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Impact of Pathological stage on Locoregional Control of Carcinoma Breast cancer after adjuvant Treatment

Dr. Poonam Gupta-M.B.B.S, MD Radiation Oncology

Sr. Consultant-HPPCH Gorakhpur-India

Abstract

Background- Although higher tumor stage is independent prognostic factors in carcinoma breast. The major risk factors for recurrence after mastectomy as initial therapy are the number of axillary lymph nodes positive at surgery in addition to other poor prognostic factors including younger age, higher-grade histology, receptor negative disease, and LVI. Risk factors for developing local recurrence after an initial breast-conserving approach are dictated mostly by margin status and receipt of radiotherapy. This study aimed to investigate the association of pathological stage with locoregional control.

Material & Methods- This retrospective study was performed in 204 patients of carcinoma breast in Hanuman Prasad Poddar Cancer Hospital and Research Centre-Gorakhpur-India from 2018 to mid of 2022.

Results-Out of 204 patients all were females except 2. Most of the patients had their age between 41-50 years and had stage III of disease. In hormone receptor status aspect maximum no of patients had ER(-) and PR(-) status. Out of 204patients 13(6.3%) patients developed local recurrence and 22(10.78%) patients developed distant metastasis. The patient who developed local failure or distant metastasis had one or more risk factors such as higher stage at presentation, many axillary node involvement in surgery,younger age or negative receptor status.

Conclusions-The axillary nodal involvement, stage of disease at presentation and hormone receptor status are the important predictor of prognosis in carcinoma breast.

Introduction – Early breast cancer comprises stage I, II and stage III is locally advanced. Fortunately, the outcome for patients who present with locally advanced breast cancer has improved substantially in recent decades. Prior to the routine use of chemotherapy, patients treated with mastectomy, radiation, or both had high rates of distant metastases and death. Chemotherapy and hormone therapy regimens in both the neoadjuvant and adjuvant settings have significantly improved the prognosis. By decreasing the burden of distant metastases, modern chemotherapy and biologic therapies have also resulted in increased importance of local disease control. Both of the most common subtypes, infiltrating ductal carcinoma and lobular carcinoma, can present as early-stage or locally advanced disease. However, those subtypes considered to behave less aggressively (e.g- tubular carcinoma, mucinous carcinoma, and medullary carcinoma) are unlikely to present at advanced clinical stages unless the breast mass has been present for a long time. local recurrence after an initial breast-conserving approach are dictated mostly by margin status and receipt of radiotherapy; other known poor prognostic factors include greater T-stage, younger age, higher grade histology, receptor-negative disease, and LVI. The major risk factors for recurrence after mastectomy as initial therapy are the number of axillary lymph nodes positive at surgery in addition to other poor prognostic factors including younger age, higher-grade histology, receptor negative disease, and LVI.

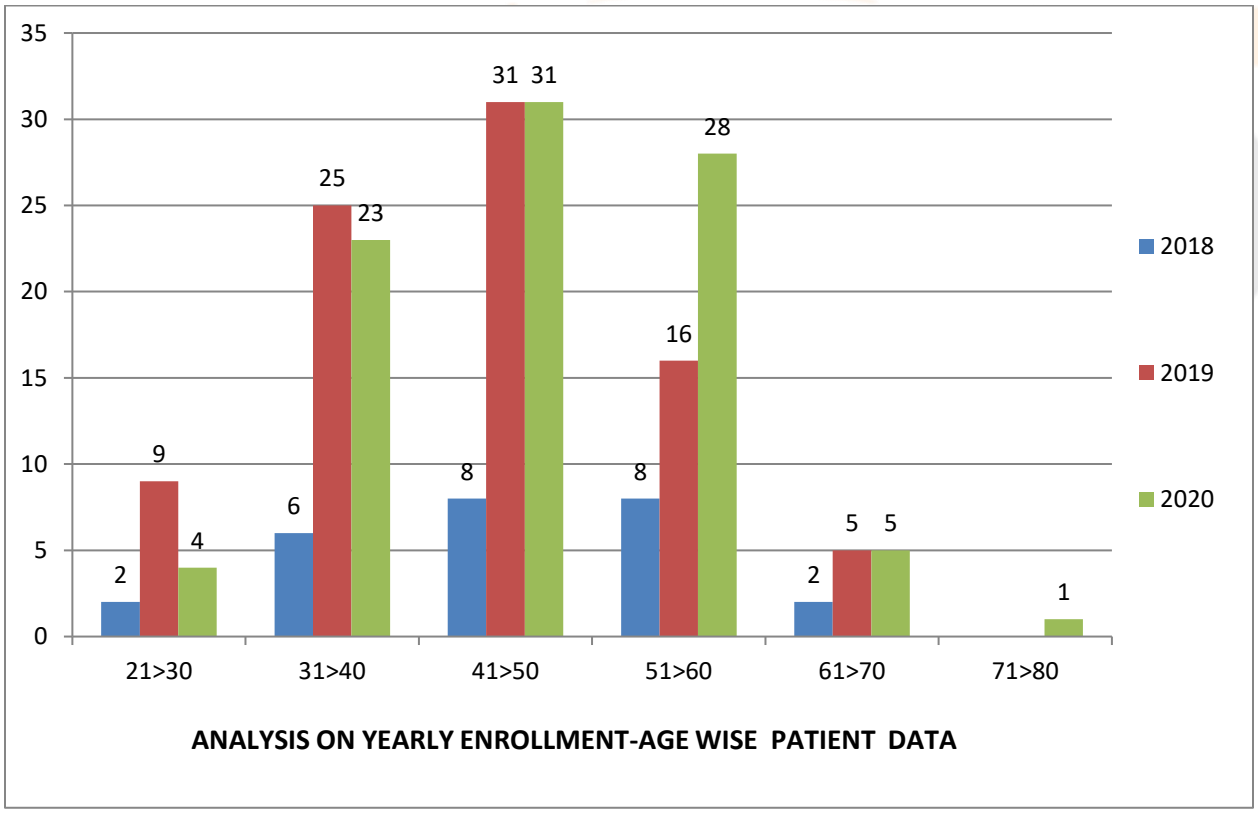
Management of invasive breast cancer should be based on the clinical extent and pathologic characteristics of the tumor, in addition to the age of the patient (menopausal status), some biologic prognostic factors, and the preference and psychological profile of the individual patient, optimally in a multidisciplinary setting. Although surgical, medical, and radiation oncology remain the primary therapeutic disciplines in the management of breast cancer. The surgical management of patients with early-stage operable breast cancer addresses both the primary tumor and regional lymphatics. Systemic therapy is an essential component of both early-stage node-negative breast cancer and advanced-stage disease. For patients with all stages of breast cancer, systemic therapy has been shown to decrease the RR of relapse and mortality. Radiation is the preferred

standard of care for the majority of women with early-stage invasive disease and avoidance in selected patients. Although the tumor stage and nodal involvement are the important predictor of prognosis in case of breast carcinoma but after systemic therapy and adjuvant radiation these are counteracted up to some extent. This study was performed to know that how the pathological stage determines the prognosis and relapse in carcinoma breast.

Material and methods- This study was conducted in 204 patients of breast carcinoma in Hanuman Prasad Poddar Cancer Hospital and Research Centre Gorakhpur –India, from 2018 to 2022.The patients were enrolled from 2018 to 2020 and follow up period was from completion of treatment to mid of 2022.There are 2 males and remaining 202 patients were females. Their age ranges from 21 to 70 years. They had stage from I to III. Among them 11 (5.3%) patients underwent BCS and 193(94.60%) patients underwent MRM. After surgery all received adjuvant treatment (chemotherapy and radiotherapy) according to indications.

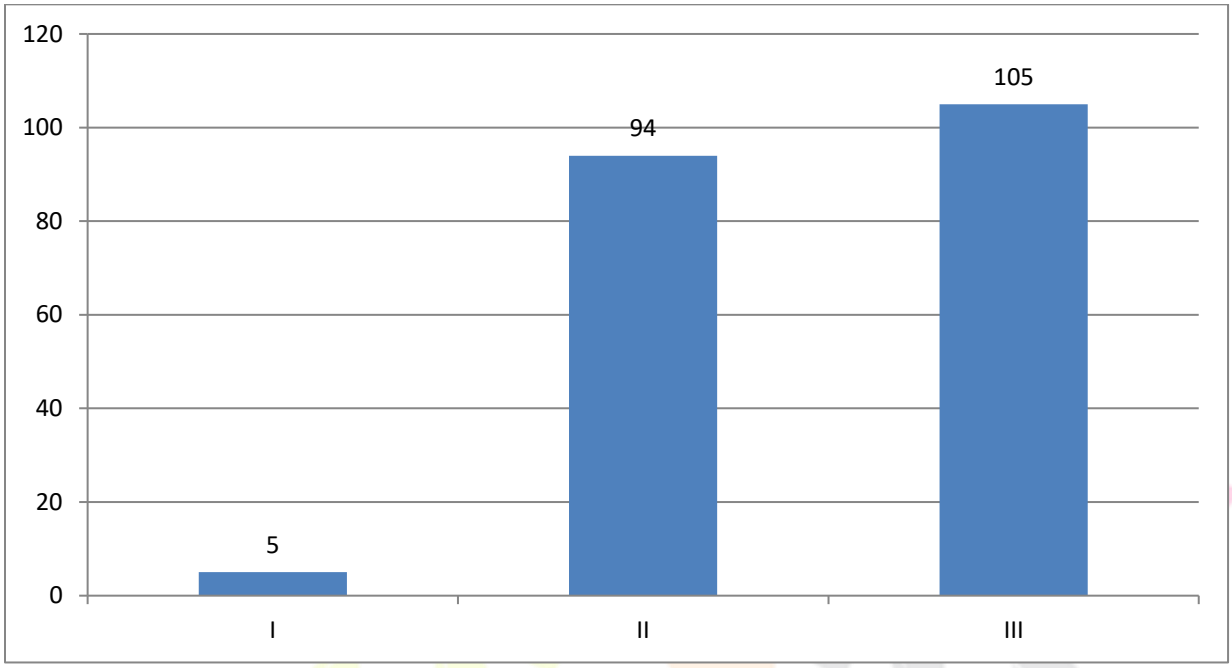
Results- After analysis of 204 patients different results found.

(1)Patients enrollment yearwise



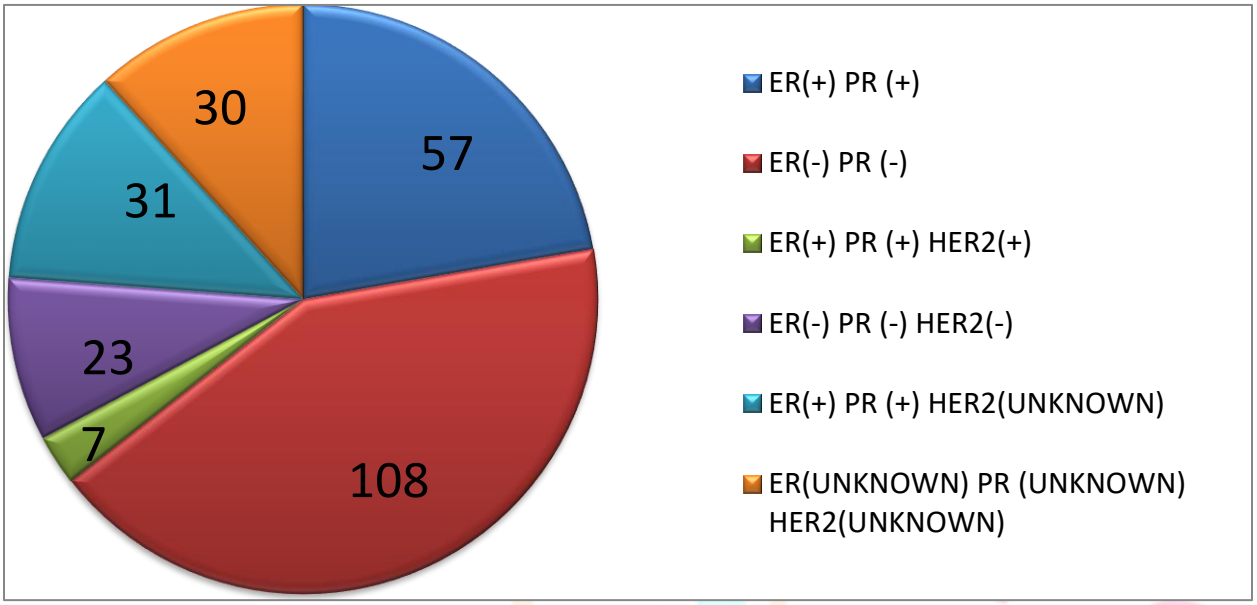
- 26 patients enrolled in 2018.
- 86 patients enrolled in 2019.
- 92 patients enrolled in 2020
- Max no of patients were in age group of 41 to 50 years.

(2)Clinical stage analysis-

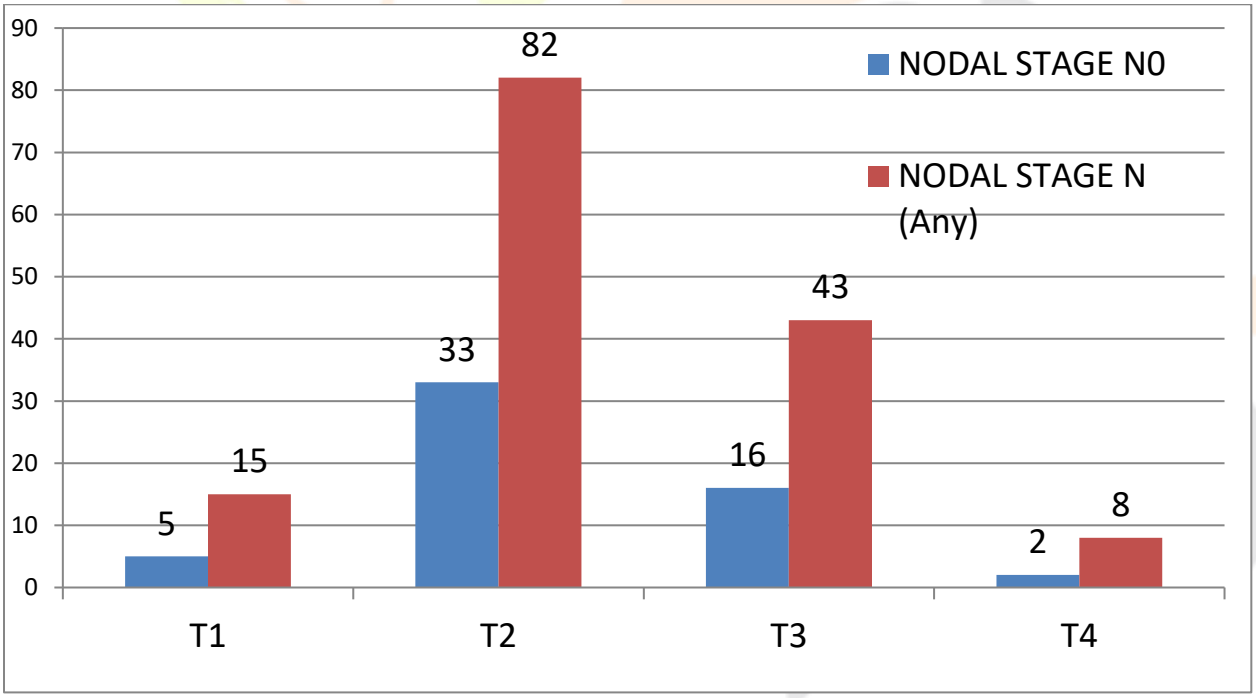


- Max no of patients were in stage III.
- All patients of stage I and II underwent upfront surgery.
- The operable stage III patients underwent upfront surgery and patients with inoperable stage underwent neoadjuvant chemotherapy and further surgery.
- After surgery they underwent adjuvant chemotherapy and radiotherapy according to their indications.

(3)Receptor status analysis of patients



(4)Pathological stages-



- The patients who underwent upfront surgery with T1or 2N0 underwent adjuvant chemotherapy and patients with T2N1-3 received chemotherapy and radiation.
- Patients who received neoadjuvant chemotherapy after completion of chemotherapy and surgery received adjuvant radiation.

After completion of all treatment patients were analyzed in terms of outcome .The follow up period was from completion of treatment to mid of 2022. 13 out of them developed local recurrence and 22 patients developed distant metastasis (liver, lung ,brain ,bone) .Those patients had one or more high risk factors such as many no of axillary nodal involvement, negative receptor status ,advanced stage at presentation ,younger stage.

List of patients developed local /distant recurrence (35patients)

Pathological Stage	No of patients
T3N0	1
T3N1	3
T3N2	3
T3N3	10
T4N0	5
T4N1	3
T4N2	3
T4N3	7

- 26 out of 35 patients had negative receptor status. 7 had unknown receptor status and 2 had positive receptor status.

Discussion- Carcinoma of the breast represents a wide spectrum of tumors with a variety of clinical, biologic, and genetic characteristics resulting in a considerable variation in prognosis. Tumor size and nodal status are clearly among the strongest predictors of overall survival and metastasis and are also strong predictors of postmastectomy chest wall relapse when radiation is not used. On the other hand, margin status is a strong predictor of relapse in the conservatively treated breast but is not strongly correlated with distant metastasis. Young age is also a very strong predictor of local relapse after breast-conserving therapy, and although it has been shown to be predictive of systemic metastasis.

Although tumor size correlates strongly with the presence and number of involved axillary lymph nodes, it is clearly an independent prognostic factor. Axillary nodal status continues to be the strongest predictor of disease-free and overall survival and is the primary factor that governs breast cancer staging. Although there is a direct relation between the number of axillary nodes involved

and the risk of distant metastasis, the most commonly employed schema is to group patients into four prognostic categories (node negative, 1 to 3 involved nodes, 4 to 9 involved nodes, and more than 10 involved nodes).

The histologic subtype of invasive cancer has been shown to be of prognostic value in several studies. The tubular, mucinous, and medullary subtypes have been shown to have a more favorable prognosis, compared with invasive ductal.

Abbreviation-

BCS (Breast conservation surgery)

MRM (Modified radical mastectomy)

LVI (Lymphovascular invasion)

Conclusion- Negative receptor status is very common in breast carcinoma and associated with poor prognosis. There are several independent but interrelated prognostic factors predictive of recurrence and survival in breast cancer. These include axillary nodal status, histopathology, receptor status, proliferative rate.The most significant prognostic factor in breast cancer is the presence of axillary lymph node involvement which is usually assessed at the time of surgery using sentinel lymph node biopsy or axillary dissection. Macrometastasis (>0.2cm) have prognostic significance.

References-1. American Joint Committee on Cancer; Greene FL, Page DL, Fleming ID, et al., eds. AJCC cancer staging manual. 6th ed. New York: Springer, 2002.

2. Cuzick J, et al. Overview of randomized trials of postoperative adjuvant radiotherapy in breast cancer. Cancer Treat Rep 1987;71(1):15–29.

3. Cuzick J, et al. Cause-specific mortality in long-term survivors of breast cancer who participated in trials of radiotherapy. J Clin Oncol 1994;12(3):447–453. .

4.Macdonald SM, Harris EE, Arthur DW, et al. American College of Radiology ACR appropriateness criteria: locally advanced breast cancer. Reston, VA: American College of Radiology, 2011. Accessed at: http://www.acr.org/a2c

5. Francis SR, Frandsen J, Kokeny KE. Outcomes and utilization of postmastectomy radiotherapy for T3N0 breast cancers. Breast 2017;32:156–161.

6. Fowble BL, Einck JP, Kim DN, et al. Role of postmastectomy radiation after neoadjuvant chemotherapy in stage II-III breast cancer. Int J Radiat Oncol Biol Phys 2012;83(2):494–503.

7.Taghian A, Jagsi R, Makris A, et al. Results of a survey regarding irradiation of internal mammary chain in patients with breast cancer: practice is culture driven rather than evidence based. Int J Radiat Oncol Biol Phys 2004;60(3):706–714.

8. Harris J, Lippman M, Morrow M, et al. Diseases of the breast. 3rd ed. Philadelphia, PA: Lippincott Williams & Wilkins, 2004.

9.Veronesi U, Marubini E, Del Vecchio M, et al. Local recurrences and distant metastases after conservative breast cancer treatments: partly independent events. J Natl Cancer Inst 1995;87(1):19–27.

10. Wilson LD, Haffty BG. National Residency Matching Program (NRMP) results for radiation oncology, 2004 update. Int J Radiat Oncol Biol Phys 2004;60(2):689–690.

11. Recht A, Edge SB, Solin LJ, et al. Postmastectomy radiotherapy: clinical practice guidelines of the American Society of Clinical Oncology. J Clin Oncol 2001;19(5):1539–1569.

12. Obedian E, Haffty BG. Negative margin status improves local control in conservatively managed breast cancer patients. Cancer J Sci Am 2000;6(1):28–33. 223. Smitt MC, Nowels KW, Zdeblick MJ, et