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CLINICOPATHOLOGICAL PATTERNS AND SURVIVAL OUTCOMES OF BREAST CANCER AT BAGHDAD TEACHING HOSPITAL: A 13-YEAR STUDY

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ABSTRACT

Background: Breast cancer is the most prevalent malignancy among women globally and specifically within Iraq. Accurate assessment of prognostic and predictive factors at the time of diagnosis is essential for selecting optimal therapy and predicting clinical outcomes. **Purpose**: This study aims to determine the correlation between the stage of breast cancer at the time of presentation and the survival rate in Iraqi patients. It also seeks to identify how various risk factors influence this relationship. **Methods**: A retrospective analytic study was conducted on 508 female patients diagnosed with breast cancer between 1998 and 2010 at Baghdad Teaching Hospital and a private clinic. Data collected included socio-demographic characteristics, histological diagnosis (WHO classification), and clinical staging using the AJCC TNM system. Statistical analysis was performed using SPSS version 23 to assess significant associations ($p < 0.05$). **Results**: The mean age of the patients was 50.6±11.95 years, with the majority (77.15%) being over 40 years old. The most common age group at presentation was 41–50 years, primarily presenting in Stage II and Stage III. Invasive Ductal Carcinoma (IDC) was the dominant histological type, accounting for 90% of cases. Notably, 47.8% of patients had a positive family history of breast cancer, which was most frequently associated with Stage IV diagnoses. **Conclusions**: In Iraq, breast cancer is frequently diagnosed at locally advanced stages (Stage II and III), which significantly impacts prognosis and treatment strategy. The high prevalence of IDC and the strong correlation between positive family history and advanced staging suggest a need for enhanced early detection programs and genetic screening in the region.

KEYWORDS: Breast Cancer, TNM Staging, Iraq, Invasive Ductal Carcinoma (IDC), Prognostic Factors.

As in table

Table 1: Traditional prognostic and predictive factors for invasive breast cancer.

TUMOR FACTORS	HOST FACTORS
Nodal status	Age
Tumor size	Menopausal status
Histologic / Nuclear grade	Family history
Lymphatic /vascular invasion	Previous breast cancer
Pathologic stage	Immunosuppression
Hormone receptor status	Nutrition
DNA content (ploidy,S-phase fraction)	Prior chemotherapy
Extent of intraductal component	Prior radiation therapy
HER-2/*neu* expression	

Treatment decisions are made by the patient and her physician after consideration of the optimal treatment available for the stage and biological characteristics of the cancer, the patient's age and preferences, and the risks and benefits associated with each treatment protocol. Surgery is often combined with other

treatments such as radiation therapy, chemotherapy, hormone therapy, and/or biologic therapy.

PATIENTS AND METHOD

Study Design: A retrospective analytic study for 508 females with an age range of 17-85 years who diagnosed as having breast cancer.
Place of study : Baghdad teaching hospital - Medical city and a private Clinic of Dr Azam Q Aqa, Baghdad, Iraq.
Period of study : 13 years from (1998 to 2010)

The following criteria for 508 case were analyzed in the study

- Sex, age, family history
- Histology diagnosis, right or left or bilateral breast involved by cancer.
- TNM staging system, TNM stage groupings, grade of breast cancer.
- Hormonal receptor status (progesterone, estrogen, Her-2 receptors).
- Causes of receptor status not done.
- Operation within 6 weeks of diagnosis.
- Receive chemotherapy, radiotherapy, hormonal therapy and its type, Her2 inhibitor therapy and its type.

All these data was obtained from patient card sheet except 16 patients need to be communicate with them by telephone to complete the follow-up data sheets.

Another data like marital status, age of menarche, age of menopause, Gravid, parity, lactation, male gender, patients with recurrence breast carcinoma and methods of tissue diagnosis. All these data excluded because it is not relevant to our research title.

T test was used to assess the differences in mean for continuous variables, while chi square test was used to assess the differences in distribution of categorical variables.

Data were presented using histogram for continuing variance (using mean), while pie diagrams used for categorical variables

Statistical Analyses were performed using SPSS (statistical package for social sciences) software windows version 21, and Student's independent t-test to reveal any significant association. The results were considered to be significant when the p value becomes less than 0.05.

Data of all cases were checked for any error or inconsistency then transferred into a computerized database program; Microsoft excel software was used. All variables were coded with a specific code for each variable and prepared for statistical analysis. SPSS (statistical package for social sciences) software for windows version 23, was used in statistical analysis.

Descriptive statistics were presented as frequency (number of cases) with proportions (percentages), and as mean ± standard deviation. Chi square test was used to compare frequencies and proportions, the student test was used to compare between two means, ANOVA test (analysis of variances) was used to compare among more than two means.

RESULTS

508 cases were included in the study and all were females.

The age of studied group ranged from 17 to 85 years with a mean age of (50.6 +/- 11.95) years. About (77.15%) of the studied group was > 40 years old and (22.85%) was ≤ 40 years, table 1.

Table 2: Age distribution of study population.

Age(Year)	N	%
≤30	16	3.15%
31-40	100	19.7%
41-50	157	30.9%
51-60	139	27.4%
61-70	65	12.8%
>70	31	6.1%
Total	508	100%
Mean ±SD		**50.6±11.95**
Range		**17-85**

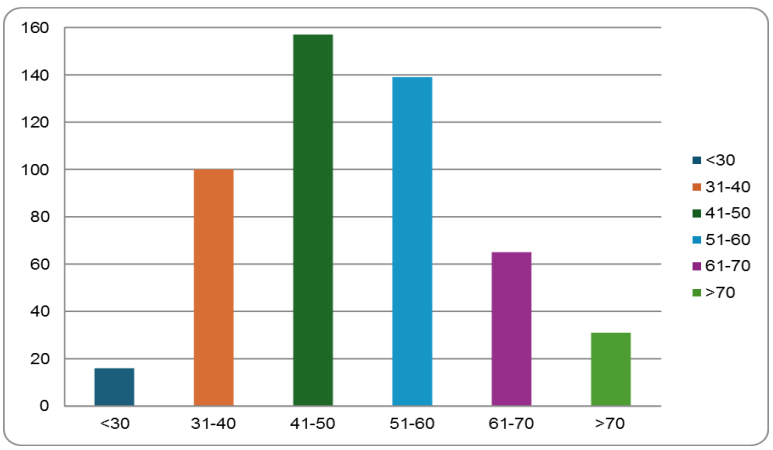

Figure 1: Age distribution.

The no. of patients according the year of diagnosis is listed in table 3.

Table 3: No. of Patients in year of diagnosis.

	No.	%
1998	3	0.6%
1999	10	2.0%
2000	8	1.6%
2001	16	3.1%
2002	42	8.3%
2003	35	6.9%
2004	25	4.9%
2005	27	5.3%
2006	3	0.6%
2007	38	7.5%
2008	66	13%
2009	87	17.1%
2010	148	29.1%
Total	508	100%

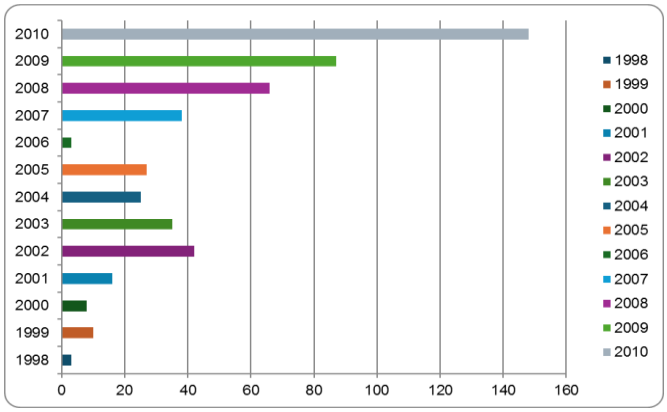

Figure 2: Distribution of patients according to the year of diagnosis.

And regarding the age of presentation in relation to stage of disease at time of diagnosis shown main age group was (41-50) years mainly stage II,III.

Table 4: Age group over the stages of breast cancer.

STAGE	No.	≤ 30 Years	31-40 years	41-50 years	51-60 years	61-70 years	> 70 years
0	**5**	**0**	**0**	**3**	**1**	**1**	**0**
I	**60**	**0**	**13**	**19**	**20**	**6**	**2**
II	**263**	**12**	**50**	**72**	**71**	**38**	**20**
III	**175**	**5**	**38**	**64**	**44**	**15**	**9**
IV	**5**	**0**	**0**	**0**	**1**	**4**	**0**
TOTAL	**508**						

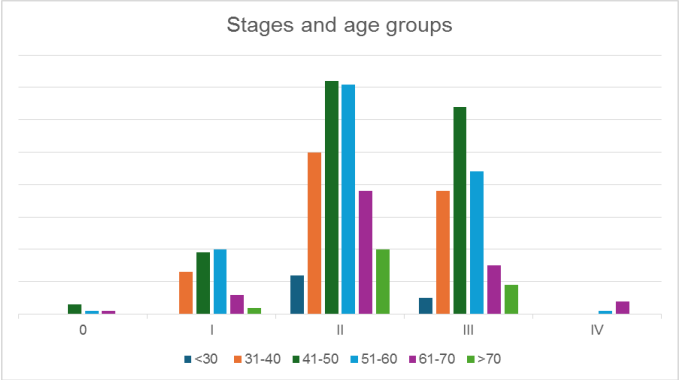

Figure 3: stages with age of patients.

Family history of breast cancer to studied group show there are 47.8% of patients have positive family History. & mainly affected stage by Family history was stage IV.

Table 5: Descriptive of FHx within stages.

STAGE	No.	Positive FHx	%
0	5	2	40%
I	60	29	48.34%
II	263	120	45.64%
III	175	80	45.72%
IV	5	3	60%
TOTAL	508	243	

The most common type of breast cancer diagnosis among studied population was IDC reaching up to (90.0%), followed by LC in (4.1%), while the other varieties like mixed DC+LC, MC, insitu DC, constitute around 1% only, Paget around (1.0%) and phylloid tumor around (0.8%) table 6 show the details.

Table 6: Descriptive of the differential diagnosis.

Dx	N	%
IDC	457	90%
ILC	16	3.1%
Insitu.DC	2	0.4%
LC	21	4.1%
MC	1	0.2%
Mixed D+L	2	0.4%
Paget	5	1.0%
Phylloid	4	0.8%
Total	508	100%

Within the stages we notice the stage II diagnosed as IDC about (93.2%) and (3.8%) as LC, Stage III IDC (89%) and (5.72%) as LC, Stage I (85%), Stage IV (80%) and (20) as LC, Stage 0 IDC (40%) and (40%) as insitu DC and another percentage.

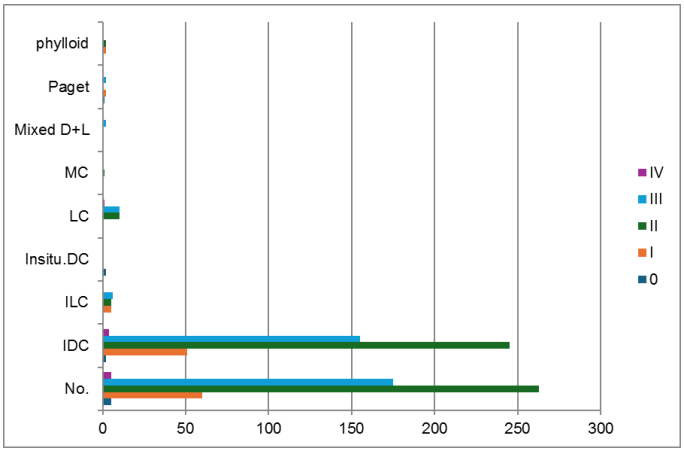

Figure 4: Descriptive of diagnosis with stages.

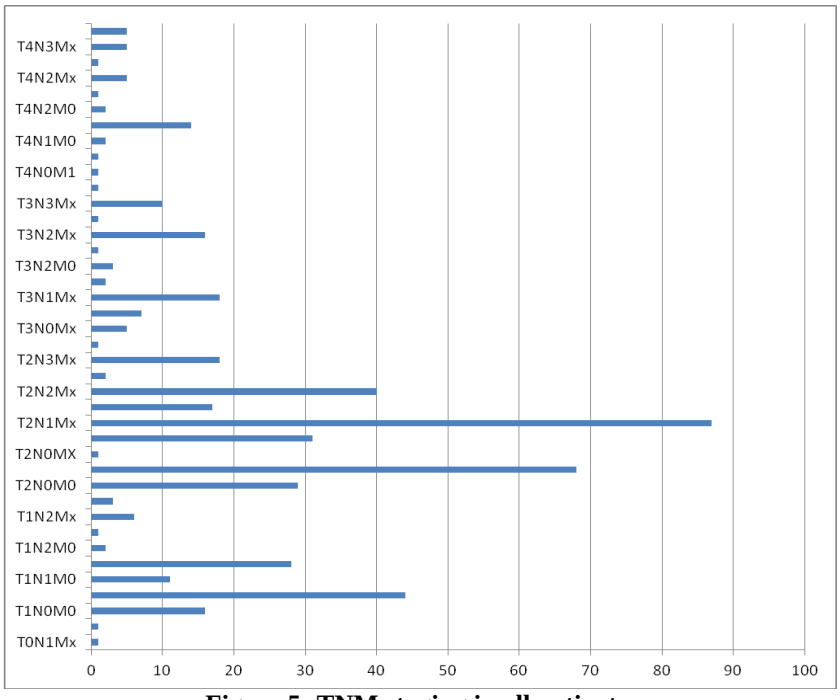

Figure 5: TNM staging in all patients.

DISCUSSION

The findings of this study highlight significant demographic and clinical patterns among Iraqi women diagnosed with breast cancer between 1998 and 2010. Breast cancer remains the most prevalent malignancy among women both globally and within Iraq. The selection of effective therapy relies heavily on accurate prognostic factors, such as nodal status and tumor size, which help oncologists predict tumor relapse and clinical outcomes at the time of diagnosis.

The mean age of the study population was 50.6 years, with a broad range from 17 to 85 years. Notably, over 77% of patients were older than 40, which aligns with global trends where breast cancer risk increases with age. However, the data reveals a substantial burden in younger populations, as approximately 22.85% of patients were 40 years old or younger. The most frequent age group at presentation was 41–50 years, primarily presenting with Stage II and Stage III disease. This suggests that many patients are diagnosed at locally advanced stages during their most productive years.

The distribution of cancer stages at the time of diagnosis is a critical indicator of public health awareness and screening efficacy. In this study:

- Stage II was the most common presentation (n=263), followed by Stage III (n=175).
- Early-stage detection (Stage 0 and I) remained relatively low compared to advanced stages.
- Family history played a notable role, with 47.8% of the studied group having a positive family history of breast cancer. Interestingly, Stage IV patients showed the highest frequency of positive family history (60%), which may warrant further investigation into genetic predispositions or screening behaviors within these families.

Invasive Ductal Carcinoma (IDC) was the predominant histological type, accounting for 90% of cases. This was consistently the most frequent diagnosis across all stages, particularly in Stage II (93.2%) and Stage III (89%). Lobular Carcinoma (LC) and other varieties like Paget's disease and Phylloid tumors were significantly less common.

The study emphasizes that treatment decisions must be multifaceted, considering the pathologic stage, biological characteristics (such as HER-2/neu expression and hormone receptor status), and patient factors like age and menopausal status. In the Iraqi context, the high prevalence of Stage II and III at diagnosis necessitates aggressive multimodal treatment, often combining surgery with chemotherapy, radiotherapy, and hormonal therapies.

CONCLUSION

Based on the data provided in the research study, the following conclusions can be drawn:

- Prevalence and Demographics: Breast cancer is the most common malignancy among women in Iraq. The majority of patients (77.15%) are older than 40 years, with a mean age at diagnosis of 50.6 years.
- Staging at Diagnosis: Most Iraqi patients present with locally advanced disease, specifically Stage II (51.8%) and Stage III (34.4%), while early-stage detection (Stage 0 and I) remains significantly lower.
- Pathological Dominance: Invasive Ductal Carcinoma (IDC) is the most frequent histological type, accounting for 90% of all diagnosed cases across all stages.
- Risk Factors: A positive family history of breast cancer is highly prevalent, affecting 47.8% of the study population, with the highest correlation found in patients diagnosed at Stage IV.
- Clinical Correlation: The stage of the disease at the time of presentation is a critical prognostic factor that dictates the selection of therapy, including surgery, chemotherapy, and hormonal treatments.

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