# PS2-05-17 Pathologic Response in Invasive Lobular Carcinoma versus Invasive Ductal Carcinoma Following Neoadjuvant Therapy: A Single Institution Study

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## Introduction

- A subset of invasive lobular carcinoma (ILC) is managed with neoadjuvant therapy. The clinical and pathologic features of ILC following NAT are not well characterized.
- The aim of this study is to characterize pathologic response in patients with ILC treated with NAT, including neoadjuvant endocrine therapy (NET), neoadjuvant chemotherapy (NCT), and Herceptin-targeted NCT (H-NCT).

## Patients and Methods

- The cohort consisted of a single-institution, serial collection from 2021–2025. A total of 73 patients with invasive lobular carcinoma (ILC) and 587 patients with invasive ductal carcinoma (IDC) who received neoadjuvant therapy followed by total/partial mastectomy between 2019–2025 were included.
- Patients with metaplastic carcinoma or mixed invasive ductal and lobular carcinoma were excluded.
- Clinicopathologic parameters were recorded, including age, tumor grade, histologic type, stage, and ER, PR, and HER2 status. Residual cancer burden (RCB) was assessed on post-NAT resection specimens using the online calculator: ww.mdanderson.org/breastcancer_RCB
- Cases were categorized into three immunohistochemical subtypes: ER+/HER2–, HER2+, and triple-negative (TNBC). Statistical analyses were performed to compare ILC and IDC within the same immunohistochemical subtypes.

## Results

| | | IDC (n, %) | ILC ( n,%) | p value |
|---|---|---|---|---|
| **ER+/HER2-** | | | | |
| Age (years, median) | | 52.8 | 63.6 | <0.001 |
| Nottingham Grade at Biopsy | | | | <0.001 |
| | 1 | 12 (8%) | 6 (13%) | |
| | 2 | 83 (54%) | 34 (76%) | |
| | 3 | 60 (39%) | 5 (11%) | |
| ILC Subtype | | | | |
| | Classic | | 36 (80%) | |
| | Pleomorphic | | 9 (20%) | |
| **HER2+** | | | | |
| Age (years, median) | | 54 | 63 | <0.001 |
| Nottingham Grade at Biopsy | | | | <0.001 |
| | 1 | 2 (1%) | 0 (0%) | |
| | 2 | 74 (37%) | 14 (70%) | |
| | 3 | 125 (62%) | 6 (30%) | |
| ILC Subtype | | | | |
| | Classic | | 11 (55%) | |
| | Pleomorphic | | 9 (45%) | |
| **Triple Negative** | | | | |
| Age (years, median) | | 54.7 | 61.7 | 0.09 |
| Nottingham Grade at Biopsy | | | | 0.016 |
| | 1 | 0 (0%) | 0 (0%) | |
| | 2 | 30 (13%) | 4 (50%) | |
| | 3 | 201 (87%) | 4 (50%) | |
| ILC Subtype | | | | |
| | Classic | | 2 (25%) | |
| | Pleiomorphic | | 6 (75%) | |

**Table 1**. Clinicopathologic characteristics of IDC and ILC stratified by immunohistochemical subtypes

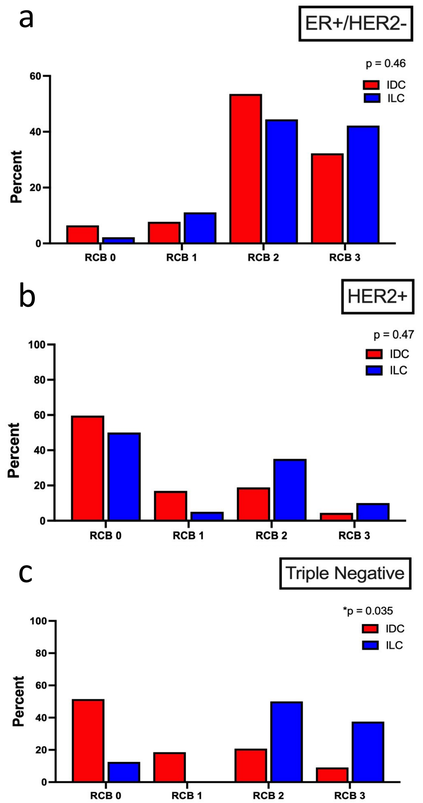



**Figure 1a-c.** Comparison of pathologic response to neoadjuvant therapy between IDC and ILC, measured by RCB scores and stratified by immunohistochemical subtypes.

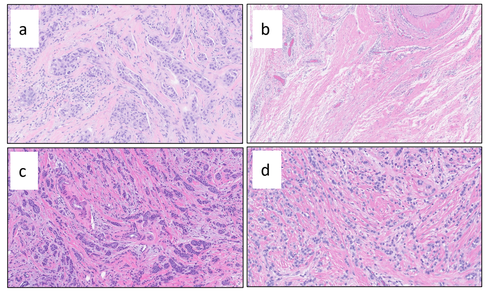



**Figure 2.** Representative H&E images. a. TNBC IDC at core biopsy; b. post-NAC specimen showing pathologic complete response (pCR, RCB0); c. ILC at core biopsy; d. residual tumor in the post-NAC specimen (RCB3).

## Summary

- Patients with ILC were older at diagnosis compared with those with IDC in this cohort.
- In the TNBC subgroup, ILC demonstrated a significantly poorer pathologic response compared with IDC.
- In the ER+/HER2– and HER2+ subtypes, ILC showed a showed comparable responses to neoadjuvant therapy.

## Conclusion

- ILC showed a distinct pathologic response to neoadjuvant therapy in the TNBC subtype. These findings highlight the importance of considering histologic type when evaluating neoadjuvant therapy outcomes.

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