Association between Clinical Characteristics and Pathologic Nodal Stage in Hormone Receptor-Positive (HR+), Human Epidermal Growth Factor Receptor 2-Negative (HER2-) Breast Cancer

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Introduction

- The recently presented RxPONDER trial demonstrated that postmenopausal patients with hormone receptor-positive (HR+), human epidermal growth factor receptor 2-negative (HER2-) breast cancer (BC) with 1-3 positive axillary lymph nodes (LN) and a low Oncotype DX Recurrence Score (≤25) may potentially forgo chemotherapy.

- A method to accurately assess the extent of axillary LN involvement is needed.

- LN burden is typically determined through complete axillary lymph node dissection (ALND) for patients who are clinically node-positive and undergoing upfront surgery.

- ALND may be overtreatment for patients with limited axillary nodal burden.

Aim

- To analyze potential associations between clinicopathologic factors and number of pathologically positive LNs in patients with clinically axillary node-positive (cN1), HR+/HER2- BC who underwent upfront ALND.

Methods

- Patients with HR+, HER2-, cN1 BC who had undergone ALND were identified from MDACC patient records between 2002 and 2016.

- Clinical characteristics based on imaging and physical examination were examined and subsequently compared with pathology.

- Descriptive statistics were performed, and variables were assessed for association using Chi-square analysis and Pearson's correlation test.

Table 1: Summary of clinicopathologic characteristics of patients with positive LNs on ALND

	1 LN on ALND	2 LN on ALND	3 LN on ALND	>3 LN on ALND
Total (n=157)	n=42	n=33	n=23	n=59
Median Age [years (range)]	59 (36-88)	60 (30-81)	54 (31-84)	58 (33-86)
Mean Tumor Size [cm (range)]	2.93 (1.10-7.00)	2.92 (0.80-4.50)	2.80 (1.10-4.00)	2.78 (0.70-5.00)
Histology (n=152)				
IDC (n=113)	28 (25)	25 (22)	16 (14)	44 (39)
ILC (n=30)	8 (27)	5 (17)	7 (23)	10 (33)
Other (n=9)	6 (67)	3 (33)	0 (0)	0 (0)
Histologic Grade (n=158)				
1 (n=17)	6 (35)	2 (12)	4 (24)	5 (29)
2 (n=105)	27 (26)	23 (22)	16 (15)	39 (37)
3 (n=36)	9 (25)	9 (25)	3 (8)	15 (42)
Molecular Classification (n=86)				
Luminal A (n=58)	16 (28)	11 (19)	10 (17)	21 (36)
Luminal B (n=28)	9 (32)	5 (18)	2 (7)	12 (43)
LVI (n=150)				
% Identified (n=80)	16 (20)	11 (14)	16 (20)	37 (46)
% Not identified (n=70)	25 (36)	19 (29)	6 (8)	19 (27)

Data are expressed as *n (%)* unless otherwise specified

Figure 1: Number of suspicious LNs on US versus number of positive LNs on ALND
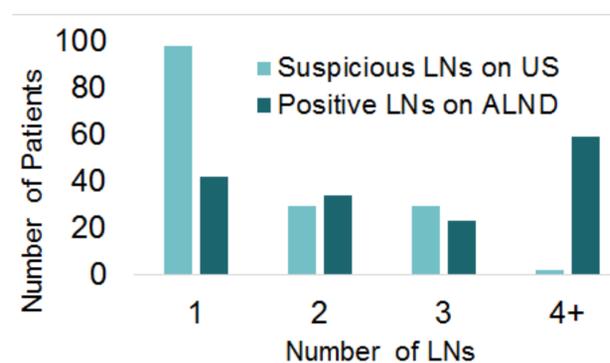

Figure 2: Number of pathologically positive LNs given (A) 1, (B) 2, and (C) 3+ suspicious LNs on US
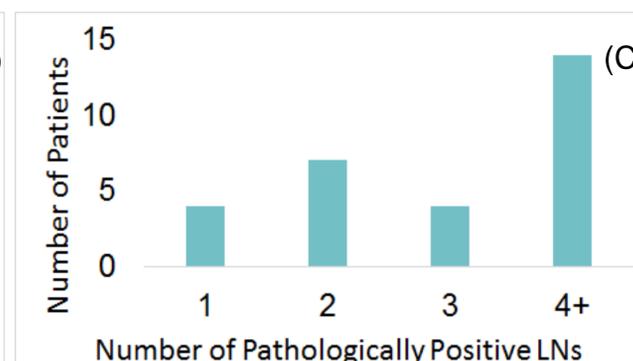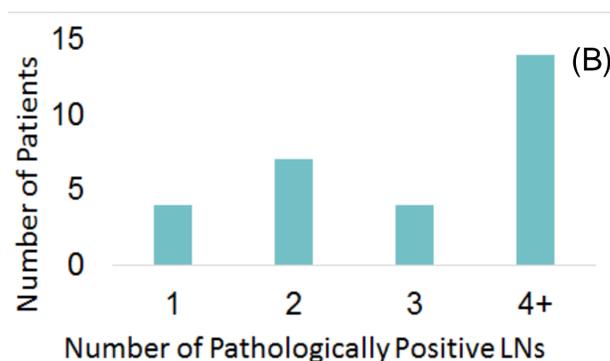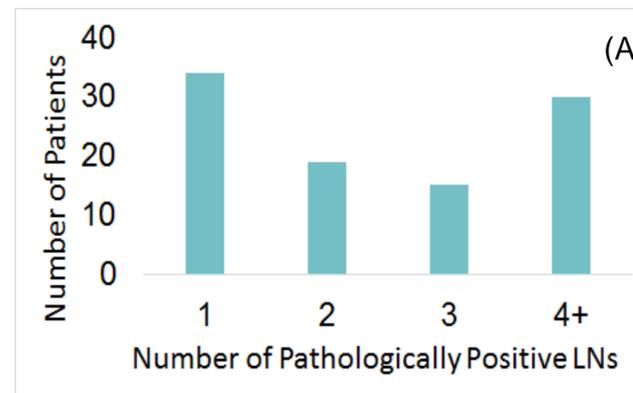

Table 3: Association between US nodal burden and nodal features on US and pathology

	1-2 Suspicious LNs on US	3+ Suspicious LNs on US
Mean size index LN on US (cm)	1.71	1.94
Median # positive LNs on ALND	2	3
Mean largest LN metastasis on ALND (cm)	1.53	1.42

- Chi-square analysis revealed no statistically significant association (p > 0.05) between number of pathologically positive LNs and histology, race, hormone receptor expression, histologic grade, or LN palpability on a physical exam.

- Pearson's correlation test revealed no statistically significant association between pathologically positive LNs and median age, tumor size, or size of index LN found on preoperative US.

- US prediction of >3 LNs on ALND has a false negative rate of 96.6%.

- Only 2 patients had >3 suspicious LNs identified on US compared to 59 patients with >3 truly positive LNs.

Limitations

- This study was limited due to the scope of analyses.

- Small sample size may have precluded identification of meaningful associations.

Conclusion

- Preoperative US to determine extent of LN involvement has a high false negative rate when confirmed by ALND.

- Individual clinicopathologic features cannot be used to predict the extent of LN involvement in ALND. Multivariate studies are in progress to evaluate whether these clinicopathologic features can be used in combination to predict the extent of axillary nodal involvement.

Reference

- Kalinsky K, et al. Oral Presentation: [GS3-00]. San Antonio Breast Cancer Symposium; December 2020.

Acknowledgements