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COMPARATIVE STUDY BETWEEN BAGHDAD'S AND NAJAF'S BREAST CANCER PATIENTS REGARDING BREAST CANCER RISK FACTORS

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ABSTRACT

Introduction: Cancer of breast is the most commonly diagnosed cancer in female with an estimated 2.1 million cases being diagnosed newly each year and representing 24.2% of all cancer diagnoses among female. **Aim:** to compare certain risk factors of cancer of breast between Baghdad's and Najaf's patients in order to determine which factor increases the risk of cancer of breast. **Method:** Across sectional study was conducted on patients with diagnosed cancer of breast coming to both breast clinic in Al -Yarmouk (Baghdad) and middle Euphrates center for cancerous tumor in al-najaf city since 1st of July 2021 till 1st of July 2022. **Results:** The results of the current study reveal (93.1%) in Najaf were more than 45 years while in Baghdad less than half of patient (46.7%) were in the same age group and this difference was statistically significant (p=0.00). In Najaf more than half of patient (52.7%) had age of menopause at or more than 50 years compared to patients (28%) in Baghdad, this difference was statistically significant (p=0.000). There was significant difference between the two groups regarding age at first pregnancy(p=0.00). Regarding the use of oral contraceptives pills, (72.5%) of patient from Baghdad group reported the use of oral contraceptives compared to (54.2%) patient in Najaf, and this difference was statistically significant (p=0.003). There was significant difference between the two groups in number of children(p=0.004). **Conclusion:** There is significant difference in cancer of breast risk factors between patients in Baghdad and Najaf regarding age of the patients, age at menopause, age at first pregnancy, using of contraceptive pills and number of children, this may be due to genetic, environmental, hormonal, and racial factors.

KEYWORDS: Cancer of breast, risk factor, menarche, menopause.

INTRODUCTION

Cancer of breast is a significant issue in the world. It is the most common diagnosed cancer in female with an estimated 2.1 million new cases being diagnosed each year and estimated 24.2% of all cancer diagnoses among female. Cancer of breast accounts for 1 in 4 cases in female globally and contributes to 15% of.[1] worldwide.[2] Cancer of breast is a complex disease with both environmental and genetic factors contributing to risk. Well-established modifiable and non-modifiable environmental factors include age at menarche, parity, age at first birth, body mass index (BMI), breastfeeding, use of menopausal hormonal therapy (MHT) and alcohol consumption.[3,4] The survival rate of cancer of breast patients in developed countries decreased in recent decades may referred to the advances in screening and treatment.[5] However, the mortality rate of cancer of breast patients in some developing countries remains high because inefficient screening and treatment, leaving an overall high death toll worldwide.[6] There are a number of risk factors, age being the major, incidence of cancer of breast increases with age.[7] Additionally, a woman who start the menstruating cycle early in life or have a late menopause had increasing the risk,

female who experience menopause after age of 55 are more likely to develop cancer of breast than female who have menopause before the age of 45.[8] Menarche, menopause, age, family history and history of benign breast diseases can also be risk factors of cancer of breast; others are lifestyle, radiation, oral contraceptive and hormone replacement therapy.[9] Female who had their first child before the age of twenty has a less risk of having cancer of breast than those have their first child after the age of thirty.[10] Genetic factors have a role within western countries, as cancer of breast is generally inherited as an autosomal dominant disorder.[7] History of benign breast diseases also, have a role in the risk factors, females who had severe atypical epithelial hyperplasia have a higher risk of developing cancer of breast than female who doesn't had.[11]

MATERIAL AND METHOD

The study was conducted on patients with diagnosed cancer of breast attending both breast clinic in Al - Yarmouk (Baghdad) and Euphrates center for cancerous tumor a since 1st of July 2021 till 1st of July 2022. The study included the patients with diagnosed cancer of breast exclusively and conducted on females only. We collected data from recorded file in breast clinic of both Baghdad and Najaf. The data taken included age at diagnoses of disease, marital status, educational level, occupation, age at marriage, age at menarche and menopause, age at first pregnancy, number of children, breast feeding, smoking, radiation to chest, oral contraceptive use and investigation of ER,PR,HER2,BRCA. This question regarded as risk factors for cancer of breast, especially in our community. During this period, 107 patients in Baghdad and 131 patients in Najaf with diagnosed cancer of breast was taken. Compares of the results between two centers done and Chi square test was used for statistical analysis, P* values less or equivalent to 0.05 were considered significant.

RESULTS

The current study included a sample of 131 patients from Najaf city and 107 patients from Baghdad. The results of the current study revealed 122 patients (93.1%) in Najaf were less than 45 years while in Baghdad 50 patients (46.7%) were in the same age group and this difference was statistically significant (p=0.000) as shown in table-1 below. More than seventeenth of patients in Najaf and Baghdad were married. Illiteracy and primary education accounted to nearly one quarter. The majority of patients in both cities were housewives more than three quarter in both city (table-1 below).

Table-1: Distribution of patients according to the age at diagnosis, marital status, educational level and occupation.

Variables	Categories	Najaf No. (%)	Baghdad No. (%)	P value
Age (years)	< 45	9(6.9)	57(53.3)	0.000*
	≥45	122(93.1)	50(46.7%)	
Marital status	Married	97(74)	84(78.5)	0.465
	Single	8(6.1)	7(6.5)	
	Divorced	0(0)	1(0.9)	
	widow	26(19.8)	15(14)	
Educational level	Illiterate	50(38.5)	31(29)	0.204
	Primary	22(16.9)	29(27.1)	
	Secondary	31(23.8)	23(21.5)	
	College or higher	27(20.8)	24(22.4)	
Occupation	Housewife	122(85.5)	85(81.7)	0.436
	Worker	19(14.5)	19(18.3)	

*Chi-square test was used. Significance level considered at p value ≤ 0.05.

More than three quarters of the patients in Baghdad and najaf had history of menarche at age equal or less than 12 years (table-2 below). In Najaf, 92 patients (70.2%) had age of menopause at or more than 50 years and 77 patients (72%) in Baghdad, according to age of menopause (52.7%) of patients in najaf age of menopause more than and equal to 50 years and (60.7%) of patients in Baghdad not menopause yet had cancer of breast and this was statistically significant (pvalue=0.00)

Table (2): Distribution of patients according to the age of menarche and age at menopause.

Variables	Categories	Najaf No. (%)	Baghdad No. (%)	P value
Age of menarche (year)	≤ 12	92(70.2)	77(72)	0.769
	>12	39(29.8)	30(28)	
Age at menopause (year)	< 50	17(13)	12(11.2)	0.000*
	≥ 50	69(52.7)	30(28)	
	Not menopause	45(34.4)	65(60.7)	

*Chi-square test was used. Significance level considered at p value ≤ 0.05.

In the current study, more than half of patients in Baghdad and najaf reported age at marriage equal and more than 18 years. There was significant difference between the two groups regarding age at first pregnancy as shown in table-3 below.

Table (3): Distribution of patients according to the age at marriage and the age at first pregnancy.

Variables	Categories	Najaf No. (%)	Baghdad No. (%)	P value
Age at marriage (in years)	< 18	42(32.1)	32(29.9)	0.771
	≥18	74(56.5)	65(60.7)	
	No	15(11.5)	10(9.3)	
Age at first pregnancy (in years)	< 18	33(25.2)	22(20.6)	0.000*
	19-23	37(28.2)	21(19.6)	
	24-28	53(40.5)	35(32.7)	
	≥29	2(1.5)	1(|0.9)	
	Nulliparous	6(4.6)	28(26.2)	

*Chi-square test was used. Significance level considered at p value ≤ 0.05.

The study revealed that history of breast feeding accounted to (48.6%) female of Baghdad group compared to (56.5%) female of Najaf group of patients as illustrated in table-4 below. Regarding the use of oral contraceptives, 95(72.5%) patients from Baghdad group reported the use of oral contraceptives compared to 58(54.2%) patients in Najaf, and this difference was statistically significant (p=0.003). There was significant difference between the two groups regarding number of children as shown in table-4 below.

Table (4): Distribution of patients according to the breastfeeding, using oral contraception, the number of patient's children and family history of cancer of breast.

Variables	Categories	Najaf No. (%)	Baghdad No. (%)	P value
Breast feeding	Yes	57(43.5)	55(51.4)	0.225
	No	74(56.5)	52(48.6)	
Using oral contraceptive	Yes	58(54.2)	95(72.5)	0.003*
	No	49(45.8)	36(27.5)	
Number of children	1-3	20(15.3)	25(23.4)	0.004*
	4-6	66(50.4)	53(49.5)	
	>6	44(33.6)	21(19.6)	
	No children	1(0.8)	8(7.5)	
Smoker	Yes	0(0)	2(1.9)	0.116
	No	131(100.0)	105(98.1)	
Radiation to chest and breast	Yes	15(11.5)	5(4.7)	0.06
	No	116(88.5)	102(95.3)	
Family history	Yes	61(46.6)	48(44.9)	0.793
	No	70(53.4)	59(55.1)	
Degree	First-degree	28(21.4)	22(20.6)	0.784
	Second-degree	24(18.3)	16(15)	
	-ve family history	79(60.3)	69(64.5)	

*Chi-square test was used. Significance level considered at p value ≤ 0.05.

The study revealed more than half of patient in najaf and Baghdad had negative Estrogen and progesterone receptors, and more than half had positive HER2, and more than half of patient not done BRCA test in both najaf and Baghdad.

Table 5: Distribution of patients according to investigation.

Variables	Categories	Najaf No. (%)	Baghdad No. (%)	P value
Estrogen and progesterone receptors	+ve	58(44.3)	44(41.1)	0.625
	-ve	73(55.7)	63(58.9)	
HER2	+ve	67(51.1)	64(59.8)	0.181
	-ve	64(48.9)	43(40.2)	
BRCA	+ve	38(29)	31(29)	
	-ve	27(20.6)	18(16.8)	0.736
	Not done	66(50.4)	58(54.2)	

DISCUSSION

Concerning the age, 122 patients (93.1%) in Najaf were less than 45 years while in Baghdad 50 patients (46.7%) were in the same age group and this difference was statistically significant (p=0.000), these results are same the results of the study[12] which shows that there is significant similarities between Arab and western countries, but the big difference is that the peak age is between forty and fifty years in Asian countries, but is between sixty and seventy years in Western countries may be due to awareness and education about the disease in Arabs countries. About marital status, more than three quarter of patients in Najaf and Baghdad were married with no significant differences between the two cities and this is different from result of Kato.[13] study which show that unmarried females have more risk to develop cancer of breast, this may be due to hormonal factors changes. Regarding the educational level, illiteracy and primary education were high in Najaf and Baghdad, this result is differed from a study done in United States by Marten.[14] and in Saudi Arabia.[15] where found that most of patients were highly educated, this may be due to that highly educated people in Iraq went to private clinic rather than governmental hospital, so there will be decrease registration results.

The majority of patients in both Najaf and Baghdad were housewives, this like study in Asan hospital.[16] but differ from Turkish study.[17] which revealed that most of patients were workers, this may be due to most of our patients were uneducated or social demography play a role. Taking the age of menarche and menopause as a risk factors More than three quarters of the patients in Baghdad and najaf had history of menarche at age equal or less than 12 years according to age of menopause (52.7%) of patients in najaf age of menopause more than and equal to 50 years and (60.7%) of patients in Baghdad not menopause yet had cancer of breast and this was statistically significant (pvalue=0.00), this goes with the result of study done in Iranian female patients.[18] Hereditary or environmental factors such smocking and radiation to chest can show the differences but not significant this different from study in China.[19]

Regarding age of marriage more than half of cases married at or above age of 18 yrs.' in both Baghdad and najaf this results goes with results of the studies which shows that marriage in older ages increase the risk of cancer of breast such as study of Kinlen,[20] social consideration and traditional factors differences may have the major effect. regarding age of first pregnancy There was significantly difference between the two groups regarding age at first pregnancy, these results same results of Kinlen,[20] Regarding breast feeding is well known that it is protective against cancer of breast,[21] but in our study revealed that, in Baghdad (51.4%) were breast feeding while those in Najaf (51.4%), our result may be bias of data collection because >90% were housewives and need more detail question about type of breast feeding (mixed or absolute breast feeding). Regarding use of oral contraceptives pills, in Baghdad 95(72.5%) compared to 58 patient (54.2%) in Najaf reported used oral contraceptives, and this difference was statistically significant (0.003), this like study in turkey and china.[17,19] that indicates the risk of cancer of breast increased in female using oral combined contraceptives pills. Increased number of children considered protection against cancer of breast (Li, Fan et al. 2021), significant differences with p value of (0.004) noticed concerning number of children with 95 patients (72.5%) in Baghdad having >4 children compared to 66 patients (50.4 %) in Najaf, may be due to hormonal factors and breast feeding. Regarding family history not significant difference and about half of cases not have family history of cancer of breast this differed from study in china.[10,11] which show significant associations of cancer of breast with positive family history.

Regarding investigation more than half of patient in najaf and Baghdad had negative Estrogen and progesterone receptors, and more than half had positive HER2 theirs same study in US[22],1026 CASES 872 known HER2 of which positive 171 cases from it, and 58 cases ER, PR positive in it.

Regarding BRCA Test there is no significant association as in study in Italian. which found no significant association with BRCA this may be due to small size bias or patient not done test due to high cost of it.

CONCLUSION

There is significant difference in cancer of breast risk factors between patients in Baghdad and Najaf regarding age of the patients, age at menopause, age at first pregnancy, using of contraceptive pills and number of children, this may be due to genetic, hormonal, environmental, and racial factors.

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