THE ROLE OF ULTRASOUND IN AXILLARY LYMPH NODE RESPONSE TO NEOADJUVANT CHEMOTHERAPY IN BREAST CANCER PATIENTS

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ABSTRACT*:*

Background: *Neoadjuvant chemotherapy (NAC) is frequently used to treat locally advanced breast cancer, which has a substantial impact in eliminating axillary lymph node (LN) metastases. Axillary ultrasound is one of the essential tools for assessing its status, determining axillary management, and guiding the selection of surgical options.*

Aim of the Work is *to assess the role of ultrasound in predicting pathologic response of axillary LNs in breast cancer patients after NAC.*

Patients and Methods: *This study is a retrospective study conducted on 46 cases diagnosed with breast cancer and positive axillary LNs who received NAC and subsequent surgery.*

Results: *Among 46 breast cancer cases, the mean age was 45.26 years. Comparing pre and post NAC treatment, there was statistically significant difference (p=0.004) as the mean of mass size was 3.46 (range, 1.5–7.5cm) had decreased to 2.75 (range, 0.7–7.5 cm). Post NAC, infiltrated LNS were in 27 cases, and free LNs detected in 19 cases based on the pathological findings, while US reported suspicious LNs "positive" in 25 cases and negative results in 21 cases. The ultrasound and nodal pathology reports were concordant in (82.6%) women. The accuracy, sensitivity, and specificity of axillary ultrasound were 82%, 81.4% and 84% respectively.*

Conclusion: *Ultrasound proved useful to predict the axillary response to NAC in breast cancer patients. However, it may overestimate or underestimate residual disease in some patients. So, it is strongly recommended to combine two or more radiological modalities to increase the accuracy of final diagnosis in doubtful cases.*

Keywords: *Ultrasound, Axillary Lymph Node, Neoadjuvant Chemotherapy, Breast Cancer*

INTRODUCTION:

25% of all malignancies in women globally are breast cancer, making it the most common type of malignancy [1]. And the primary reason for women's cancer-related deaths[2].

Surgery is frequently used to treat early-stage breast cancer, followed by radiotherapy and chemotherapy to eradicate any remnant cancerous cells. Patients with late-stage disease (such as those with locally advanced breast cancer) will get initial treatment with Neoadjuvant chemotherapy to downstage the

disease, followed typically by surgery and post-operative therapies[3].

Neoadjuvant chemotherapy (NAC), followed by breast-conserving surgery or mastectomy, is the standard of care for patients with node-positive breast cancer [4].

Neoadjuvant chemotherapy (NAC) is a common treatment for large or locally advanced breast cancers with known prognostic value [5]. It includes treatment with a combination of systemic therapy (chemotherapy, targeted therapy and hormonal treatment) [6].

It is standard of care to assess the status of the axillary lymph nodes (LNs) in order to decide how to manage the axilla. In clinical practice, US is utilized to track axillary response to NAC treatment. According to earlier research, axillary imaging after NAC has a sensitivity and specificity of between 50 and 70 % and 58 to 77 % for US respectively[5].

The advantages of Neoadjuvant chemotherapy (NAC) are the reduction of tumor burden, a greater possibility of breast and axillary conservation surgery, a higher patient survival rate with Neoadjuvant chemotherapy (pCR) in both the breast and axilla [7]. Previous studies have shown that 50%–60% of patients treated with NAC had their axillary lymph node (LN) metastases eradicated [8].

Sentinel LN biopsy (SLNB) could be a different surgical approach in patients who are anticipated to get axillary Neoadjuvant chemotherapy (PCR), since it could prevent morbidity and consequences like lymphedema[9].

The American College of Surgeons Oncology Group 1071 and SENTINA sentinel lymph-node biopsy in patients with breast cancer before and after Neoadjuvant chemotherapy trials suggested that if at least three sentinel LNs were obtained, SLNB could be enough in patients who become clinically node negative after NAC. Though still concerning, the combined false-negative rates (FNRs) of the two investigations cited above were from 13% to 14%. As a result, axillary LN dissection has been the gold standard in clinically node-positive breast cancer following NAC due to the absence of consensus on the proper criteria for choosing SLNB candidates [7].

However, according to the American College of Radiology, or ACR, Appropriateness Criteria, MRI for primary breast cancer and US for axillary LN are the most precise imaging modalities for determining the presence of residual disease following NAC. Therefore, we believed that including US results of axillary LN together with clinical and pathologic variables might increase the precision of predicting axillary pathological response [7].

AIM OF THE WORK:

To assess the role of ultrasound in predicting pathologic response of axillary lymph nodes in breast cancer patients after Neoadjuvant chemotherapy

PATIENTS AND METHODS:

Study design:

This study is a retrospective study conducted on 46 cases diagnosed with breast cancer and positive axillary lymph node (LN) who received Neoadjuvant and subsequent surgery and obtained US imaging before and after NAC treatment at Ain Shams University hospitals in Cairo, Egypt. The US monitoring after NAC was performed a week from finishing the treatment. The purpose of the study is to evaluate the role of ultrasound in predicting pathologic response of breast mass after completion of Neoadjuvant chemotherapy as regard to the size of tumor and monitoring the response of axillary lymph nodes.

Inclusion Criteria:

Patients with newly diagnosed cancer breast, age> 18 years, received Neoadjuvant chemotherapy, clinically and radiologically positive axillary lymph nodes at diagnosis, complete data recorded in the files regarding US.

Exclusion criteria:

Pregnant or lactating female patients, patients refusing chemotherapy, metastatic cases, incomplete data in the files regarding radiological studies US.

All the included cases were subjected to:

Ultrasound examination:

Bilateral whole breast ultrasound was performed with linear probe with the frequency of 5–12 MHz, more often 7.5–10 MHz. Retromammary space is better examined with a 5.0 MHz probe and the nipple and areola with 10 MHz or higher frequency probe. According to the mass's long axis, systematic survey scanning was performed in the sagittal and transverse planes as well as in other planes as needed. To acquire three diameters, lesions were measured in the longitudinal and transverse planes. Tissue harmonic images were useful because they reduced noise and offered greater penetration and resolution for tumors with prominent posterior shadowing and inaccessible posterior borders.

High frequency US probes of 7.515 MHz are required for US of the axillary, supraclavicular, subclavian, substernal, and pectoral groups of lymph nodes, which must be done with the patient's arms behind her head, as is standard for breast scanning.

Additional ultrasound techniques:

Color and power Doppler assessments were performed to determine the lesion's vascularity. The maximum flow velocity (Vmax), the change in the number of flow signals, the pulsatility index (PI), and the resistivity index (RI) were the parameters assessed by color Doppler.

Statistical analysis of data:

The Statistical Package of Social Sciences (SPSS) program for Windows (standard version 24) (IBM SPSS Inc., Chicago, IL, USA) was used to code, process, and analyze the obtained data. Results from significance tests are expressed as two-tailed probability. The probability of a p-value was used to examine the degree of significance for each of the tests stated above, and the results were explained as follows: If the p value is greater than 0.05, it is non-significant; below 0.05, it is significant; and beyond 0.001, it is highly significant.

Ethical considerations:

The Ain Shams University faculty of medicine's regional ethical committee granted their approval for our study (MS 426/2022). Throughout all phases of the study, participants' privacy and confidentiality will be protected.

RESULTS:

Patient Characteristics:

This retrospective study included 46 female patients, with their age ranging from 26-71 years, and the mean age of 45.26 years. Most of the included cases were premenopausal women (80.43%). Positive family history of breast cancer was present in (26.09%) of cases, 39.13% of cases reported contraception use.

Invasive ductal carcinoma was diagnosed in 39 cases (84.78%), while additionally, invasive ducal carcinoma combined with carcinoma in situ was present in 6 cases (13.04%). Whereas invasive lobular carcinoma was detected, only 1 case (2.17%), All patient received NAC treatment according to the guidelines of the breast cancer clinic of Oncology Department, most of them had 6 – 8 cycles

Analysis of the Brest mass response by Ultrasound:

Among total of 46 cases, comparing pre- and post-NAC treatment, there was statistically significant difference (p = 0.004) as the mean of mass size was 3.46 (range, 1.5–7.5 cm) and had decreased to 2.75 (range, 0.7–7.5 cm)

Table 1: The analysis of the mean of Breast mass size pre and post NAC by ultrasound:

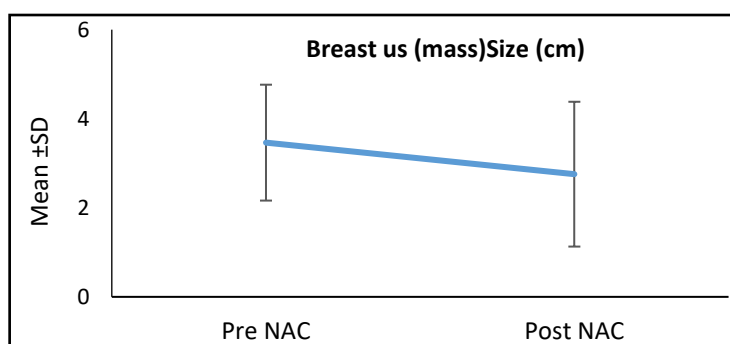| Breast mass Size (cm)	Time						Differences		Paired Test	
	Pre NAC			Post NAC			Mean	SD	T	P-value
Range	1.5	-	7.5	0.7	-	7.5	0.674	1.357	3.059	0.004*
Mean ±SD	3.463	±	1.301	2.755	±	1.626				

NAC neoadjuvant chemotherapy,

Figure (1): The analysis of the mean of Breast mass size pre and post NAC by ultrasound:

After treatment, US revealed complete response (no clinical evidence of residual tumor.) was detected in 8 cases (17.39%), while partial response (reduction in size of the tumor more than 30%) was achieved in 29 cases (63.04%). Besides, 13% of cases had stable disease (no changes or reduction in size of the tumor inferior to 30%), whereas progression (increase in size of tumor or presence of new lesions) was noticed in 3 cases (6.5%), table (2).

Table 2: The Breast mass response by Ultrasound after NAC.

Response	Number of lesions n=46	
	Number	Percent %
Complete response	8	17.39
Partial response	29	63.04
Stable disease	6	13.04
Progressive	3	6.52

Analysis of the axillary response by Ultrasound:

After completion of NAC treatment, Lymph nodes were classified as non-specific /normal in the absence of any suspicious features, which considered as "negative" on ultrasound. Of 46 patients with post NAC treatment AUS results, 21 cases (45.65%) had lymph nodes classified as non-specific on AUS, and 25(54.35%) cases had still noticed suspicious lymph nodes, table (3)

Table 3: Axillary response by ultrasound after NAC.

Axillary /LNs ultrasound Post NAC		
	N	%
Negative	21	45.65
Positive	25	54.35
Total	46	100.00

NAC neoadjuvant chemotherapy,

Pathological findings after NAC:

"Regarding the breast mass"

According to the pathological criteria, after treatment, the mean size of the detected lesions was 2.77 cm (0.1-8 cm). Pathological findings revealed complete response was detected in 12 cases (26.09%), while partial response was achieved in 28 cases (60.87%). Besides, 2 cases (4.35%) had stable disease, whereas progression was noticed in 4 cases (8.70 %), table (4).

"Regarding the axillary lymph nodes"

After treatment, pathology revealed complete response (negative) detected in 19 cases (41.30%), whereas infiltrated LNs (positive) noticed in 27 cases (58.70%), table (4).

Table 4: Pathological findings after NAC.

Mass Response	N	%
Progressive course	4	8.70
Stable course	2	4.35
Partial response	28	60.87
Complete response	12	26.09
Mass Size (cm)		
Range	0.1-8	
Mean ±SD	2.779±1.794	
LNS		
Free	19	41.30
Infiltrated	27	58.70

NAC neoadjuvant chemotherapy

Analysis of the responsive capacity of ultrasound in detecting the axillary response as compared with pathology Post NAC:

Amongst the 46 cases, (post-NAC) ultrasound was reported as malignant "still had pathological features" (or positive) in 25 cases (54.35 %) consisting of 22 true positive and 3 false positive (according to the permanent pathology), and as nonspecific "negative" in 21 cases (45.65%), consisting of 16 true and 5 false negatives (Table 5).

In 38 (82.6%) of the cases, there was concordance between the ultrasound and nodal pathology findings, however in 8 cases (17.39%), there was disagreement.

Table 5: Analysis of the responsive capacity of ultrasound in detecting the axillary response as compared with pathology.

AUS Post NAC	PCR		NON-PCR		Total		Chi-Square	
	N	%	N	%	N	%	X^2	P-value
Negative	16	84.21	5	18.52	21	45.65		
Positive	3	15.79	22	81.48	25	54.35	19.397	<0.001*
Total	19	100.00	27	100.00	46	100.00		

AUS: axillary ultrasound NAC neoadjuvant chemotherapy, pCR pathologic complete response, *: statistically significant (p<0.05).

Ultrasound has sensitivity and specificity of 81.4 and 84% respectively in detecting the response to chemotherapy, with a diagnostic accuracy of 82% table (6).

Table 6: Analysis of the response in ultrasound and pathology.

Sens.	Accuracy	NPV	PPV	Spec.	Sens.
81.48	82.61	76.19	88.00	84.21	81.48

NPV: negative predictive value; PPV: positive predictive value.

Characteristics according to axillary lymph node response are listed in Table 7. The mean age in the PCR group was (41.5) and in the non-PCR group was (47.88), and there was a statistically significant difference in clinical features according to age (p = 0.054). While there was no discernible difference between the two groups in terms of menopausal status, family history, or history of using contraception.

Table 7: Clinical characteristics according to the response of axillary lymph nodes

	PCR			Non-PCR			T-Test	
							t	P-value
Age(years)								
Range	26	-	67	27	-	71	-1.982	0.054*
Mean ±SD	41.526	±	11.172	47.889	±	10.397		
Hx of contraception								
Negative	14		73.68 %	14		51.85%	2.232	0.135
Positive	5		26.32%	13		48.15%		
Family history								
Negative	12		63.16	22		81.48	1.942	0.163
Positive	7		63.84	5		18.52		
Menopausal state								
Premenopausal		16	84.21	21		77.78	0.293	0.588
Postmenopausal		3	15.79	6		22.22		

PCR pathologic complete response, *: statistically significant (p<0.05)

According to US characteristics of the mass size based on axillary lymph node response (Table 8), there was a statistically significant mass reduction in the PCR group (p = 0.002), with the mean mass size pre-NAC being (3.58cm) and post-NAC being (2.48cm).

Table 8: Analysis of tumor size pre and after NAC according to the response of axillary lymph nodes

Breast mass Size (cm)		PCR			Non-PCR			T-Test	
								T	P-value
Pre NAC	Range	1.9	-	7	1.5	-	7.5	0.525	0.602
	Mean ±SD	3.584	±	1.210	3.378	±	1.378		
Post NAC	Range	0.7	-	7	1	-	7.5	-0.735	0.467
	Mean ±SD	2.485	±	1.593	2.896	±	1.657		
Differences	Mean ±SD	0.985	±	0.895	0.512	±	1.536		
Paired Test	P-value	0.002*			0.109				

NAC neoadjuvant chemotherapy, pCR pathologic complete response, *: statistically significant (p<0.05)

According to US characteristics of axillary lymph nodes pre-NAC based on axillary lymph node response, larger LNs (29.37mm vs. 20.9mm, p = 0.12), larger short axis of LNs (17.88mm vs. 12.6 mm, p = 0.29), and thicker cortex of LNs (9.3mm vs. 5.6 mm, p = 0.014) were associated with axillary non-pCR. In addition, a higher proportion of rounded or irregular LNs (66.7% vs. 36.8%, p = 0.046) was associated with axillary non-pCR.

Table 9: Ultrasound features of axillary lymph nodes pre-NAC chemotherapy according to the response of axillary lymph nodes.

| AUS						T-Test	
	PCR			Non-PCR		t	P-value
Short axis							
Range	7	-	30	7	-	35	-2.258	0.029*
Mean ±SD	12.632	±	5.937	17.889	±	8.829		
Ratio							
Range	0.35	-	1	0.23	-	1	-0.073	0.942
Mean ±SD	0.609	±	0.212	0.613	±	0.183		
Longitudinal diameter (mm)							
Range	12	-	38	12	-	60	-2.626	0.012*
Mean ±SD	20.947	±	6.745	29.370	±	12.753		
Cortical thickness (mm)							
Range	4	-	12	1.2	-	22	-2.555	0.014*
Mean ±SD	5.684	±	1.988	9.304	±	5.929		
Chi-Square	N	%		N	%	X^2	P-value
Number							
<3 N	9	47.37		6	22.22	3.209	0.073
>3 N	10	52.63		21	77.78		
Shape							
Oval	12	63.16		9	33.33	3.998	0.046*
Rounded or irregular	7	36.84		18	66.67		
Hilum							
Normal hilum	9	47.37		6	22.22	3.209	0.073
No hilum or displaced	10	52.63		21	77.78		

AUS: axillary ultrasound NAC neoadjuvant chemotherapy, PCR pathologic complete response,

Case No (1):

44 years old female. Pathologically proven invasive duct carcinoma. She received 8 cycles of Ac and taxotere.

PRE-Neoadjuvant:

US showed: Hypoechoic solid mass seen at 1 o'clock (zone A) measuring 17x17mm with spiculated margin and internal vascularity. Multiple malignant looking axillary LNs, the largest measures about 28x23mm with diffuse increased cortical thickness reaching 10 mm.
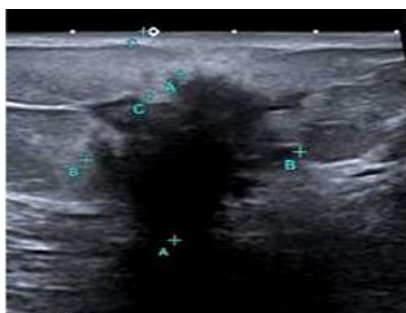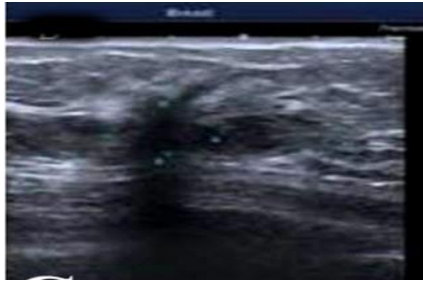

Post Neoadjuvant:

US showed: Regressive course as regard the size of the mass now measures about
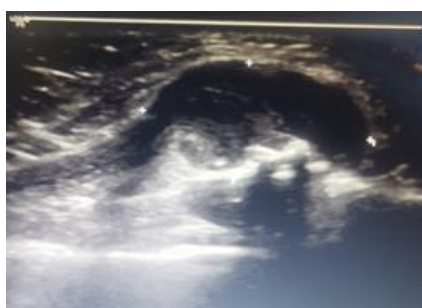
1x0.5 cm. few enlarged axillary LNs, one of them measures 1.5x0.7 cm showed preserved hilum and focal cortical thickening 5mm.

Pathology:

Patient underwent Conservative breast surgery &Dissected 13 axillary LN revealed no detected gross abnormalities or any masses "No residual tumor tissue, complete response" and Metastatic deposits in 4/13 LNS.

Case No (2) :

48 years old female. Pathologically proven invasive mammary carcinoma. She received 8 cycles of Ac and taxotere.

PRE-Neoadjuvant: -

Us showed: Left breast irregular speculated hypoechoic lesion with parenchymal distortion and desmoplastic reaction is seen at 8 o'clock zone B measuring 30x12.5 mm. suspicious axillary L. Ns the largest measures 20x10 mm with eccentric faint hilum and cortical thickness measures 8 mm.
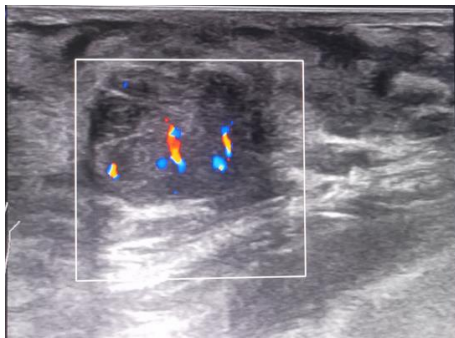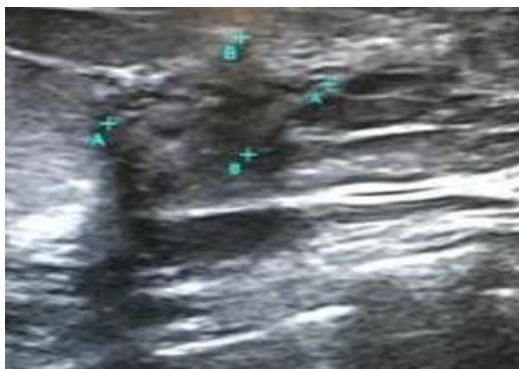

Post Neoadjuvant:

US showed: regressive course as regard the described 8 o'clock mass now measures about   15x17 mm. Mild regressive course as

regard the left axillary lymph nodes "nonspecific looking". The largest oval in shape, with preserved hilum, and measures 11x7 mm and cortical thickness measures 2.2mm.

Pathology:

Patient underwent CBS, Dissection revealed irregular firm greyish white area in the lower inner quadrant measuring 3x2x1cm. "Partial response" High grade DCIS with no residual invasive. Component free LNS, free nipple, skin, fascia & other quadrants.

DISCUSSION:

Breast cancer is the most common cancer diagnosed in women, representing more than 1 in 10 newly diagnosed cancer cases each year. It is the second-most frequent mortality due to cancer among women worldwide [10].

Neoadjuvant chemotherapy has become the standard treatment not only in patients with locally advanced breast cancer but also in early invasive breast cancer in an attempt to downstage the primary cancer, to reduce micrometastasis, and to evaluate the susceptibility of chemotherapy drugs [11].

Numerous breast-imaging examinations are performed prior to Neoadjuvant chemotherapy to evaluate the extent of disease and axillary lymphadenopathy, Usually, patients have a physical exam and breast imaging., such as mammography and/or ultrasonography (US), that have been proposed to evaluate response to chemotherapy [12],

Breast ultrasonography has proven to be more reliable than mammography at estimating the size of residual tumors. The chance of response was discovered to be 80% when both imaging modalities revealed no residual illness [13].

Because early identification of non-responders enables an earlier switch to a more effective regimen, avoiding toxicity, and optimizing the time of surgery, a precise and specific technique to detect tumor responses to neoadjuvant chemotherapy is required [14].

ALND is still the treatment of choice today for breast cancer patients who received NAC but had ALN-positive results. Only 50% to 60% of individuals who got NAC, however, still had ALN metastatic lesions. Additionally, 40% of patients who receive NAC after reaching ALN's PCR should not receive excessive treatment in order to prevent a number of ALND-related complications. We require a technique that can reliably assess the axillary state to direct the NAC treatment [11].

This study was conducted at Ain Shams University Hospitals aiming to assess the role of sonography predicting axillary lymph nodes response after Neoadjuvant chemotherapy in breast cancer patients as compared with the gold standards of pathology.

We included 46 cases of breast cancer whose mean age was 45.26 years (range 26-71). This is in agreement with Shin et al. [15], whose study handling the same perspective included a total of 43 cases whose mean age was 42.7 years (range, 25–62 years). The age mean and range are close to our results. Another Egyptian study that included 20 cases has reported that the patients ages ranged from 24 to 68 years with a mean age of 46.70 ± 10.86 [16].

In the current study, most of the included cases were premenopausal women (80.4%), while the remaining cases was post-menopausal (19.5%). A study which agrees with our findings reported that most of the included cases were premenopausal females (68.3%), while the remaining cases were postmenopausal [17].

In our results, Positive family history of breast cancer was present in 26.09% of cases. In addition, eighteen cases (39.13%) reported contraception use. Another study reported much less prevalence of contraception use. Only 14.4% of cases reported previous contraception administration [17]. This

contradicts with our results and may be attributed to small number of patients.

Many factors may influence the decision that determines the optimal surgical procedure. Regarding operation performed after chemotherapy in the current study, different surgical approaches are used as modified radical mastectomy was performed in 58.7% of cases, while conservative breast surgery was done for 19 cases (41.3%). (Chen et al., 2009) reported that the objective factors for a physician's recommendation for mastectomy include large pre- and post-neoadjuvant chemotherapy tumor size, lobular histology, central location, multi-focality and small breast size [18] This explains the different surgical approaches used to manage our study cases. This agree with a study carried out by (Goorts et al., 2018), Who performed mastectomy for 46 cases (58%), whereas lumpectomy was done in the remaining 34 cases (43%).

pathological examination of the detected lesions in our results revealed invasive ductal carcinoma in 39 cases (84.7%), Additionally, invasive lobular carcinoma, invasive ductal carcinoma combined with carcinoma in situ present in the remaining 7cases. (Khalil et al., 2017) reported that invasive ductal carcinoma is the commonest type of breast cancer, apart from a single patient with invasive lobular carcinoma all the other 19 patients were invasive ductal carcinoma, of non-otherwise specified type (NOS) type [16]. Shin et al., study reported that invasive ductal carcinoma was the commonest encountered type (93.02%) as reported in our study [15].

According to our results US shows, the mean value of mass size decreased down to 2.75 cm and revealed partial response in 29 cases (63.04%), whereas complete response was present in 8 cases (17.39%). stable and progressive lesions were diagnosed in 13 % and 6.52 % of cases respectively.

The evaluation criteria of Ultrasound for Axillary lymph nodes in our study were based on the shape is round, cortical thickness, and the structure of the lymph node hilum.

We found that AUS was used to assess the axillary status; its accuracy was 82.6 %, higher than that in the Zhou et al. [11] (which was 68.21%).

Regarding our results, The sensitivity and specificity of post-NAC ultrasound were respectively estimated as 81,48 % and 84.2 %, while Akrami et al. [20] study reported sensitivity and specificity of post-NAC ultrasound were respectively estimated as 39.4% and 79% respectively, and the Zhou et al.[11] results were 69.34% and 63.89% respectively,

Sensitivity of ultrasound in axillary lymph node detection has been reported to be as high as 70%-99% and its specificity as 83%-97% in patients initially diagnosed with breast cancer according to Jackson et al. [21] and Sencha et al. [22].

This was in concordant with h the Z1071(Alliance) trial, which mainly focused on post- NAC SLNB accuracy performed with 611 cases sensitivity, and specificity of post-NAC ultrasound (AxUS) were 34.61%, and 77.54%, respectively. The difference in sensitivity, and specificity from other studies might be related to small sample size.

It is thought that ultrasound is the most accessible and practical diagnostic tool for re-evaluating tumor expansion. Other studies have demonstrated its great accuracy in detecting untreated metastatic lymph nodes [20]. For individuals who have not yet undergone any surgical or medicinal procedures, ultrasound has been recognized as a precise and efficient technique for planning axilla surgery.

Despite having good diagnostic values during the initial stages of diagnosis when the patinets do not get any chemotherapy medications, axillary ultrasound's poor accuracy following chemotherapy may be due to a number of factors:

1- The ultrasound accuracy will certainly decrease as a result of chemotherapy agents causing tissue-induced edema, inflammation, and fibrosis in the axillary lymph nodes.

2- Ultrasound fails to detect the partial response of metastatic lymph nodes to chemotherapy treatments, in which the majority of malignant cells macroscopically decrease to some extent but are still present microscopically.

3- Patients who receive NAC have more advanced disease compared to those who initially have surgery; as a result, involvement of deeper axillary regions, including the Rotter's lymph node as well as nodes in levels 2 and 3, may be more likely; undoubtedly, these lymph nodes are able to conceal from ultrasound.

4- Some positive lymph nodes have micrometastases, which are clinically significant but typically difficult to detect with ultrasonography [20].

However, the cost of MRI is high, and it is not always available. Addtionaly, patients do not easily accept this approach. While AUS is non-invasive, low-cost, widely available, and commonly used in clinical practice.

In light of the fact that ultrasound is better in assessment because it is more affordable and widely available, several review studies on this are in agreement with our study [23].

Conclusion:

Ultrasound proved useful to predict the axillary response to NAC in breast cancer patients. However, in some patients, it may overestimate or underestimate the presence of residual disease. So, it is strongly recommended to combine two or more radiological modalities to increase the accuracy of final diagnosis in doubtful cases.

Conflicts of interest:

The authors state that the publishing of this paper is free of any conflicts of interest.

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دور التصوير بالموجات فوق الصوتية في استجابة العقد الليمفاوية الإبطية للعلاج الكيميائي المساعد في مرضي سرطان الثدي

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المقدمة: تعد أورام الثدي من أشهر الاورام انتشارا فهى تمثل ٢٥% من الاورام السرطانية والاكثر على الاطلاق في الاصابة بالوفاة. ويتم علاج المراحل الاولى من المرض بالتدخل الجراحي دائما ويتبع ذلك العلاج الكيمائي والإشعاعي للتخلص من اي بقايا للخلايا السرطانية.

الهدف من البحث: لتقييم دور الموجات فوق الصوتية للثدي في مراقبه استجابة الغدد الليمفاوية الإبطية في سرطان الثدي بعد العلاج الكيميائي المساعد الجديد.

المرضي وطرق البحث: هذه الدراسة هي دراسة بأثر راجعي، تم إجراء هذه الدراسة في قسم الأشعة وقسم الأورام في مستشفيات عين شمس الجامعية، القاهرة، مصر في خلال 6 أشهر حيث تمت الدراسة على 46 مريضاً.

النتائج: قمنا بتضمين ما مجموعه 46 حالة مصابة بسرطان الثدي وكان متوسط عمرها 45.26 سنة. بمقارنة قبل وبعد العلاج الكيميائي، كان هناك فرق ذو دلالة إحصائية (ع = 0.004) حيث كان متوسط حجم الكتلة 3.46 (المدى، 7.5-1.5 سم) وانخفض إلى 2.75 (المدى، 7.5-0.7 سم). بعد العلاج الكيميائي، كانت الغدد الليمفاوية المخترقة في 27 حالة، وتم اكتشاف الغدد الليمفاوية الحرة في 19 حالة بناءً على النتائج المرضية، بينما أبلغت الموجات فوق الصوتية عن الغدد الليمفاوية المشبوهة "إيجابية" في 25 حالة ونتائج سلبية في 21 حالة. كانت تقارير الموجات فوق الصوتية وتقارير الأمراض العقدية متطابقة لدى (82.6%) من النساء. وكانت دقة وحساسية ونوعية الموجات فوق الصوتية الإبطية 82%، 81.4% و84% على التوالي.

الخلاصة: اثبتت ان الموجات فوق الصوتية مفيدة للتنبؤ بالاستجابة الإبطية لـ NAC لدى مرضى سرطان الثدي. ومع ذلك، فإنه قد يبالغ أو يقلل من تقدير المرض المتبقي لدى بعض المرضى. لذا، يوصى بشدة بالجمع بين طريقتين إشعاعيتين أو أكثر لزيادة دقة التشخيص النهائي في الحالات المشكوك فيها.