Real-World Outcomes of Neoadjuvant Therapy for Breast Cancer: A Regional Australian Cohort Study

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BACKGROUND

Neoadjuvant therapy is increasingly utilized in early and locally advanced breast cancer to improve operability and provide an early in vivo assessment of treatment response.
Achieving pathological complete response (pCR) is associated with improved long-term outcomes, particularly in HER2-positive and triple-negative breast cancer (TNBC).
While major trials have reported neoadjuvant therapy outcomes by tumour subtype, real-world data from regional centers remain limited.
Real-world data from regional centres can identify practical barriers to completing neoadjuvant therapy and highlight opportunities to optimise supportive care.

METHODOLOGY

A retrospective audit was conducted of all female patients with early or locally advanced breast cancer who received neoadjuvant systemic therapy at Goulburn Valley Health, Victoria, between January 2020 and May 2025.
The primary outcome was the rate of pathological complete response (pCR), defined as the absence of residual invasive disease in both the breast and regional lymph nodes (ypT0/ypN0) following neoadjuvant therapy. Secondary outcomes included treatment completion and treatment-related hospital admissions.
Descriptive statistics were used for analysis. Ethics approval was obtained from the Goulburn Valley Health Human Research Ethics Committee.

CONCLUSION

This regional Australian cohort demonstrates pCR rates comparable to published literature, with a higher pCR rate seen in HER2+ and TNBC subtypes versus HR+/HER2−.
Completion of the planned neoadjuvant therapy regimen was associated with increased pCR rates in both TNBC and HER2-positive subgroups. These findings highlight the importance of supportive care to minimise treatment interruptions, aiding in neoadjuvant therapy completion.

Demographics (N=70)	
Age (years)	
Median	53
Range	28-83
ECOG Performance Status- no	
0	16
1	52
2	2
Breast Cancer Stage- no	
I	5
II	37
III	28
Clinical T Stage- no	
cT1	4
cT2	41
cT3	15
cT4	10
Clinical N Stage- no	
cN0	26
cN1	19
cN2	10
cN3	4
Hormone and HER-2 Receptor status-no	
ER Positive	32
PR Positive	26
HER-2 Positive	28
Triple Negative	26

KEY RESULTS

Patient characteristics:
- 70 patients underwent NAT (HER2+, n=28; TNBC, n=26; HR+/HER2−, n=16)
- Median age 53

Details regarding neoadjuvant therapy
- 21 (30%) required hospital admission during therapy
- 47 patients (67.1%) completed their planned neoadjuvant therapy

Surgical outcomes:
- Breast-conserving surgery in 36, single mastectomy in 25, bilateral mastectomy in 8. One TNBC patient did not proceed to surgery due to progression.

Pathologic complete response (pCR):
- pCR achieved in 42.9% of HER2+, 38.5% of TNBC, and 6% of HR+/HER2− patients
- pCR strongly correlated with treatment completion:
  - HER2+: 57.1% (12/21) completers vs 0% (0/7) non-completers
  - TNBC: 50% (8/16) completers vs 20% (2/10) non-completers

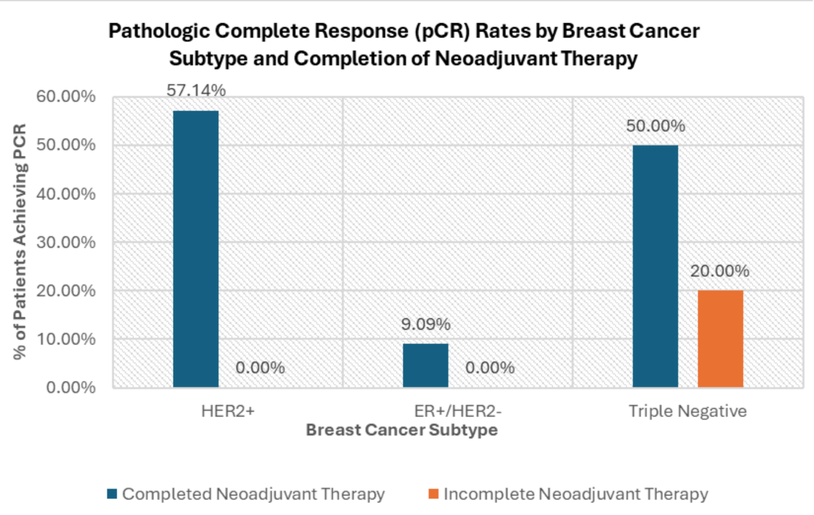
DISCUSSION

This study demonstrates the feasibility of delivering neoadjuvant therapy for breast cancer in a regional Australian cancer centre, where 69 of 70 patients proceeded to surgery.

Treatment-related toxicities were common and contributed to incomplete therapy in 23 patients, particularly among TNBC (n=10) and HER2-positive (n=8) subtypes. Hospitalisation during therapy occurred in 30% of patients.

Overall pCR rates (42.9% in HER2-positive and 38.5% in triple-negative breast cancer) were comparable to or lower than those reported in major clinical trials. However, among patients who completed the planned therapy, pCR rates were similar to published trial data (57.1% in HER2-positive and 50% in triple-negative disease).

These findings emphasise that treatment completion strongly correlates with pCR achievement and underscore the importance of proactive supportive care to manage toxicities and minimise interruptions in therapy delivery.



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