Is Sentinel Lymph Node Biopsy Necessary in Patients with Ductal Carcinoma-In Situ Undergoing Mastectomy?

Alessandra Mele M.D., Amulya C. Alapati M.B.B.S, Joanne Szewczyk, M.D., Ted A. James M.D, M.S.

Department of Surgery/ Breast Care Center, Beth Israel Deaconess Medical Center, Harvard Teaching Hospital, Boston, MA

BACKGROUND

- National guidelines recommend performing a sentinel lymph node biopsy (SLNB) for patients with ductal carcinoma in situ (DCIS) undergoing mastectomy due to the possibility of finding invasive cancer on final pathology.
- When nodal staging is appropriate, it may not be feasible to perform a SLNB once the breast has been removed.
- Previous studies have demonstrated that approximately 20-30% of patients with DCIS will upstage to invasive cancer at the time of surgery; many with no nodal metastasis.
- The purpose of this study is to identify risk factors associated with nodal involvement, for a more selective approach to SLNB in patients with DCIS undergoing mastectomy

METHODS

- The National Cancer Database was used to identify all patients with DCIS undergoing mastectomy with SLNB from 2010 and 2015.
- We recorded the rate of upstaging to invasive carcinoma in the breast, as well as the pathological status of the sentinel node(s).
- Multivariable analysis was performed to identify clinical and pathological factors associated with sentinel node metastasis.

Table 1.General Characteristics of Patients Undergoing Mastectomy with SLNB for DCIS (n=6,886)

Characteristic	Negative nodes on SLNB n= 6,711(97.5%)		Positive nodes on SLNB n=175 (2.5%)	
	n	%	n	%
Age group				
< 40	493	94.8	27	5.2
40-54	2,899	97.0	91	3.0
55-69	2,408	98.2	44	1.8
≥ 70	911	98.6	13	1.4
Grade				
Low/Intermediate	3,232	97.0	101	3.0
High	3,479	97.0	74	2.1
CDCC*				
0	2,155	95.9	93	4.1
1	331	95.1	17	4.9
≥ 2	59	93.7	4	6.4
Markers				
HR+HER2-	1,380	94.5	80	5.5
HR-HER2+	373	93.0	28	7.0
HR+HER2+	529	93.6	36	6.3
TNBC	201	94.8	11	5.2
Unknown	4,228	99.5	20	0.5
Pathological T				
pT0	4,516	99.7	12	0.3
≥pT1	2195	93.0	163	6.9

*CDCC: Charlson-Deyo Comorbidity Score

Multivariable regression Analysis

Characteristic	OR	CI 95%	p-value
Age group			
< 40	1.352	0.856-2.135	
40-54	1[Ref]		
55-69	0.625	0.431-0.907	P=0.004
≥ 70	0.544	0.299-0.990	
Grade			
Low/Intermediate	1[Ref]		
High	1.545	1.099-2.172	P=0.012
Markers			
HR+HER2-	1[Ref]		
HR-HER2+	1.122	0.698-1.804	
HR+HER2+	1.114	0.730-1..701	P=0.053
TNBC	0.842	0.430-1.648	
Unknown	0.450	0.250-0.811	
Pathological T			
pT0	0.058	0.029-0.117	p<0.0001
≥pT1	1[Ref]		

RESULTS

- 6,886 patients with DCIS underwent mastectomy with SLNB.
- 34% had invasive cancer on final pathology, and 175 (2.5%) had positive sentinel lymph node metastasis.
- 93% of patients with positive nodes demonstrated upstaging to invasive carcinoma.
- In patients with invasive cancer, 7% had positive lymph nodes.
- When compared to low/intermediate grade tumors, high nuclear grade tumors had increased lymph node positivity (OR 1.54, CI 1.099-2.172)
- When compared to patients ≥70 years old, <70 years had increased positivity (OR 0.54, CI 0.299-0.990)
- ≥T1 tumors had increased positivity compared to T0 tumors (OR 0.06,CI 0.029-0.117) p<0.001).

CONCLUSIONS

- Very few patients with DCIS had sentinel nodal metastasis, even when upstaged to invasive carcinoma on final pathology.
- Our data presents a risk-based approach to axillary staging during mastectomy for patients with DCIS.