



CLINICOPATHOLOGICAL FEATURES OF TRIPLE POSITIVE (LUMINAL B HER-2 POSITIVE) BREAST CANCER: A RETROSPECTIVE ANALYSIS

Surgery

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ABSTRACT

Aim

The aim is to study various clinicopathological features of TPBC in Northern part of INDIA.

Background:

- Molecular classification of breast cancer is based on gene expressing profile.
- The subgroup [luminal A, luminal B, HER2, and basal like] have distinct gene expression pattern and phenotypical characteristics.
- TPBC shares phenotypical features with HER-2 +VE breast cancer,
- The luminal B/HER2+ve patients had a lower risk of mortality than the luminal B/HER2-ve for all stages of disease.
- TPBC have younger age of presentation and younger patients have more aggressive presentation, which is associated with worse prognoses.
- the pathological complete response (pCR) rate was consistently lower when compared with HER2+ve and basal-like subtypes

Material And Method:

Study Design: Hospital based retrospective, descriptive type of observational study.

Study place: Dept. of general surgery SMS hospital Jaipur.

Study population: 402 cases of diagnosed breast cancer.

Statistical Analysis: Descriptive statistics.

Result:

Total breast cancer patients studied = 402

38 patients [9.5%] were found to have TPBC

Most [73.7 %] 28 were before the age of 45 years.

More common in pre menopausal women [76.3 %] 29

Most of TPBC [97.3 %] had histological features of IDC

Conclusions:

TPBC represents around 10 % of breast cancer.

TPBC is commonly associated with premenopausal status.

TPBC is commonly occurs in UOQ and infiltrative duct carcinoma (IDC) is the most common.

KEYWORDS

I. Introduction

Breast cancer is a molecularly heterogeneous disease that appears to include at least four major tumor subtypes: basal-like breast cancer, HER2-positive breast cancer, luminal-A breast cancer and luminal-B breast cancer [1]. In many subsequent studies, luminal-B breast cancer has been defined as ER-positive breast cancer with increased proliferation, particularly the inclusion of ER-positive/HER2-positive breast cancer [1]. Reporting the early studies of the intrinsic molecular subtypes in breast cancer, the defining feature of Luminal-B breast cancer has been its poor outcome compared with the luminal-A subtype. And overall survival in untreated luminal-B breast cancer is similar to the basal like and HER2-positive subgroups, which are widely recognized as high risk. (1)

There is a growing evidence of the heterogeneity of such entity on the molecular level that may cause discrete outcomes. Breast cancer is a heterogeneous disease, encompassing a number of distinct biological entities that are associated with specific morphological and immunohistochemical features and clinical behavior. Triple-positive breast cancer (TPBC) accounts for 10–15% of all breast carcinomas. Triple-positive cancers have a tendency to affect Pre-menopausal women more frequently (3,4).

Regarding the endocrine therapies in ER+ breast cancer, the benefits of treating HR+/HER2+ Luminal B breast cancer with the same endocrine therapies would be different. There were studies reporting that HR+/HER2+ Luminal B breast cancer was relatively insensitive to endocrine therapy compared with luminal-A breast cancer (2).

Triple-positive tumors (estrogen receptor (ER)+ve, progesterone receptor (PR)+ve and HER-2+ve) have aggressive clinical behavior and poor prognosis at early age. Most TPBC shows a her2+ve like

phenotype. Initial stage at diagnosis and smaller median tumor size are characteristic for TPBC. (3,4)

No statistically significant differences were found with regard to BCS and OS among both group of luminal B patients (with ER+/PgR+/HER2+/HIGH Ki67 and with ER+/PgR+/HER2-/HIGH Ki67 disease) (5).

Breast cancer survival at 5 and 10 years is correlated closely with histological grade, size, and lymph node involvement (3). In this study, we try to investigate some demographic, clinical, and pathological characteristics of the triple-positive breast cancers in Northern part of INDIA.

II. Patients And Methods

Study Design: Hospital based retrospective, descriptive type of observational study.

Study Place: Dept. of General Surgery SMS hospital Jaipur Rajasthan.

Study Population: 402 cases of diagnosed breast cancer.

Statistical Analysis: Descriptive statistics-

This analysis included women with diagnosed breast cancer at SMS hospital Jaipur. Patient demographics were obtained.

Tumors were staged according to the TNM criteria. The data on ER, PR, and HER2/neu was obtained through standard clinical testing. We further categorized the patients as triple-positive if they were positive for estrogen receptor, progesterone receptor, and Her2/neu.

III. Statistical analysis:**Table 1: Patient characteristics**

		N	%
AGE	25-45 YR	28	73.70%
	46-60YR	8	21%
	>60	2	5.30%
MENSTRUAL STATUS	PREMENOPAUSE	29	76.30%
	POSTMENOPAUSE	9	23.70%
LATERALITY	RIGHT	21	55.26%
	LEFT	17	44.74%
LOCALITY	UOQ	21	55.26%
	REST	17	44.74%
PARITY	parity ≥ 3	10	26.30%
OCP USE	parity <3	28	73.70%
smoking history	Yes	8	21.00%
	No	30	79.00%
	Yes	4	10.50%
	No	34	89.50%

Table 2: Histological Pattern of TPBC:

CHARACTERISTIC		N	%
HISTOLOGICAL TYPE	IDC	37	97.40%
	OTHER	1	2.60%

Table 3: Tumor characteristics

CHARACTERIS TCS		N	%
T STAGE	T1	17	44.70%
	T2	15	39.50%
	T3	4	10.50%
	T4	2	5.30%
N STAGE	N0	14	36.8%
	N1	19	50%
	N2	4	10.50%
	N3	1	2.65%
TNM STAGE	I	5	13.15%
	II	22	57.90%
	III	10	26.31%
	IV	1	2.64%
METASTATIC	YES	1	2.64%
	NO	37	96.36%

IV. Discussion

The demographic, clinical and pathological features of the patients with TPBC are different from other molecular type of cancer breast.

The prevalence of TPBC in the northern part of India [Rajasthan] is 9.5% as shown in our study, in American study prevalence was 9.6%(4).

In our study the average age of TPBC presentation was 39.8 year. Which is comparatively younger than American study (average age was 56.6 year)(4) and china study (average age was 58 year)(3)

76.3% pt were Premenopausal in our study as compare to study done in america [36%] (4) and 28% china(3).

In comparison to other breast cancer subtypes, patients of TPBC presents earlier and more common in premenopausal women.

History of oral contraceptives do not have any statistical significance.

In our study 97.4% patients were of IDC. And is comparable to other studies found in literature (3,4).

At diagnosis, TPBCs are commonly presents with smaller tumor size. In our study, the mean tumor size was 2.5 cm in TPBC group, more than 44% patients of TPBC had tumor size of <2cm. (in American study 60% and in china study 49%).

84% patients of TPBC were in histological grade II and III, And is comparable to other studies (in American ,83% and in china , 86%).

More than 50% patients had lymph node positive disease at time of diagnosis which shows aggressive behavior of tumor.

V. Results

Total 402 breast cancer patients were studied, out of them 38 patients [9.5%] were found to have TPBC. Age of presentation of TPBC is earlier than other sub groups of breast cancer. Premenopausal women with breast cancer are more likely to have TPBC. More than 50% patients presents with lymph node positive which shows aggressive behavior of TPBC.

They are mainly IDC.

Smoking, OCP intake and parity do not have any extra impact on triple positive type of breast cancer.

The presentation in UOQ is more as compared to other quadrant which is same with other group of breast cancer.

TPBC is a different entity than other breast cancer and is an area for further research to develop novel treatment.

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