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Demographic and Clinico-Pathological study of Women with Breast Carcinoma in Wasit Governorate

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Abstract

The second most common cause of cancer-related fatalities in women is breast cancer. Breast cancer is a multi-step process that involves several cell types, and it is still difficult to prevent globally. In Iraq, breast cancer is the most frequent kind of cancer. The study included a total of 60 patients. Approximately 31 of the breast cancer patients were diagnosed at age 50 or older; 58.3% came from urban areas. (43.4%) patient with breast cancer who is obese. Positive family history was recorded at 18.3%. Accordingly, 33.3% of these patients presented in advanced stages (IV). The main histological type was invasive ductal carcinoma, in which pathological changes of grade II and III were observed at 76.6% and 16.7%, respectively. We also noticed that women with breast cancer on the left side (55.0%) are more likely. According to the data for ABO blood groups, type O and type B are the most common. Only 71.7% of our tumors were ER-positive, 61.7% were PR-positive, and 33.3 percent were HER2. The majority of tumors (50.0%–20.0%) are luminal. The results of this study support stepping up efforts to create comprehensive strategies for controlling breast cancer in Iraq. In the lengthy battle against breast cancer, these findings are but a minor step forward .

Keywords: Breast cancer, Demographic, Clinical characteristic**.**

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دراسة ديموغرافية وسريرية- مرضية للنساء المصابات بسرطان الثدي في محافظة واسط

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المستخلص

السبب الثاني الأكثر شيوعا للوفيات المرتبطة بالسرطان لدى النساء هو سرطان الثدي. سرطان الثدي هو عملية متعددة الخطوات تشمل عدة أنواع من الخلايا، ولا يزال من الصعب الوقاية منه على مستوى العالم. في العراق، يعتبر سرطان الثدي من أكثر أنواع السرطان شيوعاً. شملت الدراسة ما مجموعه 60 مريضا. تم تشخيص ما يقرب من 31 من مرضى سرطان الثدي في سن 50 أو أكثر؛ 58.3% جاءوا من المناطق الحضرية. (43.4%) مريضة بسرطان الثدي وتعاني من السمنة. وتم تسجيل تاريخ عائلي إيجابي بنسبة 18.3%. وبناء على ذلك، فإن 33.3% من هؤلاء المرضى ظهروا في مراحل متقدمة (IV). كان النوع النسيجي الرئيسي هو سرطان الأقنية الغازي، حيث لوحظت تغيرات مرضية من الدرجة الثانية والثالثة بنسبة 76.6% و16.7% على التوالي. كما لاحظنا أن النساء المصابات بسرطان الثدي في الجانب الأيسر (55.0%) أكثر عرضة للإصابة بسرطان الثدي. وفقًا لبيانات فصائل الدم ABO، فإن النوع O والنوع B هما الأكثر شيوعًا. فقط 71.7% من أورامنا كانت إيجابية للإستروجين، و61.7% كانت إيجابية للعلاقات العامة، و33.3% كانت لـ HER2. غالبية الأورام (50.0٪ - 20.0٪) تكون لامعة. نتائج هذه الدراسة تدعم تكثيف الجهود لخلق استراتيجيات شاملة للسيطرة على سرطان الثدي في العراق. وفي المعركة الطويلة ضد سرطان الثدي، فإن هذه النتائج ليست سوى خطوة بسيطة إلى الأمام.

الكلمات المفتاحية: سرطان الثدي، الديموغرافية، الخصائص السريرية

انتساب الباحثين

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Introduction

Breast cancer remains a global public health concern to this day. In particular, breast cancer is the second most common cause of mortality in women, right after lung cancer. In Southeast Asia and around the world, women are diagnosed with the highest incidence of cancer kinds [1]. Breast

cancer affects women in both developed and developing nations. An estimated 508,000 women globally lost their lives to breast cancer in 2011. Globally, there is a wide ange in breast cancer survival rates: 80% or higher in North America, Sweden, and Japan, roughly 60% in middle-income nations, and less than 40% in low-income nations [2].

According to the American Cancer Society's prediction, 226.870 women in America would receive a diagnosis in 2012, and 39.510 of them would die from the disease. Not only are more women receiving late-stage diagnoses of breast cancer, but a greater percentage of younger women—thirties and forties—are now presenting clinically with the disease [3]. high international World Health Organization (WHO) incidence rate of cancer in women. The WHO has suggested implementing screening in phases, starting with public and professional education to encourage early diagnosis[4]. Breast cancer accounts for over one-quarter of female cancer fatalities and around one-third of recorded female cancer cases in Iraq over the past 20 years, contributing to the country's overall cancer rate. The incidence rates of breast cancer have increased. Delays in seeking medical attention for breast cancer symptoms continue to be a significant contributing factor to delayed diagnosis. Breast cancer continues to play a significant role in the effects of late diagnosis on both the person and society[5]. A multitude of causes, either separately or in combination, can lead to the start of breast cancer, especially in women who are genetically predisposed to the condition or who are exposed to high-risk factors[6]. The use of hormonal therapy, such as oral contraceptives, advanced age, early menarche, late menopause, first full-term pregnancy at a late age, obesity, poor diet, smoking, alcohol consumption, low physical activity, and early life exposure to high radiation doses are among the risk factors [7]. With varying degrees of success, researchers have also investigated the possibility that psychological factors could be linked to the occurrence of breast cancer. An early study that looked at "cancer-prone" personality traits found no differences in locus of control of behaviour, emotional expression-in, emotional expression-out, emotional control, self-esteem, anxiety, or depression between subjects with breast carcinoma and controls [8]. Furthermore, gene expression profiles distinguish the molecular subtype of tumors in BC patients, which include luminal epithelial/estrogen receptor (ER) positive, HER2 positive, triple negative, and normal breast-like[9]. In this study, we looked into the epidemiology of breast tumors in Iraqi patients and how these tumors related to clinic-pathological and demographic characteristics.

Methodology

During the period from 2023/October until 2024/February, and after obtaining official approvals from the Wasit Health Foundation. A total of 60 diagnosed cases of BC were collected. from the Wasit Specialized Centre for Oncology, Wasit, Iraq. All information about demographic characteristics age which including, family history, residency, and BMI of patients was noted in a questionnaire forma during direct meetings with patients. The clinical information regarding tumor stage and grade, phenotype, molecular subtype, and ABO blood group, in addition to the findings of the estrogen receptor (ER), progesterone receptor (PR), and receptor of human epidermal growth factor (HER)-2, was acquired from carefully reviewing patients' medical reports.

Statistical analysis

Statistical Package (SPSS) version 20 was used for the statistical analyses. The Chi-square (X2) test was used to determine approximately the percentage of demographic and clinical–pathological characteristics for comparison among patients.

Results

Frequency distribution of patients with BC according to demographic characteristics

the range age of patients with BC was 25–75 years. Most of the patients with BC enrolled in the present study were more than 50 years of age, 31 (51.7%), as shown in Figure (1). Also, this study showed that 8 (13.3%) of women patients with BC have a positive family history, and 52 (86.7%) of women patients with BC have a negative family history figure (2).

The frequency distribution of patients with BC according to residency is shown in Figure (3). In the present study, the proportion of urban patients with BC was more than that of rural subjects, 35 (58.3%) versus 25 (41.7%), respectively.

The present results show the mean level of BMI was 29.14 ± 5.75. , the proportion of urban patients with BC was more than that of rural subjects, 35 (58.3%) versus 25 (41.7%), respectively.

According to obesity figure (4). The proportion of BC patients with overweight (BMI ≥ 25-29 kg/m^2) was 20 (33.3%), the proportion of patients with obese (BMI ≥ 30 kg/m^2) was 26 (43.4%), whereas the proportion of patients with normal weight (BMI = 18.5 - 24.9 kg/m^2) was only 14 (23.3 %). Also, the present results show the mean level of BMI was 29.14 ± 5.75.

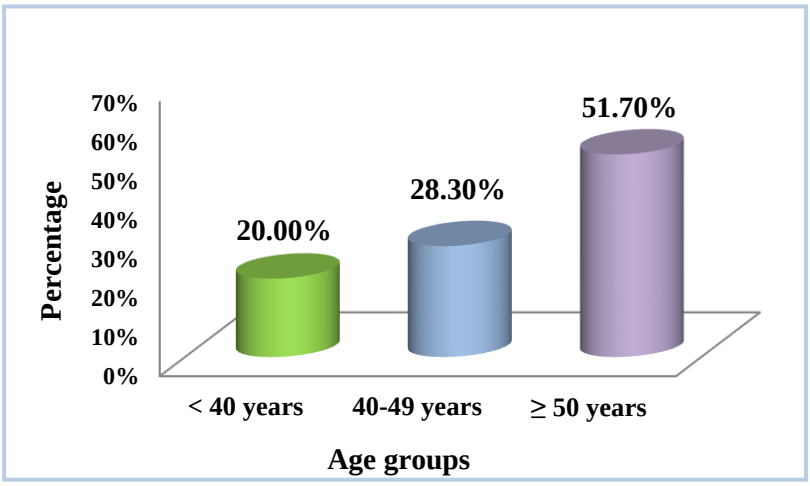

Figure (1): Distribution of BC patients according to age groups

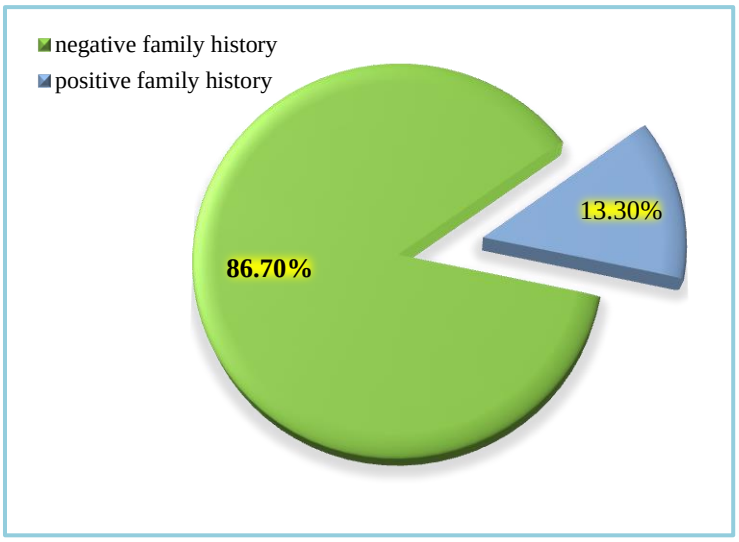

Figure (2): Pie chart showing the frequency distribution of women patients with BC according to family history

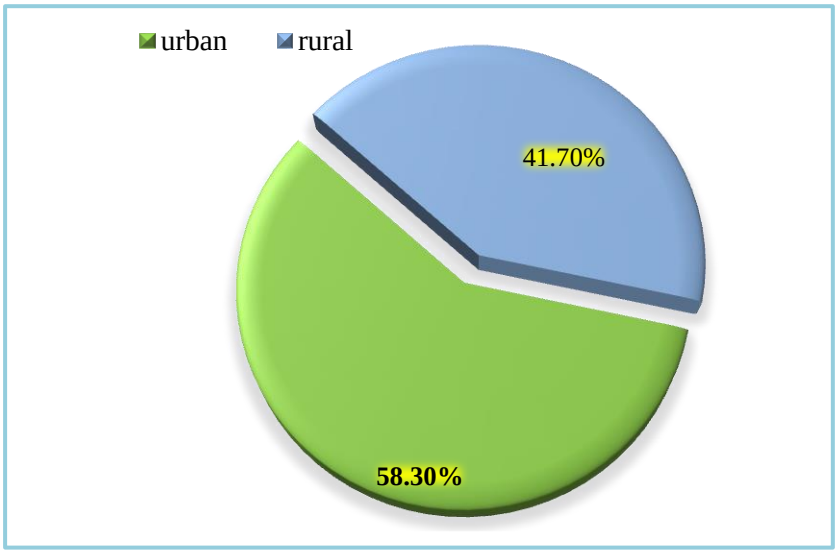

Figure (3): Pie chart showing the frequency distribution of women patients with BC according to residency

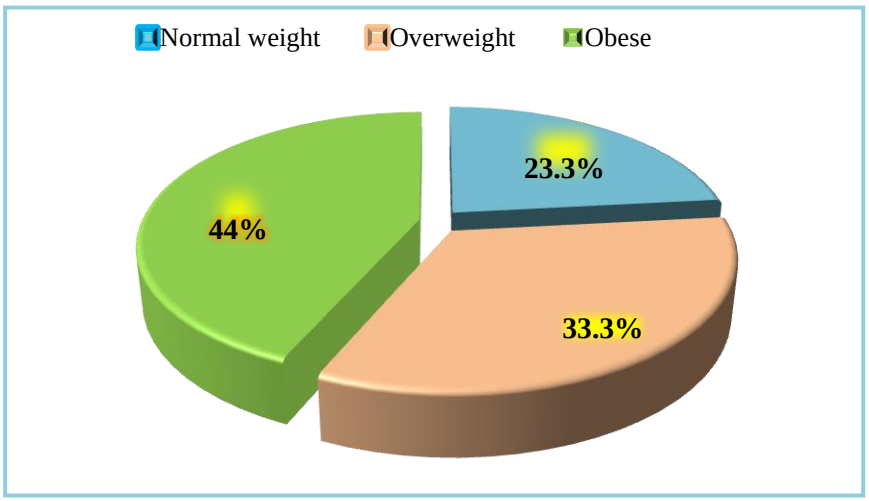

Figure (4): Pie chart showing the frequency distribution of women patients with BC according to obesity

Frequency distribution of patients with BC according to ABO blood groups

BC patients according to blood group was as following: 13 (21.7%) of patients have A group, 18 (30.0 %) of patients have B group, 10 (16.6%) of patients have AB blood group, and 19 (31.7%) of patients have O blood group. Where the present results show most patients with BC have O blood group 19(31.7 %), whereas less frequent of patients with BC have AB blood group 10 (16.6 %) as shown in figure (5).

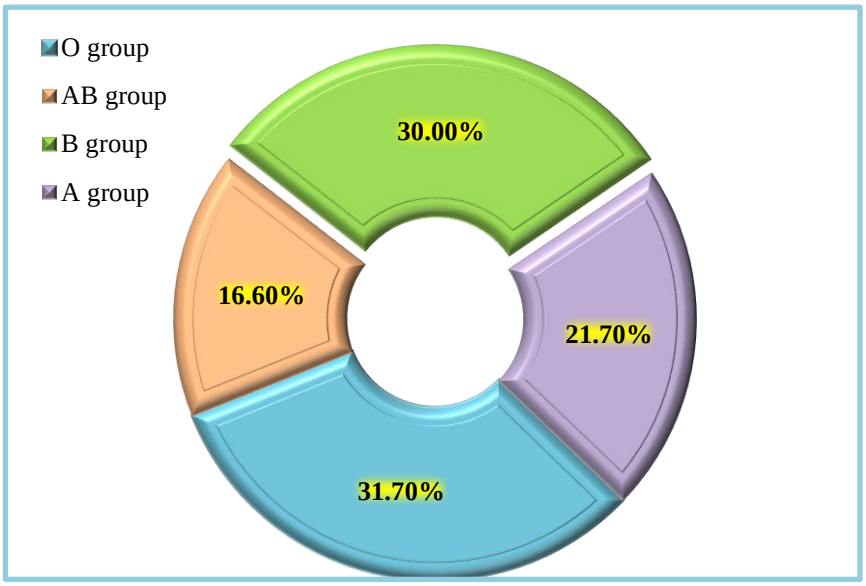

Figure (5): Pie chart showing the frequency distribution of women patients with BC according to blood group

Reference: outcomes of the researcher's SPSS programme analysis

Frequency distribution of patients with BC according to Clinical and pathological characteristics

The frequency distribution of BC patients according to clinical of breast cancer are shown in table (1). The frequency distribution of BC patients according to BC Stage was as following: 20 (33.3 %) of BC patients have IV stage, 15 (25.0%) of BC patients have IIA stage, 10 (16.7 %) of BC patients have IIIA stage, 9 (15.0 %) of BC patients have IIB stage, 4 (6.7 %) of BC patients have IIIC stage and only 2 (3.3 %) of BC patients with IA stage. Regarding BC grade, the present results show most patients with BC have grade 2, 46 (76.6%). Also regarding BC Position, the present results show most patients with BC with left position, 33 (55.0 %). Furthermore, the frequency distribution of BC patients according to treatment was as following: 20 (33.3 %) of BC patients with treatment, and 40 (66.7 %) of BC patients without or uncompleted treatment.

Table (1): Clinical and pathological characteristics of women patients with BC

Characteristic	Patients with BC *n* (%)
BC Stage	
IA, *n* (%)	2 (3.3 %)

IIA, *n* (%)	15 (25.0 %)
IIB, *n* (%)	9 (15.0 %)
IIIA, *n* (%)	10 (16.7 %)
IIIC, *n* (%)	4 (6.7 %)
IV, *n* (%)	20 (33.3 %)
BC Grade	
Grade 1, *n* (%)	4 (6.7 %)
Grade 2, *n* (%)	46 (76.6%)
Grade 3, *n* (%)	10 (16.7%)
BC Side	
Right, *n* (%)	26 (43.3 %)
left, *n* (%)	33 (55.0 %)
Bilateral , *n* (%)	1 (1.7 %)

n: number of cases; Reference: outcomes of the researcher's SPSS programmer analysis

Frequency distribution of patients with BC according to molecular subtype and phenotype

The frequency distribution of BC patients according to molecular subtype and phenotype are shown in table (2). The frequency distribution of BC patients according to Estrogen receptor (ER) was as following: 43 (71.7%) of BC patients have positive ER and 17 (28.3 %) of BC patients with negative ER. Also the present results show 37 (61.7%) of BC patients have positive progesterone receptor (PR). The frequency distribution of patients according to Human epidermal growth factor receptor 2 (HER2) was as following: 20 (33.3%) of BC patients have positive HER2 and 40 (66.7 %) of BC patients have don't have HER2.

Regarding M. Type, the present results show most patients with BC have Luminal A, 30 (50.0%) in compared with other M types. Also regarding H. Type the present results show most patients with BC have Invasive ductal carcinoma (IDC), 48 (80.0%) in compared with other H types.

Table (2): Breast cancer molecular subtype and histological type

Characteristic	Patients with BC *n* (%)
Estrogen receptor (ER)	
Positive, *n* (%)	43 (71.7 %)
Negative, *n* (%)	17 (28.3 %)

Progesterone receptor (PR)	
Positive, *n* (%)	37 (61.7 %)
Negative, *n* (%)	23 (38.3 %)
Human epidermal growth factor receptor 2 (HER2)	
Positive, *n* (%)	20 (33.3 %)
Negative, *n* (%)	40 (66.7 %)
Molecular Subtype	
Luminal A, *n* (%)	30 (50.0%)
Luminal B, *n* (%)	12 (20.0 %)
Triple negative, *n* (%)	11 (18.3%)
Her2, *n* (%)	7 (11.7 %)
Histological Type	
Invasive ductal carcinoma (IDC), *n* (%)	48 (80.0 %)
Invasive lobular carcinoma (ILC), *n* (%)	7 (11.6 %)
Ductal carcinoma in situ (DCIS) , *n* (%)	1 (1.7 %)
IDC+DCIS, *n* (%)	1 (1.7 %)
IDC+ ILC, *n* (%)	3 (5.0 %)

n: number of cases; Reference: outcomes of the researcher's SPSS programme analysis.

Discussion

Following cardiovascular disease, cancer ranks as the Eastern Mediterranean Region's (EMR) fourth-leading cause of death, according to WHO mortality statistics. illnesses, injuries, and parasitic/infectious diseases[10]. The EMR is probably going to see the most increase in cancer incidence among the WHO areas during the next 15 years [11].It is generally widely known that Arab screening programmers for breast cancer fall short of ideal standards[12]. Breast cancer is the most common cancer diagnosed in women in Iraq; nevertheless, investigations on its incidence trends have not been carried out[13].Fig(1), shows that the biggest recognized risk factor for breast cancer is age[14]. Age-related increases in the incidence rate of breast cancer lead to a peak in the age of menopause, after which it either steadily declines or stays the same[15].Iraq's age-related incidence

rate was discovered to be lower than that of Jordan and Kuwait but greater than that of Saudi Arabia, Iran, Turkey, and Bahrain[16]. Numerous studies have indicated that one of the main risk factors is a family history of breast cancer[17]. According to research, women who are negative for BRCA mutations and have a family history of breast cancer (two or more cases in women under 50, or three or more cases at any age) are around 11 times more likely to get breast cancer[18].Breast cancer risk factors for BRCA1 and BRCA2 carriers include a history of early-onset breast cancer in close relatives[19].the residency area is more than half of our sample (58.3%) living in urban areas. in disagree with Abdulkareem et al [20] . Our results found that 23.3% of patients were of normal weight,33.3% overweight and 43.4% were obese. Because BMI may be changed, it is a significant risk factor. Its effects must be measured because higher BMI seems to be beneficial in childhood but has the opposite association in old age, which could pose a challenge for straightforward cancer prevention messaging. The elevated risk linked to a higher BMI grows with time after menopause, but is not noticeable until ten years following menopause, according to a case-control and prospective study[21]. The recent study's findings indicated that breast tumors are more common. This finding was consistent with previous research showing that Iraqi patients tended to have tumors on the left side of their breasts [22]. and did not agree with other research. suggested that the right side of the common patients had tumors [23].

Also, in this study, we studied the clinical characteristics of the patient, as shown in table (1).The degree of distinction aids in further adjusting the patient's therapy. The World Health Organization, the Royal College of Pathologists, the European Union, and the American Joint Committee on Cancer are just a few of the professional organizations worldwide that support the NGS, which classifies breast cancer patients into three grades according to the degree of differentiation[24]. Grade II and grade III malignancies accounted for 58% and 36% of the patients in our analysis, respectively. According to a study from Jordan, grade II and grade III breast cancer patients accounted for the majority of instances, representing 43.5% and 39.9% of cases, respectively [25].The TNM staging approach, which was first recommended by the American Joint Committee on Cancer (AJCC), has been the primary method used to assess a patient's prognosis and determine if they require adjuvant treatment for breast cancer [26].Most of the patients in our study were in stage IV. In contrast, the tendency is inverted in Western nations, where the majority of cases are classified as stage I, then stage II, III, and IV [27].Research has demonstrated that Arab women have more advanced breast cancer than Jewish women across all age groups [28].This also points towards the necessity of early screening and detection of breast cancer among women and the need for early treatment initiation. According to Rosa et al, tumors with positive receptors have a better prognosis and respond better to hormone therapy than tumors without receptors [29]. this research. We concluded that the majority of Iraqi patients under study had hormone receptor expression in their breast cancer, which was classified as hormone receptor positive and likely to respond to hormonal therapies. ER receptors were present in 43 (71.7%) of the cases, while PR-positive receptors were found in 37 (61.7%) of the cases. The outcomes agreed with the findings of the Iraqi

Centre Board's 2007 cancer therapy registry. They discovered that 45% of the cases had PR positive tumors and 65% of the cases had ER positive tumors. In an investigation on the hormone receptor composition of breast cancer specimens from Iraqi patients, there were higher rates of 61% and 52%, respectively, for ER and PR[30]. Conversely, a Jordanian study discovered that 50% and 57%, respectively, of breast cancer samples tested positive for ER and PR[31]. One well-known negative prognostic factor in BC is the human epidermal growth factor receptor 2 (HER2).[32]. It is associated with a high probability of death and recurrence and predicts how well breast cancer patients respond to chemotherapy[33].Only 22.22% of patients in this task were HER2, making up the vast majority of cases, or 62.22% of patients, who were HER2 negative.

The management of breast cancer has long involved the classification of the disease based on the molecular subtypes of the cancer. illnesses that have occurred recently. The reasoning behind this strategy became widely accepted: tumors with comparable expression patterns frequently share a pathogenic route, and as a result, they ought to be treated similarly[34]. These subtypes are currently listed in cancer registries of developed nations, indicating that changes in the frequency of these subtypes may be linked to the documented disparities in the rates of breast cancer incidence and mortality among racial and ethnic groups. of the tumor was found in this study[35]. Moreover, IDC accounted for 80.0% of the instances in this analysis and included mixed IDC & DCIS, mixed IDC & ILC, and DCIS mixed IDC & ILC. Iraqi researchers Fadhil et al ,discovered that DCIS made up 17.7% and IDC composed 64.6%, with the remaining histological categories making up 17.7%.Sixty to eighty percent of Arab women suffered from advanced illnesses[36]. Women could put off getting help until the lump has gotten bigger out of hesitation or fear. The patient may have ulceration or cutaneous redness. Early-stage breast cancer may also present with nipple retraction or asymmetry. The main complaint may be a bloody discharge, and patients with inflammatory breast cancer may experience thicker, redder, and more inflammatory breast skin[37]. In this study, the two most common groups for cancer patients are group O and B and this is opposition to those of the Diyala study, which discovered a connection between breast cancer and type A blood[38]. In a similar vein, antigens specific to the ABO blood group can stimulate human immunity and have anti-tumor properties. A method akin to that of eliminating red blood cells following blood type incompatibility can accomplish the goal of eliminating tumor cells if the immunological response of blood group antibodies is employed in tumor treatment. This could develop into a novel tumor treatment strategy that avoids tumor resistance [39].

Conclusion

The need for comprehensive national cancer control programmes is justified by the rising cancer burden in Iraq and the EMR in general. One important strategy for managing breast cancer is early identification, which can be achieved by informing the public about the disease's symptoms and indicators, training medical professionals, and making sure that diagnostic services are easily available. The prognosis of patients with breast cancer may become more predictable by

combining clinical, pathological, hormonal, and morphological factors, allowing for the wise selection of the most efficient treatment regimens.

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