Original Research Article

Clinicopathological Study of Triple Negetive Breast Cancer in Comparison with Non Tripple Negative Breast Cancer

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Abstract

Introduction: Breast cancer is a heterogeneous disease and it encompasses a variety of entities with distinct morphological appearances and clinical behaviors. In recent years, it has become evident that this diversity is the result of genetic alterations. Molecular profiling has provided biological evidence for heterogeneity of breast cancer through the identification of intrinsic subtypes. Triple negative breast cancer (TNBC) is the subtype of breast cancer that does not over express human epidermal growth factor 2 receptors (HER2), while also lacking expression of estrogen receptors (ER) and progesterone receptors (PR).**Materials and Methods:** All cases with biopsy proven breast cancer will be evaluated. The time period of the study is from January 2018 to January 2020. The receptor status will be evaluated by immunohistochemistry (IHC) and divided into TNBC and non-TNBC. The patients in both the groups will be given appropriate treatment based on their oncological stage.
Results: Most of the patient's age was between 4th to 6thdecade. The youngest patient in our study was 26 yrs old. The oldest patient in our study was 75 yrs. The highest incidence of breast cancers was in the 4th decade of life with 53 patients corresponding to 32.12% of patients. Majority of the breast cancers were of the infiltrating duct cell carcinoma not otherwise specified type (IDCC-NOS). Other variants such as medullary, mucinous, and lobular were encountered infrequently.**Conclusion:** Triple negative breast cancer is not an uncommon subtype in our region. It is more prevalent than western population. Triple negative breast cancer affects younger population with a median age of 46.25 yr in the current study. Triple negative breast cancer presents at a more advanced stage with most tumors being clinically palpable and the most common presentation being lump in breast .It has good response to neoadjuvant chemotherapy.

Keywords: Breast cancer, TNBC, IHC, estrogen receptors, progesterone receptors.

Introduction

Breast cancer is a heterogeneous disease and it encompasses a variety of entities with distinct morphological appearances and clinical behaviors. In recent years, it has become evident that this diversity is the result of genetic alterations. Molecular profiling has provided biological evidence for heterogeneity of breast cancer through the identification of intrinsic subtypes. Triple negative breast cancer (TNBC) is the subtype of breast cancer that does not over express human epidermal growth factor 2 receptors (HER2), while also lacking expression of estrogen receptors (ER) and progesterone receptors (PR). TNBC, which accounts for an estimated 15–20% of invasive breast cancers, has been associated with rapid growth, distant metastasis, and shorter overall and relapse-free survival when compared to other breast cancer subtypes across multiple studies. TNBCs tend to behave more aggressively than non-TNBCs. Patients with TNBC tend to experience a relapse more quickly and have a higher likelihood of developing central nervous system and visceral metastases than those with non-TNBC.
Triple-negative disease does respond to chemotherapy, but there is a high risk for recurrence and disease progression with these tumors. Therefore, the need still exists to develop more targeted, less toxic therapies for these specific subtypes of tumors. This clinically challenging scenario is an area of fertile research.
A more comprehensive understanding of the epidemiology of TN breast cancers has important public health implications for risk assessment [1], prevention and treatment. However data regarding the incidence, distribution, clinical presentation and treatment response in triple negative breast cancer from Indian population is lacking. Apart from a few retrospective studies[2,3] , a prospective study comparing TNBC and non-TNBC from our region is lacking. Hence, this study is being undertaken.

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Aims and Objectives

The aims and objectives of the study are twofold

- To compare and analyse the clinical and pathological features of patients with triple negative breast cancer and non-triple negative breast cancer.
- To compare the clinical and pathological outcomes of neo-adjuvant chemotherapy in triple negative breast cancer versus non-triple negative breast cancer.

Materials and Methods

All cases with biopsy proven breast cancer will be evaluated. The time period of the study is from January 2018 to January 2020. The receptor status will be evaluated by immunohistochemistry (IHC) and divided into TNBC and non-TNBC. The patients in both the groups will be given appropriate treatment based on their oncological stage.
The following clinical and histological factors will be assessed.

- Age,
- Clinical tumor status (cT),
- Clinical lymph node status (cN),
- metastasis, (M)
- clinical stage according to ajcc 8th edition
- histopathological type,
- histologic grade,
- immunohistochemistry
- neoadjuvant treatment taken if any
- pathological tumor size (pT),
- pathological lymph node status (pN),
- pathological stage

In patients who undergo neodajuvant chemotherapy, the response to NACT will be assessed.
The response to NACT has been grouped as

- Pathological complete response (pCR)
- Clinical partial response (cPR)
- No response (NR).

Study Design: Prospective study.
Subjects: Patients from MNJ Institute of Oncology and Regional Cancer Centre who are pathologically proven with breast cancer.

Inclusion Criteria:
1) Patients with pathologically proven TNBC or non-TNBC.
2) Cases with the complete clinical, pathological and follow-up data.

Exclusion Criteria:
The patients with
1) Ductal carcinoma in situ.
2) Recurrent breast cancer.
3) Cases without the complete clinical pathological and follow-up data.

Study Duration: 24 months
Place Of Study: MNJ Institute of Oncology and Regional Cancer Centre
Sample Size: All subjects attending the hospital during the period of study
Age Group: Patients of the age group from 18 years to 80 years are included in the study

All cases underwent IHC for ER, PR and HER-2 receptors using horse radish peroxide method.

- Patients with ER/PR strong positive and HER-2 negative were classified as Luminal–A .
- Patient with ER/PR variable positive, and HER-2 positive were classified as Luminal-B. If needed to differentiate between luminal –A and luminal-B then a proliferative marker Ki-67 was used with values of moderate to high take as luminal –B.
- All patient with ER/PR negative and HER-2 positive were classified as HER-2 enriched subtype.
- All patients with ER/PR negative and HER-2 negative were classified as triple negative breast cancers. (TNBC)

Patient with equivocal HER-2 were included in the study only if the HER-2 status was confirmed by ISH (insitu hybridization). Cases with equivocal HER-2 receptor status who did not undergo ISH were excluded from the study.
A total of 165 cases with complete clinical and pathological data were included in the study. Data was collected and analyzed by Excel Stat using appropriate statistical tests

Results
Incidence and statistical data of Breast Carcinoma cases at surgical oncology Department, MNJIORCC between January 2018 To January 2020. In two years of study a total of 165 cases of Breast Carcinoma patients were treated.
Of the 165 cases 42 were TNBCs and 123 were non –TNBCs.
Distribution of cases based on immunohistochemistry classification
Total no of cases -165
Luminal A – 48 (29.09 %)
Luminal b – 36 (21.81%)
HER-2 enriched – 39 (23.63%)
TNBC – 42 (25.45%).

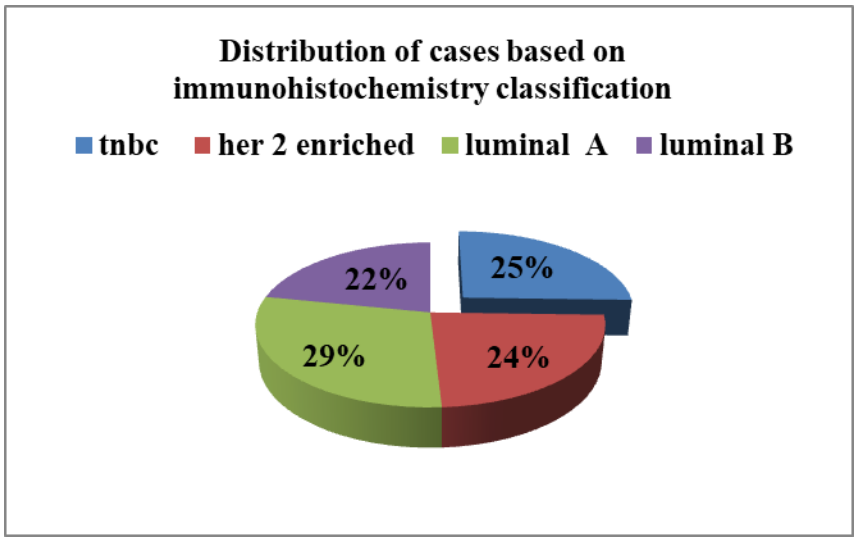


Fig. 1:Distribution of breast cancers

AGE: Most of the patient's age was between 4th to 6thdecade. The youngest patient in our study was 26 yrs old. The oldest patient in our study was 75 yrs. The highest incidence of breast cancers was in the 4th decade of life with 53 patients corresponding to 32.12% of patients.

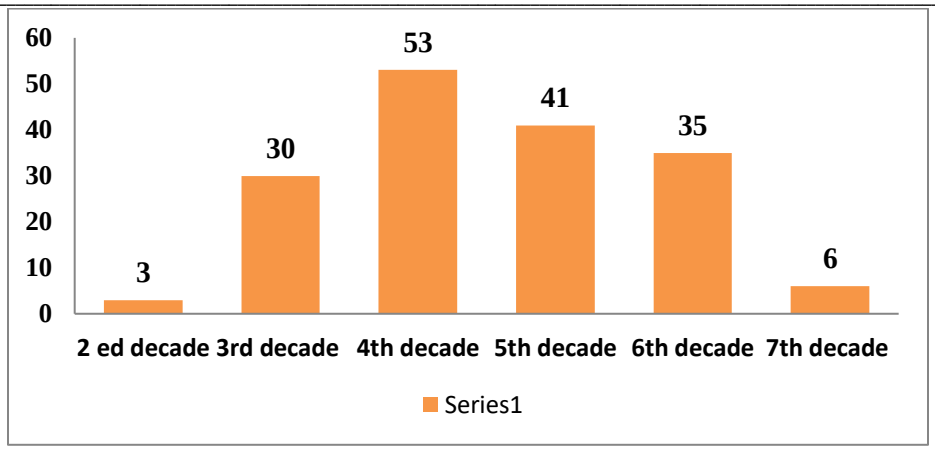
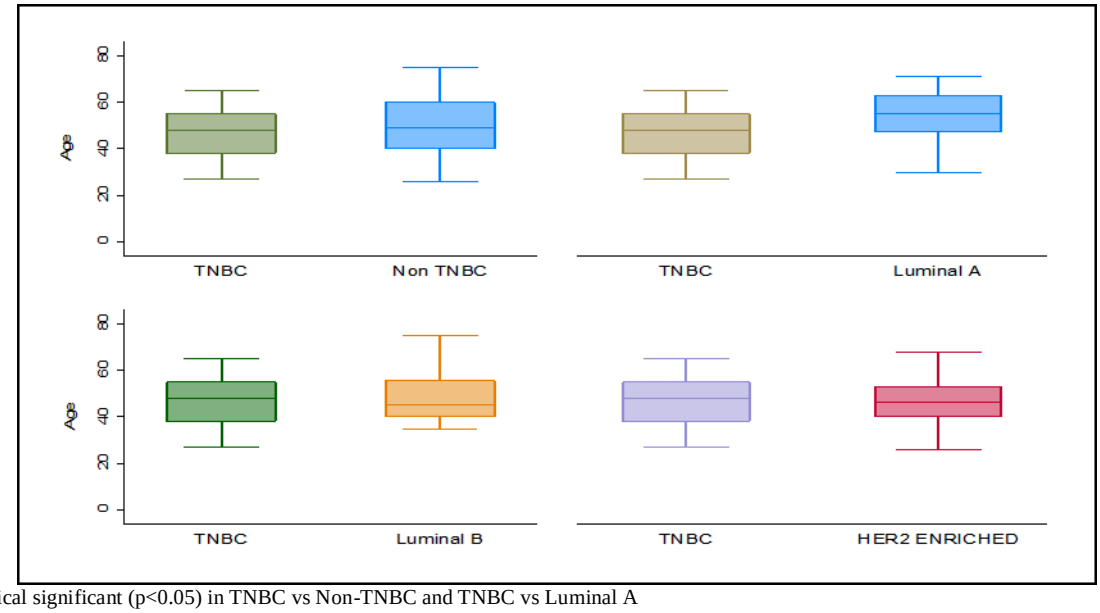


Fig. 2: Age distribution chart The mean age of patients in the TNBC and non-TNBC cohort was calculated and analysed with chi-square test

Table 1: Age of triple-negative versus non-triple negative breast cancer

Parameter	TNBC (%) n=42	Non-TNBC (%) n=123	p-value
Mean Age (SD)	46.26 (11.3)	50.19 (10.8)	0.045

The age of TNBC cohort was younger to the non-TNBC cohort.



*Statistical significant (p<0.05) in TNBC vs Non-TNBC and TNBC vs Luminal A

Fig. 3: Box plot for median age of each group

Histopathological type

Majority of the breast cancers were of the infiltrating duct cell carcinoma – not otherwise specified type (IDCC-NOS). Other variants such as medullary, mucinous, and lobular were encountered infrequently.

Distribution of histopathological type of tumor.

IDCC-NOS – 158
Medullary - 1
Mixed - 1
Mucinous - 2
Metaplastic – 2
Lobular -2

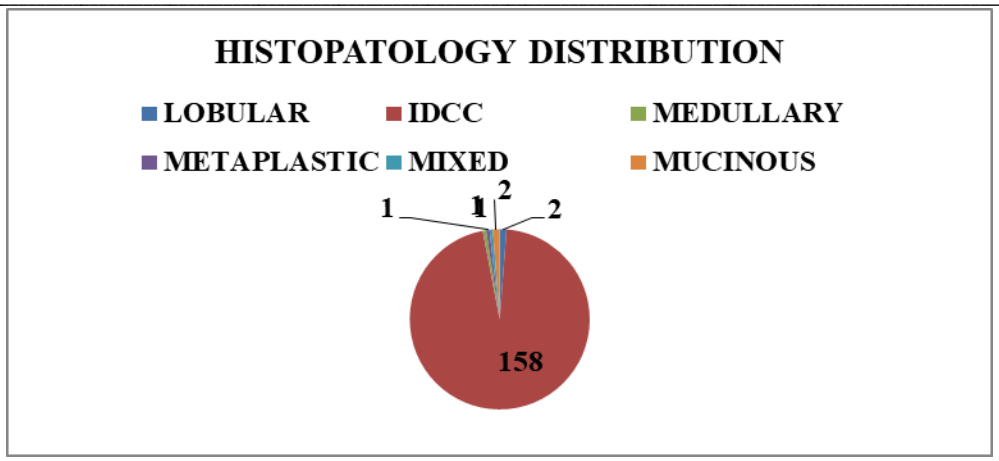


Fig. 4: Histopathological distribution

Histological Grade

Most of the tumours were grade 2. 21 patients with grade 1, 91 patients with grade 2 and 53 patients with grade 3.

Comparision of the distribution of histological grades in TNBC and non-TNBCs

Table 2: Grade of triple-negative versus non-triple negative breast cancer

Pathology-Grade	TNBC (%) n=42	Non-TNBC (%) n=123	p-value
1	4 (9.5)	17 (13.8)	0.39
2	21 (50.0)	70 (56.9)	
3	17 (40.5)	36 (29.4)	

Comparision of the distribution of histological grades in TNBC and Luminal A breast cancer patients

Table 3:Grade of triple-negative versus luminal A breast cancer

Pathology-Grade	TNBC (%) n=42	Luminal A (%)n= 48	p-value
1	4 (9.5)	13 (27.0)	0.03*
2	21 (50.0)	26 (54.2)	
3	17 (40.5)	9 (18.8)	

There were more patients with higher grade in TNBC and more patients with lower grade in luminal A. Comparision of the distribution of histological grades in TNBC and luminal-B breast cancers

Table 4:Grade of triple-negative versus luminal B breast cancer

Pathology-Grade	TNBC (%) n=42	luminal-B (%) n=36	p-value
1	4 (9.5)	2 (5.6)	0.73
2	21 (50.0)	21 (58.3)	
3	17 (40.5)	13 (36.1)	

Comparision of the distribution of histological grades in TNBC and her- 2 enriched

Table 5:Grade of triple-negative versus HER -2 enriched breast cancer

Pathology-Grade	TNBC (%) n=42	HER- 2 enriched (%) n= 39	p-value
1	4 (9.5)	2 (5.1)	0.70
2	21 (50.0)	23 (59.0)	
3	17 (40.5)	14 (35.9)	

Laterality 87 patients had left breast carcinoma and 75 patients had right breast carcinoma.

3 patients had bilateral breast cancer at presentation. The distribution of left sided and right sided breast cancer is as follows

Table 6:Laterality of triple-negative versus non-TNBC

Laterality	TNBC (%) n=42	Non-TNBC (%) n=123	p-value
Bilateral	1 (2.4)	2 (1.6)	0.40
Left	19 (45.2)	68 (55.3)	
Right	22 (52.4)	53 (43.1)	

Stage at presentation

Table 7:Stage at presentation of triple-negative versus non-TNBC

Parameter	TNBC (%) n=42	Non-TNBC (%) n=123	p-value
cT (clinical tumor status)			
T1	2 (4.8)	2 (1.6)	0.03*
T2	10 (22.8)	55 (44.7)	
T3	12 (28.6)	35 (28.5)	
T4	18 (42.9)	31 (25.2)	
cN (clinical nodal status)			

N0	15 (35.7)	47 (38.2)	0.96
N1	20 (47.6)	56 (45.5)	
N2	7 (16.7)	19 (15.5)	
N3	0	1 (0.8)	
M (metastasis)			
M_0	38 (90.5)	114 (92.7)	0.74
M_1	4 (9.5)	9 (7.3)	
Clinical stage			
1	2 (4.8)	2 (1.6)	0.01*
2	10 (23.8)	62 (50.4)	
3	26 (61.9)	50 (40.7)	
4	4 (9.5)	9 (7.3)	

More patients in the TNBC group had higher clinical tumour status when compared to non-TNBCs. There were more number of patients with early breast cancer in the non-TNBC cohort.

Stage at presentation comparison between TNBC and Luminal-A

Table 8:Stage at presentation of triple-negative versus luminal -A

CT	TNBC (%) n=42	Luminal A (%) n= 48	p-value
T1	2 (4.8)	0	
T2	10 (22.8)	22 (45.8)	0.07
T3	12 (28.6)	12 (25.0)	
T4	18 (42.9)	14 (29.2)	
CN			
N0	15 (35.7)	20 (41.7)	0.79
N1	20 (47.6)	19 (39.6)	
N2	7 (16.7)	9 (18.8)	
N3	0	0	
M			
M_0	38 (90.5)	43 (89.6)	0.89
M_1	4 (9.5)	5 (10.4)	
Clinical stage			
1	2 (4.8)	0	0.02*
2	10 (23.8)	24 (50.0)	
3	26 (61.9)	19 (39.6)	
4	4 (9.5)	5 (10.4)	

More patients in the TNBC group had higher clinical tumour status when compared to Luminal-A cohort. There were more number of patients with early breast cancer in the luminal –A cohort. More number of cases in luminal A presented in 2ed stage when compared to higher incidence of 3rd stage in TNBC. There was no statistically significant p value with regards to the distribution of nodal status at presentation but TNBC presented with higher cT stage when compared with luminal A

Stage at presentation comparison between TNBC and Luminal-B

Table 9:Stage at presentation of triple-negative versus luminal -B

CT	TNBC (%) n=42	luminal-B (%) n=36	p-value
T1	2 (4.8)	0	
T2	10 (22.8)	18 (50.0)	
T3	12 (28.6)	12 (33.3)	
T4	18 (42.9)	6 (16.7)	0.02*
CN			
N0	15 (35.7)	16 (44.4)	
N1	20 (47.6)	14 (38.9)	
N2	7 (16.7)	6 (16.7)	0.72
N3	0		
M			
M_0	38 (90.5)	33 (91.7)	
M_1	4 (9.5)	5 (8.3)	0.85
Clinical stage			
1	2 (4.8)	0	
2	10 (23.8)	21 (58.3)	
3	26 (61.9)	12 (33.3)	
4	4 (9.5)	3 (16.7)	0.008*

More patients in the TNBC group had higher clinical tumour status when compared to Luminal-A cohort. There were more patients with early breast cancer in the luminal –A cohort. More cases in luminal B presented in 2ed stage when compared to higher incidence of 3rd stage in TNBC. There was no statistically significant p value with regards to the distribution of nodal status at presentation but TNBC presented with higher cT stage when compared with luminal B.

Stage at presentation comparison between TNBC and HER-2 enriched

Table 10:Stage at presentation of triple-negative versus her-2 enriched

CT	TNBC (%) n=42	HER- 2 enriched (%) n= 39	p-value
T1	2 (4.8)	2 (5.1)	0.43
T2	10 (22.8)	15 (38.5)	
T3	12 (28.6)	11 (28.2)	
T4	18 (42.9)	11 (28.2)	
CN			
N0	15 (35.7)	11 (28.2)	0.50
N1	20 (47.6)	23 (59.0)	
N2	7 (16.7)	4 (10.3)	
N3	0	1 (2.6)	
M			
M_0	38 (90.5)	38 (97.4)	0.36
M_1	4 (9.5)	1 (1.6)	
Clinical stage			
1	2 (4.8)	2 (5.1)	0.21
2	10 (23.8)	17 (43.6)	
3	26 (61.9)	19 (48.7)	
4	4 (9.5)	1 (2.6)	

Here however there was no statistically significant difference between the distribution of cases with regards to stage of presentation between TNBC and Her-2 enriched breast cancers.

Most of the patients received upfront surgery in the form of modified radical mastectomy or breast conserving surgery based on the patient's preference. These patients were then offered adjuvant radiation and adjuvant systemic therapy based on the final histopathological report and IHC status. Those patients with locally advanced breast cancer (LABC) were offered neoadjuvant chemotherapy. Surgery was offered after neoadjuvant chemotherapy in the form of modified radical mastectomy. The response to chemotherapy was assessed both clinically and pathologically and were grouped to have either pathological complete response (pCR) if there was no viable tumour cells in the final histopathology report or to have clinical partial response (cPR) if the clinical examination showed decrease in the clinical t stage and /or clinical n stage which was corroborated with the final histopathological reports.

Those patients with no change in the clinical stage or in the rare case of progression were classified as having no response (NR).

Comparison of response to NACT of TNBC with non-TNBC

Table 11: Neo-adjuvant chemotherapy in triple negative breast cancer versus non-triple negative breast cancer

Parameters	TNBC (%) n=19	Non=TNBC (%)n=46	p-value
Pathological T- stage			
0	8 (42.1)	18 (40.0)	0.93
1	1 (5.3)	5 (11.1)	
2	5 (26.3)	10 (22.2)	
3	2 (10.5)	7 (15.6)	
4	3 (15.8)	5 (11.1)	
Pathological N-stage			
PN0	13 (68.4)	24 (52.2)	0.50
PN1	4 (21.1)	10 (21.7)	
PN2	1 (5.3)	9 (19.6)	
PN3	1 (5.3)	3 (6.5)	
Pathological stage			
0	8 (42.2)	12 (26.1)	0.43
1A	0	4 (8.7)	
2A	5 (26.3)	11 (23.9)	
2B	0	5 (10.9)	
3A	2 (10.5)	8 (17.4)	
3B	3 (15.8)	3 (6.5)	
3C	1 (5.2)	3 (6.5)	
Reponses to NACT			
CPR	7 (36.8)	25 (54.3)	0.37
NR	4 (21.1)	9 (19.6)	
PCR	8 (42.1)	12 (26.1)	

19 patients in TNBC underwent upfront surgery and 19 patients underwent NACT followed by surgery. 4 patients presented with metastasis and were offered palliative chemotherapy.

68 patients in non-TNBC cohort underwent upfront surgery and 46 underwent NACT followed by surgery. 9 patients who had metastasis at presentation were offered palliative chemotherapy.

The response to NACT for TNBC and non TNBC did not show any statistical significance.

Comparison of response to NACT of TNBC with luminal A

Table 12: Neo-adjuvant chemotherapy in triple negative breast cancer versus luminal A breast cancer

Parameters	TNBC (%) n=19	Luminal A (%) n =14	p-value
Pathology Tumor size			
0	8 (42.1)	7 (50.0)	0.63
1	1 (5.3)	3 (21.5)	
2	5 (26.3)	2 (14.3)	
3	2 (10.5)	1 (7.1)	
4	3 (15.8)	1(7.1)	
Pathology N-stage			
PN0	13 (68.4)	8 (57.1)	0.62
PN1	4 (21.1)	2 (14.3)	
PN2	1 (5.3)	3 (21.5)	
PN3	1 (5.3)	1 (7.1)	
Stage			
0	8 (42.2)	3 (21.5)	0.17
1A	0	3 (21.5)	
2A	5 (26.3)	5 (28.4)	
2B	0	0	
3A	2 (10.5)	3 (21.5)	
3B	3 (15.8)	0	
3C	1 (5.2)	1 (7.1)	
Reponses to NACT			
CPR	7 (36.8)	10 (71.4)	0.19
NR	4 (21.1)	1 (7.1)	
PCR	8 (42.1)	3 (21.5)	

14 patients with luminal A subtype underwent NACT followed by surgery and were compared to the NACT cohort of TNBC. There was no statistically significant difference in the response to NACT.

Comparison of response to NACT of TNBC with luminal B

Table 13: Neo-adjuvant chemotherapy in triple negative breast cancer versus luminal B breast cancer

Parameters	TNBC (%) n=19	Luminal B (%) n=14	p-value
Pathological T-stage			
0	8 (42.1)	6 (42.9)	0.96
1	1 (5.3)	1 (7.1)	
2	5 (26.3)	4 (28.6)	
3	2 (10.5)	2 (14.3)	
4	3 (15.8)	1 (7.1)	
Pathological N-stage			
PN0	13 (68.4)	8 (57.1)	0.92
PN1	4 (21.1)	4 (28.6)	
PN2	1 (5.3)	1 (7.1)	
PN3	1 (5.3)	1 (7.1)	
Pathological stage			
0	8 (42.2)	6 (42.9)	0.62
1A	0	1 (7.1)	
2A	5 (26.3)	2 (14.3)	
2B	0	2 (14.3)	
3A	2 (10.5)	1 (7.1)	
3B	3 (15.8)	1 (7.1)	
3C	1 (5.2)	1 (7.1)	
Reponses to NACT			
CPR	7 (36.8)	5 (35.7)	0.99
NR	4 (21.1)	3 (21.4)	
PCR	8 (42.1)	6 (42.9)	

14 patients with luminal B subtype underwent NACT followed by surgery and were compared to the NACT cohort of TNBC. There was no statistically significant difference in the response to NACT.

Comparison of response to NACT of TNBC with HER-2 enriched subtype of breast cancer.

Table 14: Neo-adjuvant chemotherapy in triple negative breast cancer versus HER2 enriched breast cancer

Parameters	TNBC (%) n=19	HER3 Enriched (%) n=18	p-value
Pathological T- stage			
0	8 (42.1)	5 (29.4)	0.89
1	1 (5.3)	1 (5.9)	
2	5 (26.3)	4 (23.5)	
3	2 (10.5)	4 (23.5)	
4	3 (15.8)	3 (17.7)	

Pathological N-stage			
PN0	13 (68.4)	8 (44.4)	0.27
PN1	4 (21.1)	4 (22.2)	
PN2	1 (5.3)	5 (27.8)	
PN3	1 (5.3)	1 (5.6)	
Pathological Stage			
0	8 (42.2)	3 (17.7)	0.31
1A	0	0	
2A	5 (26.3)	3 (16.7)	
2B	0	3 (16.7)	
3A	2 (10.5)	4 (22.2)	
3B	3 (15.8)	2 (11.1)	
3C	1 (5.2)	1 (5.6)	
Reponses to NACT			
CPR	7 (36.8)	10 (55.6)	0.28
NR	4 (21.1)	5 (27.8)	
PCR	8 (42.1)	3 (16.6)	

18 patients with HER-2 enriched subtype underwent NACT followed by surgery and were compared to the NACT cohort of TNBC. There was no statistically significant difference in the response to NACT.

Discussion

This study aims to describe clinicopathological features at presentation and response to neoadjuvant chemotherapy according to breast cancer subtype, with a focus on triple-negative tumors. Breast cancer is comprised of multiple biological subtypes that can be approximated using standard immunohistochemical (IHC) markers.The majority of triple-negative tumors (that is, tumors which are ER, PR, and HER2 negative) cluster with the basal subset, and are associated with a higher stage at presentation, younger age and high risk of distant relapse.[4]

Several studies have showed that Triple-negative breast cancers have a more aggressive clinical course than other forms of breast cancer. Currently, breast cancer patients are managed according to algorithms based on a constellation of clinical and histopathological parameters in conjunction with assessment of hormone receptor (oestrogen and progesterone receptor) status and HER2 over expression/gene amplification. Although effective tailored therapies have been developed for patients with hormone receptor-positive or HER2+ disease, chemotherapy is the only modality of systemic therapy for patients with breast cancers lacking the expression of these markers (triple-negative cancers). It is clear that the interest in triple-negative cancers stems from (i) the lack of tailored therapies for this group of breast cancer patients and (ii) overlap with the profiles of basal-like cancers.

The following clinicopathological factors are studied and results are as follows.

Points from review of literature are brought forward for comparison and contrast wherever necessary.

Distribution of different subtypes of breast cancer.

Of the 165 cases studied TNBC accounted for 42 cases, 48 patients had luminal A subtype, 36 had luminal B subtype and 39 had HER-2 enriched subtype.

Triple negative breast cancers accounted for 25% of all breast cancers in our study In their study Carey *et al*.[5] they found that the prevalence of the TNBC subtype among patients with breast cancer in the US was 26.4%; among non-African American patients with breast cancer this prevalence was 23%. Bauer *et al*. have reported that in the US the prevalence of TNBC breast cancer among patients with all forms of breast cancer was 12.4% and that this prevalence was highest among non Hispanic black patients with breast cancer, at 24.6%. According to Nisimura et althe incidence of TNBC was 14%. In India, the incidence of TNBC was varies from 12.5% to 29.8%.Lakshmaiah et al study of TNBC in a similar demographic population of south Indian patients showed the incidence of TNBC was 26 %. This data suggests a higher incidence of TNBC in Indian population.

Age distribution

The median age of TNBC patients was 46.26 years and the median age for non –TNBC was 50.19 years which was quite younger than the Western data. Dent *et al*.[4] have reported that the median age of TNBC patients were 53 years. Cai MQ et al showed that the median onset age of TNBC was 50.0 years old, less than the median onset age of non-TNBC which was 57.5 years old in Chinese population. TNBC has been consistently associated with younger age group and high-grade tumor in many studies.The current study also shows that TNBC is significantly associated with younger age . This finding of younger median age most likely reflects the general trend of breast cancers occurring a decade earlier in Indian population than western data. This result was favoured by two Indian studies

There is a statistically significant difference between the age of TNBC and non-TNBCs in the current study which was similar to the study conducted on Chinese population by u J, Xue X, Hu C, et al. The mean age at diagnosis was significantly younger for the triple-negative group compared with other group (53.0 versus 57.7 years, respectively; $P < 0.0001$) as reported by dent et al in a study on Canadian population.[6,7,8,9]

Histopathological type

Majority of the patients had IDCC-NOS as the Histopathological type .other pathologies included medullary, mixed , metaplastic and lobular. This is similar to a number of studies , both Indian[10]and westernwith a majority of the cases being IDCC –NOS in both TNBC and non –TNBC.

Histological Grade

Most common grade was grade 2

There was no statistically significant difference in the distribution of grades between TNBC and non-TNBC. On comparing the distribution of grades in TNBC with Luminal-A there was a statistical significance with a p value of 0.03 .this can be attributed to the fact that luminal A breast cancers are lower grade. In a study of TNBC in north India recently showed Stage II was the predominant pathological stage (71%) followed by stage III and stage I.majority of the studies showed that TNBC have higher histological grade . In this study 17 out of 42 patients (40%)had grade 3 when compared to 36 out of 123 (29.5%) in non-TNBC which showed a non- significant trend.

Stage at presentation

This study showed that a majority of the case presented with larger clinical tumor stage (p value 0.03), and higher clinical stage when compared to non TNBC (p value 0.01)

On separation analysis of individual subtypes of breast cancers, This statistical significance was limited to luminal subtypes only i.e. Luminal A and Luminal B.
In the study by dent et al[4] 66% of the patients with TNBC had stage III disease.

Conclusion

Triple negative breast cancer is not an uncommon subtype in our region. It is more prevalent than western population. Triple negative breast cancer affects younger population with a median age of 46.25 yr in the current study. Triple negative breast cancer presents at a more advanced stage with most tumors being clinically palpable and the most common presentation being lump in breast .It has good response to neoadjuvant chemotherapy.
This study is not without limitations, many patients were excluded from the study due to lack of complete clinical and pathological data. The lack of ISH for HER-2 receptor testing in equivocal HER-2 receptor staining mandated removal of many cases from the study. Further studies with larger cohorts are required to assess which patients benefit the most from chemotherapy in our population.

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