



HORMONE RECEPTOR AND HER-2 NEU STATUS IN BREAST CANCER PATIENTS ATTENDING RADIOTHERAPY OPD: AN INSTITUTIONAL EXPERIENCE

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ABSTRACT

Introduction: In breast cancer, hormonal status plays a very pivotal role in its etiology, prognosis and treatment in adjuvant as well as metastatic setting. This study explored hormonal profiles of the patients and metastasis in breast cancer. **Materials & Methods:** Breast cancer patient data were analysed retrospectively from institutional records during the study period from 1st January 2013 to 31st December 2017. The collected data was compiled into EpiInfo 7 software and subsequently analysis of data was done using SPSS software, version 16 and results are mentioned with the help of tables. **Result and Discussion:** Most of the breast cancer patients were of the age 40-60 years. Most of the patients had locally advanced carcinoma, 49.2%. Hormonal status was known for 82.2% of the patients. In our study ER positive, PR positive & Her-2 positive were 38.4%, 41.09% & 36.9% respectively of the whole sample and 46.67%, 50% & 45% respectively among the hormonal status known patients. Those who received hormonal therapy, were 31.5% amongst all the available records. Patients with HER2, ER & PR status positive (21.67%) and HER2 negative, but positive for ER & PR (16.67%) received hormonal therapy. While 23.33% patients did not receive hormonal therapy, being negative for HER2, ER & PR; it was also observed that 21.67% patients were not given any hormonal therapy, being ER & PR negative but HER2 positive. **Conclusion:** ER/PR positive was the most frequently observed hormonal profile in our population and this population is eligible for hormonal therapy.

KEYWORDS: Breast carcinoma. Estrogen receptor. Progesterone receptor. Hormonal Therapy.

INTRODUCTION

Breast cancer is the most common cancer in women worldwide. Breast cancer represents 12% of all new cases diagnosed and 25% of all cases in women.^[1] Breast cancer is now the most common cancer in most cities in India, and 2nd most common in the rural areas.

Risk factors for developing breast cancer are mostly hyperestrogenism, family history, hormonal therapy and obesity. Symptoms and signs of breast cancers include breast and/or axillary mass, ulcerations, bleeding and features of metastasis.^[2,3]

Combined modality treatment is usually the preferred mode with surgery being the mainstay of treatment. Hormonal therapy forms an integral part of treatment in

case of hormone receptor positive cancers. Targeted therapy is also an important part of the treatment in selected patients. Although preoperative irradiation may reduce the tumor size and theoretically facilitate the surgery, postoperative irradiation is nearly always preferable because the extent of tumor has been determined and tissue healing is less impaired.^[2,3,4]

The current study was conducted with an aim to determine the hormonal profiles of patient suffering from breast cancer among the patients attending a Radiotherapy OPD.

MATERIALS & METHODS

A record-based descriptive study was conducted at the Radiotherapy Department, Medical College, Kolkata

during the months of May and June, 2018. Several patient records available in the department were reviewed by census method based on pre-decided inclusion and exclusion criterias. Records of patients attending Radiotherapy OPD, Medical College, Kolkata from 1st January, 2013; with histologically proven breast carcinoma were considered. However previously irradiated patients for other malignancy/other reason, patients with primary melanoma metastases from other area(s) and patients who attended the OPD after 31st December 2017 were excluded from this study. This resulted in 80 records to be considered. But 7 of these records had incomplete treatment details and was therefore excluded. Data was collected and compiled from the remaining 73 records maintaining the confidentiality regarding patient identity. Data was collected regarding different socio-demographic variables and variables related to general clinical profile. The collected data was compiled into EpiInfo 7 software

and subsequently analysis of data was done using SPSS software, version 16.

RESULT & DISCUSSION

From the reviewed 73 records, it was observed that mean age of the patients was 46.62 years (SD 10.37 years), with minimum age being 27 years and Maximum 83 years. Median age was found to be 44 years. All of whom were married with 95.9% females, majority (87.7%) were Hindu by religion.

Majority (49.2%) presented with locally advanced carcinoma, while 10.8% had advanced carcinoma with rest having local presentation. Nearly 91.5% did not have any metastasis while presenting to the OPD. Hypertension was the major co-morbidity identified (17.8%) followed by IHD (4.1%). Hormonal status was known for 82.2% of the patients. (Table 1).

Table 1: Clinical parameters related to Breast Carcinoma (n=73).

Variable	Categories	Frequency	Percentage
Presentation of carcinoma(n=65)	Local	26	40.0
	Locally Advanced	32	49.2
	Advanced	7	10.8
Status of Metastasis (n=59)	Present	5	8.5
	Absent	54	91.5
Comorbidities (multiple response)	Diabetes mellitus	1	1.4
	Hypertension	13	17.8
	IHD	3	4.1
	COPD	0	0.0
Surgery done or not	Prior Surgery	65	89.0
	Surgery during treatment	0	0.0
	No Surgery	8	11.0
Intent of Surgery (n=65)	Definitive	61	93.9
	Palliative	4	6.1
Hormonal Status	Known	60	82.2
	Unknown	13	17.8
Treatment outcome	Completed	53	72.5
	Did not Follow-up	16	21.9
	Death	2	2.8
	Clinically unfit for further therapy	2	2.8

Those who received hormonal therapy, were 31.5% amongst all the available records. Anastrozole (26.09%),

Letrozole (8.69%) & Tamoxifen (65.22%) were used for hormonal therapy. (Table 2).

Table 2: Hormonal therapy parameters related to Breast Carcinoma.

Variable	Categories	Frequency (Percentage)
Received hormonal therapy (n=73)	Yes	23 (31.5%)
	No	50 (68.5%)
Which hormonal drug given (n=23)	Anastrozole	6 (26.09%)
	Letrozole	2 (8.69%)
	Tamoxifen	15 (65.22%)

Hormonal status was considered in the backdrop of whether or not hormonal therapy was given. It was observed that 18.32% of the patients received hormonal therapy who were also positive for all of HER2, ER &

PR status. Considering HER2 negative status, 16.67% patients overall were positive for ER & PR and received hormonal therapy.

While 23.33% patients did not receive hormonal therapy, being negative for HER2, ER & PR; it was also observed that 21.67% patients were not given any hormonal

Therapy, being ER & PR negative but HER2 positive. (Table 3).

Table 3: Distribution as per hormonal therapy among those with known hormonal status. (n=60).

HER2 status	ER status	PR status	Hormonal therapy given	
			Yes	No
Positive	Positive	Positive	13 (21.67%)	0 (0.0%)
		Negative	0 (0.0%)	0 (0.0%)
	Negative	Positive	0(0.0%)	1 (1.67%)
		Negative	0 (0.0%)	13 (21.67%)
Negative	Positive	Positive	10 (16.67%)	3 (5.0%)
		Negative	1 (1.67%)	1 (1.67%)
	Negative	Positive	1 (1.67%)	2 (3.33%)
		Negative	0 (0.0%)	15 (23.33%)

Going with the trend in India, the median age is 44 years (~30%).^[5,6] In our study most presentation was from locally advanced (49.2%) and advanced (10.8%) similar to the prevailing trend.^[5] In our study ER positive breast carcinoma was around 38.4% while in the studies it is usually about 65%. This may be due to the fact that some statuses were not known. Among the patients with known status it increases to 46.67%. Similarly with PR status 41.09% is positive in whole sample while 50% in known ones. This is consistent with the known trials (53%) Her2 positive in 36.9% of whole sample and 45% of known ones The percentage of triple negative in known cases is 25% similar to trials (21%).^[2,3,4,5]

Patient with positive hormonal status received hormonal therapy.^[4]

The present study was a record- based study. Depending on the results, a longitudinal study can be undertaken in future primarily focusing on the treatment outcomes and survival pattern. Also data was collected in a census method. So we did not seek any statistical association among different variables. Since it is difficult to pursue a similar study in a community-based manner, we decided to stick to a OPD-based (record-based) method. However a longitudinal study in a similar setting can be undertaken.

CONCLUSION

A recent study by Grann and coworkers (Grann et al., 2005) also suggested that the higher risks of mortality was in women with ER+/PR-, ER-/PR+, and ER-/PR- tumors, compared to women with ER+/PR+ tumors. The determinant factors correlated with menopausal status, patient's age and, were lower than expected to receptor status. Engle et al (Engle et al., 2004) reported that their study also showed that overall breast cancer patients perceived benefit from their adjuvant treatment. In addition, impaired body image, decreased sexual functioning and sexual enjoyment in patients, must be seriously considered in long-term survivors of breast cancer, to improve their overall quality of life.

Although data on tumor characteristics may add information regarding treatment; the traditional pathological and morphological examination may be linked to the clinical behavior of tumors, but hormonal status is clearly important as predictive and prognostic factor for therapy. ER/PR positive was the most frequently observed hormonal profile in our population and this population is eligible for hormonal therapy.

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