[2], Liala Qies Raheem [2]

[1]Professor of Community Medicine – Babylon University-Hammurabi College of Medicine,
[2]Ministry of Health – Babylon Health Directorate

Abstract

Background: Breast cancer is the most common cancer among women worldwide and the leading cause of cancer deaths among Iraqi women.

Objective: To determine the potential risk factors associated with breast cancer.

Methodology: This was a hospital based case control study which was conducted at Merjan and Al-Hilla teaching hospitals. A sample of three hundred women participants who were selected and divided into 100 patients with established breast cancer (cases) and 200 healthy women without breast cancer who were considered as healthy control group. Data were collected by interviewing both groups using a structured questionnaire which includes information about(tobacco smoking, economic status, age of menarche ,age of menopause , use of contraceptives level of education ,family history of breast cancer). medical records of patients and control group were reviewed to complete the data needed ,chi square statistical test and Odds Ratios were calculated**.**

Results: Results of this study showed that the following factors like low economic status, ,late age of menopause ,positive family history, use of contraceptives were significantly associated with breast cancer(Unadjusted Odds Ratios more than one ,p values <0.05).Exposure to cigarette tobacco smoking, levels of education, and age of menarche did not show significant association with breast cancer in this study.

Conclusion: Breast cancer was associated positively with the presence of positive family history, Low socioeconomic status, late menopause and using contraceptive pills regularly.

Keywords *:Potential risk factors ,breast cancer , women, teaching hospitals, Iraq.*

Introduction

Breast cancer is the most common cancer among women worldwide [1-7], and the leading cause of cancer death in women worldwide [2,6] ,and the second leading cause of females' deaths after lung cancer [2] Globally, breast cancer is the commonest cancer among women, comprising 23% of the 1.1 million female cancers that are newly diagnosed each year [4]. It was estimated that 1.7 million people were diagnosed with breast cancer, accounting for around twelve percent of all new cancers. Statistics shows between 2008 to 2012 a brisk increase in the incidence of morbidity and mortality of breast cancer among women [8]. Breast cancer was the most common cancer in 2012 with incidence of 43.4% and a mortality rate of 12.9%1 [9]. Incidence rates vary widely across geographic regions, with the highest rates in North America, Australia, and northern and western Europe and the lowest rates in large parts of Africa and Asia. Mortality rates do not differ as much due to better survival in developed countries, where incidence rates are also the highest [3] . In Iraq, breast cancer is very common type of malignancy among the population in general; responsible for about one third of the registered female cancers and almost one quarter of females' deaths from the disease [2,4]. The peak age incidence rates are

Corresponding Author:
Hasan Alwan Baiee
email:hassanbaey@yahoo.com

noted among middle aged women who often present with advanced stages documenting high mortality incidence ratios [10]. Breast cancer is a multi-factorial disease where genetic susceptibility, environment, and other lifestyle risk factors interact. Better identification of modifiable risk factors and risk reduction of breast cancer may allow implementation of useful strategies for prevention. In Iraq, there is a continuous rise in the incidence rate which is associated with an obvious potential risk factors which may act together or in sequence to initiate or promote carcinogenesis[1] .This study was conducted to determine potential risk factors associated with breast cancer.

Method

This hospital based case control study was conducted at oncology units in Merjan teaching hospital and Al-Hilla teaching hospital. A sample of Three hundred participants was conveniently selected and divided into 100 patients with confirmed breast cancer(cases) and 200 women without breast cancer who were considered as a healthy control group. Data were collected by interviewing participants (both cases and control groups) using a structured pretested questionnaire which includes information about (tobacco smoking ,economic status ,age of menarche ,age of menopause ,use of contraceptives ,level of education ,family history of breast cancer), women with primary school level and below considered as women with low educational level. Women who use oral contraceptive pills for more than two years are considered (contraceptive users). Data collection from medical records were reviewed to confirm the diagnosis. Control group was selected from women who were examined in the mammogram unit ,and from women attending primary health care centers or hospitals .

The data were obtained from patients with breast cancer who were registered in breast tumor center/ Merjan teaching hospital and Al Hilla teaching hospitals from different age group and selected according to these criteria:

1-Women who have cancer according to confirmed diagnosis based on pathological diagnosis.

2-Patients who agreed to participate in the study and give verbal consents .

Statistical Analysis

Data analysis was done by using Spss version 21 to calculate Odds Ratios(OR) and chi square , p.value< 0.05 was considered to be statistically significant.

Ethical considerations

1- Approval of ethical committee in Babylon university- College of Nursing was obtained.

2-Acceptance of ministry of health(ethical committee of Babylon Health directorate was taken) ,together with the acceptance of authorities of the teaching hospitals.

3-Verbal consents of all participants were obtained after explaining the objective of the study ,the privacy and confidentiality issues.

Results

Table (1) shows that the percentage of tobacco smoking habit among cases and control group were (6% and 3.5% respectively the un matched Odds Ratio was (1.78) this means that there is a weak positive relationship between smoking and breast cancer the difference did not reach significant level p > 0.05.

Table (1) Frequency distribution of cases and control group by cigarette smoking.

Groups	Case(n=100) Number (%)	Control(n=200) Number (%)	Chi-square	OR	P-value
cigarette smoking	6 (6 %)	7 (3.5%)	1.005	1.759	0.3161
Not cigarette smoking	94 (94%)	193 (96.5%)			
Total	100 (100)	200 (100)			

Table (2) reveals that there is a highly significant difference between cases and control groups , regarding the income level cases with not enough income(poor) they constituted (47%) while the low economic level among healthy control is (23.5%) p <0.001.

Economic status	Case(n=100) Number (%)	Control(n=200) Number (%)	Chi-square	OR	P-value
Not enough	47 (47%)	47 (23.5%)	17.112	2.88	0.0000
Enough	53 (53%)	153 (76.5%)			
Total	100 (100)	200 (100)			

Table (3) shows that the age of menarche has no significant association with breast cancer p > 0.05**.**

Table (3) Frequency distribution of cases and control group by age of menarche.

Age of menarche	Case(n=100) Number (%)	Control(n=200) Number (%)	Chi-square	OR	P-value
<12 year	45 (45%)	80 (40%)	0.686	1.22	0,4076
12 year Or More	55 (55%)	120 (60%)			
Total	100 (100)	200 (100)			

Table (4) depicts that there is a significant association between late age of menopause and carcinoma of the breast p < 0.05 , the Odds Ratio (2.48),this means that those with late menopause are three fold more liable to have breast cancer than those with menopausal period of less than (45) years of age**.**

Table (4) Frequency distribution of cases and control group by age of menopause.

Age of menopause	Case(n=100) Number (%)	Control(n=200) Number (%)	Chi-square	Odd Ratio	P-value
>45 year	45 (45%)	44 (22%)	3.483	2.48	0.05
45 year & Less	7 (7%)	17 (8.5%)			
*Below the age	48 (48%)	139 (69.5%)			
Total	100 (100)	200 (100)			

Table (5) explains that the positive family history of carcinoma of breast is significantly associated with the development of this disease p < 0.05,OR= (2.25**).**

Table (5) Frequency distribution of cases and control group according to the family history of breast cancer.

Family history	Case(n=100) Number (%)	Control(n=200) Number (%)	Chi-square	OR	P-value
Positive	20 (20%)	20 (10%)	5.769	2.25	0.0163
Negative	80 (80%)	180 (90%)			
Total	100 (100)	200 (100)			

Table (6) reveals that level of education has no significant relationship with breast cancer in this study p >0.05, OR= (1.27).

Table (6) Frequency distribution of cases and control group by the level of education.

Level of education	Case(n=100) Number (%)	Control(n=200) Number (%)	Chi-square	OR	P-value
Not educated	32 (32%)	54 (27%)	0.815	1.27	0.3666
Educated	68 (68%)	146 (73%)			
Total	100 (100%)	200 (100%)			

Discussion

The problem of breast cancer was studied through identifying some risk factors (both modifiable and non-modifiable ones) to pay attention to the prevention actions of this high priority public health problem in our country .The findings of this study show that tobacco smoking habit was not associated significantly with breast cancer ,this finding is in agreement with a study conducted among Jordanian Women during the year 2017 **[11]** ,but disagrees with the finding of a local study done in Baghdad province /Iraq during 2013 **[1]** This disagreement may be due to the small sample size of this study or due to embarrassment of women during the interview to speak about smoking habit which is considered as social stigma among women in our society, this finding is also disagreed with the finding of other reporters such as the work done in 40 clinical centers in the United states which showed that active smoking was positively associated with an increase in the incidence breast cancer among postmenopausal women **[12].**

Regarding economic status , this study reveals that low family income status was more prevalent among cases as compared to control group ,this finding is similar to the finding of other study conducted in Missan province /Iraq during the year 2012 [13], and in a study done in Eastern India [14] and disagrees with the finding of other study in jordian [11] ز

The current study depicts that early menarche is not association with breast carcinoma, this finding goes in lines with the finding of other studies [(1,15,16)] but disagreed with a study done in Eastern India [14] and other study conducted in Dhaka city [17.]

A high proportion of cases in this study were having their age at menopause more than or equal to 45 years, compared to controls, this result is statistically significant and agree with other study conducted in India that showed higher risk was found for women who

experienced menopause after 45 years of age [14,8] ,this can be explained by the long period of exposure of cases to estrogen hormone which is blamed as a potential risk factor [18-20].

There is a statistically significant association between positive family history and breast cancer ,this finding is similar to the findings reported by other local and international studies [1, 17, 8,21-26].

.This indicates the importance role of genetic factors(inheritance)in the etiology of breast cancer among Iraqi women .

The finding of this study explains that the level of education of patient has no significant relation with breast cancer, this finding agrees with the finding of other local case control study conducted in Al-khadumia district /Baghdad province [16].And disagrees with the study done in Baghdad during the year 2013 [1]and other studies conducted outside Iraq [11,14,27,28].

Conclusion

The current data support that various factors like economic status, , late age of menopause, family history, use of contraceptives, are significantly associated with breast cancer among women in Babylon province. Exposure to cigarette tobacco smoke, women levels of education, and age of menarche , do not show a significant association with breast cancer in this study.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the Babylon University-Hammurabi College of Medicine and all experiments were carried out in accordance with approved guidelines.

References

1. Lafta RK , Saeed EQ ,Isa SA .Risk Factors of Breast Cancer among Women. Iraqi J. Comm. Med., Jan. 2013; 1:1-7
2. Najm MA, Al-jobori KM, Aziz RS. The Diagnostic and Prognostic -Values of FOXP3 Gene in Iraqi Breast Cancer Women. Iraqi J Cancer Med Genet. 2016;9(1):50–6
3. Torre LA, Bray F, Siegel RL, Ferlay J, Lortet-Tieulent J, Jemal A. Global cancer statistics, 2012. CA Cancer J Clin 2015;65:87–108. [PubMed]
4. Ebrahim SM .Knowledge of Students toward Breast Cancer and Breast Self-Examination Practice At High School Nursing In Basra City.Journal of Kufa for Nursing Science. 2014; 4 (1): 1-9
5. Karimi Z ,Bahadoran Z ,Abedini S ,Rad AH ,Rashidkhani B.Dietary total antioxidant capacity and the risk of breast cancer: a case–control study.Eastern Mediterranean Health Journal.2015;21(8):564-71
6. Al Alwan NA , Al Attar WM ,Al Mallah N .Barriers to Baseline Needs for Early Detection of Breast Cancer among Iraqi Female Patients. Iraqi National Journal of Nursing Specialties2016;29(2):1-11
7. IBCERCC. Breast Cancer and the Environment. Prioritizing Prevention. Rep Interag Breast Cancer Environ Res Coord Comm. 2013;(February):1–23.
8. Zannat KE ,Karim N ,Faruquee MH ,Haque M .Risk Factors for Breast Cancer among Women Attending In Selected Hospitals of Dhaka City. Journal of Medical and Biological Science Research. 2015;1(10):162-16
9. Irawaty D ,Gayatri D ,Nuraini T .Validity and reliability of the Comfort Assessment Breast Cancer Instrument in breast cancer palliative care. EnfermClin. 2017;27(Suppl. Part I):162-166
10. Alwan NAS.Breast Cancer among Iraqi women: Preliminary Findings from a Regional Comparative Breast Cancer Research Project. Journal of Global Oncology.2016;2 (1):255-258.
11. Alqadire M ,alkhalAileh M ,Hina H .Risk Factors for Breast Cancer among Jordanian Women: A Case-control Study.Iran J Public Health.2018;47(1):49-56
12. Juhua L , Karen L, Margolis J, wactawski- Al w et al. Association of active and passive smoking with risk of breast cancer among postmenopausal women: a prospective case control study. BMJ. 2011;342.
13. Al-shawi Ali A. Aziz. Descriptive Study of Breast Cancer in Missan. Med J Babylon. 2012;9(2):419–26
14. Das S ,Sen S, Mukherjee A ,Chakraborty D , MondalP K.Risk Factors of Breast Cancer among Women in Eastern India: A Tertiary Hospital Based Case Control Study.Asian Pacific Journal of Cancer Prevention, 2012,13:1-6

15. Altaha MA, Al-ani HG. Reproductive factors and risk of breast cancer. Anb Med J. 2013;11(1):17–26.
16. Bahir BH, Al-naqeeb AA, Mahmood S, Ch N. Risk Factors for Breast Cancer in a Sample of Women. Iraqi J Comm Med. 2012;20(1):4–8.
17. Lee H ,Li JY ,Fan JH ,Li J , Huang R, et al.Risk Factors for Breast Cancer Among Chinese Women: A 10-Year Nationwide Multicenter Cross-Sectional Study.J Epidemiol 2014;24(1):67-76
18. Atoum M, Al-Hourani H,Nimer N,Almuhrib T, Raheem S.Endogenous estradiol, estrogen and progesterone receptors increase benign and breast cancer risk among nonfamilial postmenopausal females.HEALTH SCIENCE JOURNAL.2012; 6(4): 23.
19. Effi AB, Ama NA , Koui BS, Koffi KD ,Traoré Z Ch, Kouyate M .Immuno histo chemical determination of estrogen and progesterone receptors in breast cancer: relationship with clinic pathologic factors in 302 patients in Ivory Coast. BMC Cancer ,2017;17:115.
20. Oh H ,Eliassen AH ,Beck AH ,Rosner B,Schnitt SJ et al.Breast cancer risk factors in relation to estrogen receptor, progesterone receptor, insulin-like growth factor-1 receptor, and Ki67 expression in normal breast tissue.npj Breast Cancer. 2017 ;3:39.
21. Nelson HD ,Zakher B,CantorA,Fu R,Griffin J ,O'Meara ES,BuistDS,Kerlikowske K,van Ravesteyn NT,Dietz AT,Mandelblatt J,Miglioretti D.Risk Factors for Breast Cancer for Women Age 40 to 49: A Systematic Review and Meta analysis Ann Intern Med. 2012 May 1; 156(9): 635–648.
22. Kumar KA ,Rao BB ,Devi BN.A case control study on risk factors of breast cancer among women attending MNJ Cancer Hospital, Hyderabad. International Journal of Biomedical and Advance Research 2016;7(2):079-082..
23. Lodha RS ,Nandeshwar S, Pal DK ,Shrivastav A, Lodha K, Bhagat VK, Bankwar VV ,Nandeshwar S ,Saxena D .Risk Factors for Breast Cancer among Women in Bhopal Urban Agglomerate: A Case Control Study. Asian Pacific Journal of Cancer Prevention.2011;12: 20.
24. Razif SM, Sulaiman S, Hanie SS, Aina EN, Rohaizak M, Fuad I, et al. The contribution of reproductive factors and family history towards premenopausal breast cancer risk in Kuala Lumpur, Malaysia. Med J Malaysia. 2011;66(3):220–6.
25. Tan M-M, Ho W-K, Yoon S-Y, Mariapun S, Hasan SN, Lee DS-C, et al. (2018) A case-control study of breast cancer risk factors in 7,663 women in Malaysia. PLoS ONE 13(9): e0203469.
26. Brinton LA, Auah B, Clegg-Lamptey JN, Wafe Addal B, Ansong D, Nayorka KM et al. Design considerations for identifying breast cancer risk factors in a population-based study in Africa.IJC 15 June,2017;140(12):2667-2677.
27. Kamath R, Mahajan KS,Ashok L ,SanalT S .A Study on Risk Factors of Breast Cancer Among Patients Attending the Tertiary Care Hospital, in Udupi District. Indian J Community Med. 2013 AprJun; 38(2): 95–99.
28. Younes DZ .Breast Cancer Screening Barriers among Women in Nablus Governorate.Msc thesis. An-Najah National university. 2015 .
29. Soroush A, Farshchian N, Komasi S ,Izadi N ,Amirifard N ,Shahmoh ammadi A.The Role of Oral Contraceptive Pills on Increased Risk of Breast Cancer in Iranian Populations: A Meta-analysis. Journal of Cancer Prevention. 2016 Dec; 21(4): 294–301.
30. Bassuk ShS ,Manson JE.Oral contraceptives and menopausal hormone therapy: relative and attributable risks of cardiovascular disease, cancer, and other health outcomes. Journal of Elsevier. March 2015;25(3) :193-200.
31. Hunter DJ .Oral Contraceptives and the Small Increased Risk of Breast Cancer. The new England journal of medicine December 7, 2017.
32. Digarri AA .Risk factors among women in Babylon province.Family medicine diploma thesis .presented to family and community medicine department .University of Babylon ,college of medicine . 2011.
33. Vessey M , Yeates D. Oral contraceptive use and cancer: final report from the Oxford–Family Planning Association contraceptive study2013;88(6):678-83.
34. Nilsson E,Olsson S,Thorlacius H,Tuna SB.Use of Oral Contraceptives and Breast Cancer Survival. International Journal of Women's Health and Wellness 2016;2(5):39
35. Iversen L, Sivasubramaniam S, Lee AJ, et al. Lifetime cancer risk and combined oral contraceptives: the Royal College of General

Practitioners' Oral Contraception Study. Am J Obstet Gynecol 2017;216:580.e1-9.

36. Grant ECG. Lifetime cancer risk with progestin and estrogen oral contraceptives and hormone therapy. American Journal of Obstetrics and Gynecology2017;217(2):232-233.