



A Single Institution Experience with Neoadjuvant Chemotherapy in Invasive Lobular Carcinoma

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Background

Invasive lobular carcinoma (ILC) is the second most common type of breast cancer, accounting for approximately 15% of invasive disease.¹ Most ILC tends to be low grade, hormone receptor positive (HR+), and HER2-neu negative (HER2-).^{1,2} There is very little literature available about the benefit of neoadjuvant chemotherapy (NAC) in this subtype.^{1,2,3}

Hypothesis

To evaluate the impact of NAC in ILC and to identify a subgroup of patients who might benefit most from this treatment.

Methods

- A retrospective review was performed on a prospectively maintained NAC database at a single institution from 2010-2018.
- Demographic, clinicopathologic information, and treatment data were collected in all identified ILC patients.

Results

Characteristics at Presentation (n=64)		Treatment Outcomes		n (%)	
Age (mean, range)	58 (35-78)	Breast response	No breast surgery	1/64 (2%)	
Menopausal status	Pre		17 (27%)	Mastectomy	43/64 (67%)
	Post		47 (73%)	Breast conservation therapy (BCT)	20/64 (31%)
ILC histology	Classical		39 (61%)	<i>BCT successful without re-excision</i>	9/20 (45%)
	Pleomorphic		16 (25%)	<i>BCT successful with re-excision</i>	5/20 (25%)
	Mixed		9 (14%)	<i>BCT not successful requiring completion mastectomy</i>	6/20 (30%)
ILC phenotype	HR+/HER2-	53 (83%)	Overall breast conservation rate (with negative margins)	14/63 (22%)	
	HR+/HER2+	8 (12%)	Overall mastectomy rate	49/63 (77%)	
	HR-/HER2+	3 (5%)	Axillary response	Pre-NAC clinically node positive (cN+)	32/64 (50%)
	HR-/HER2-	0		Post-NAC: cN+ downstage to pN-	5/32 (12%)
		Post-NAC: cN+ persistently pN+ post-NAC		28/32 (88%)	
Nottingham grade (NR in 4 patients)	1	3 (5%)	pCR	Overall	5/64 (8%)
	2	37 (58%)		By ILC Phenotype	HR+/HER2-
	3	20 (31%)	HR+/HER2+		4/8 (50%)
Ki-67	Low <10%	20 (31%)	HR-/HER2+	1/3 (33%)	
	Moderate 11-25%	20 (31%)	HR-/HER2-	0 (0%)	
	High 26-50%	12 (19%)			
	Very high >50%	11 (17%)			

- Overall pCR rate was low (8%), regardless of histologic subtype.
- There was no substantial de-escalation of surgical management.
- The HER2+ subgroup had a pCR rate of 45%.

ILC invasive lobular carcinoma, NAC neoadjuvant chemotherapy, cN clinical N stage pre-NAC, pN pathologic N stage post-NAC, pCR pathologic complete response, HR+ hormone receptor positive, HER2+ HER2/neu positive, HR- hormone receptor negative, HER2- HER2/neu negative, BCT breast conservation therapy, TM total mastectomy, cTM completion total mastectomy, NR not recorded

Conclusions

- Our findings suggest that the overall benefit of NAC is limited for patients with ILC.
- However, the HER2+ subgroup had an excellent response to NAC (45% pCR), similar to that seen in their invasive ductal carcinoma counterpart.
- More research in a larger cohort would be helpful to further investigate the impact of NAC in ILC.

1. JC Boughey et al. Neoadjuvant chemotherapy in invasive lobular carcinoma may not improve rate of breast conservation. *Ann Surg Oncol.* 2009; 16(6):1606-1611.
 2. LA Riba et al. Characterizing response to neoadjuvant chemotherapy in invasive lobular breast carcinoma. *J of Surg Res.* 2018;233: 436-443.
 3. NP Tamirisa et al. The impact of chemotherapy sequence on survival in node-positive invasive lobular carcinoma. *J Surg Oncol.* 2019; 120:132-141.