



Low Nodal Failure Rate with Sentinel Lymph Node Surgery after Neoadjuvant Chemotherapy for Node Positive Breast Cancer

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Introduction

- As chemotherapeutic agents improve, the use of neoadjuvant chemotherapy (NAC) is expanding.
- The feasibility of SLN surgery after NAC in cN+ disease has been proven in three large prospective trials: ACOSOG Z1071, SENTINA SN FNAC.
- Use of SLN surgery after NAC has comparable false negative rates to what we accept for traditional SLN surgery in the surgery-first setting.
- Since the publication of these trials, there has been an increase in the clinical use of SLN surgery after NAC for clinically node positive patients. However, limited outcomes data regarding the oncologic safety of utilizing this technique is available.

Objectives

- Evaluate the use of SLN surgery versus ALND after neoadjuvant chemotherapy
- Evaluate variables associated with surgical decision making
- Report oncologic outcomes

Methods

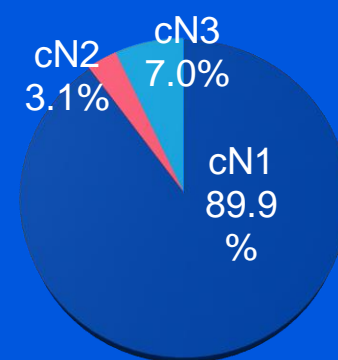
- Evaluated patients from 2009-2019 at our institution - Mayo Clinic Rochester
- Divided cohort into historical (2009-2014) and contemporary (2015-2019) practice to allow for assessment of clinical practice after implementation of Z1071 data

Inclusion
<ul style="list-style-type: none">• cN1-N3• Biopsy proven nodal disease• NACT

Exclusion
<ul style="list-style-type: none">• Inflammatory• Stage IV• History ipsilateral CA

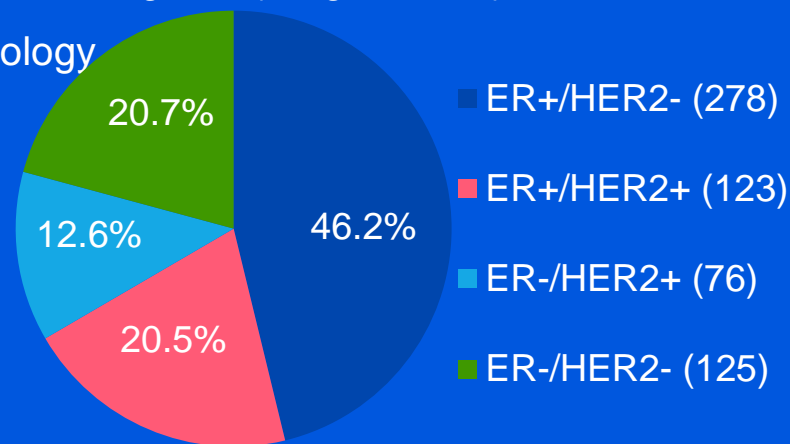
Results

- 602 patients
 - 541 cN1
 - 19 cN2
 - 42 cN3



- Median patient age 51 (range: 24-86)

- Tumor biology

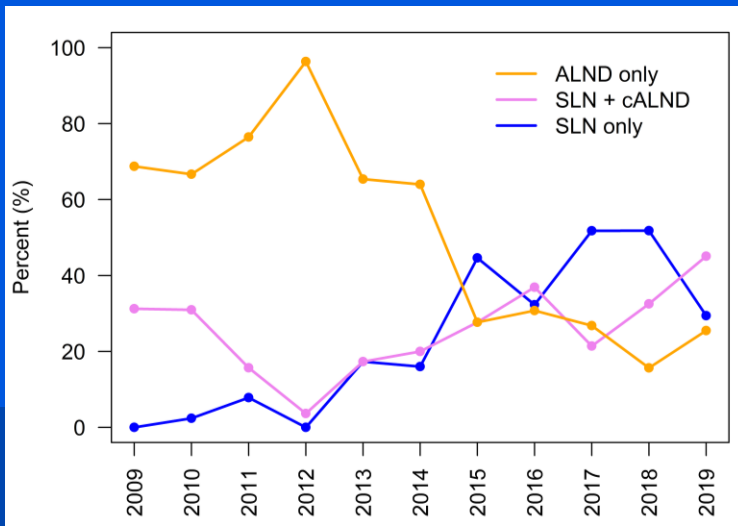


- 52.3% (315/602) underwent SLN surgery (\pm ALND)
 - 157 (49.8%) SLN negative
 - 146 (46.3%) SLN positive
 - 12 (3.8%) failed to map

Results

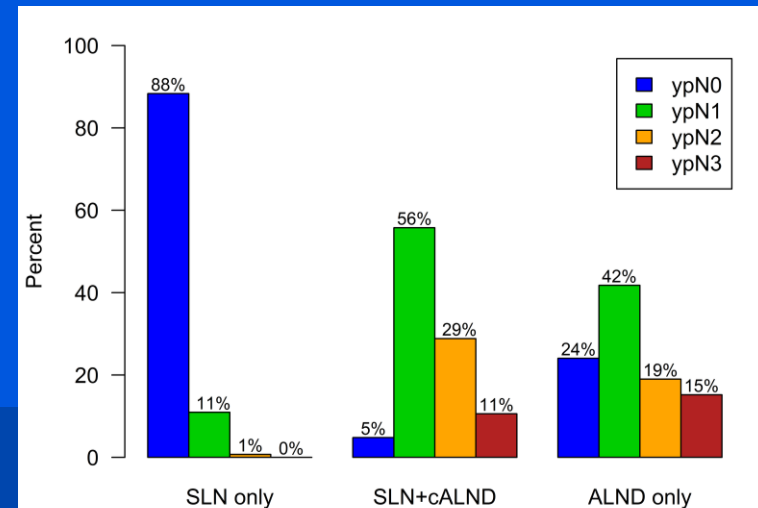
Changes over time

- Use of SLN increased over time: 21.1% in 2009-2012 and 35.3% in 2013-2014 to 75.3% in 2015-2019 ($p < 0.001$)
- SLN surgery who avoided ALND increased: 13.2% in 2009-2012, 47.2% in 2013-2014, 56.8% in 2015-2019 ($p < 0.001$)
- ALND (\pm SLN) decreased: 97.2% in 2009-2012 and 83.3% in 2013-2014 to 57.2% 2015-2019 ($p < 0.001$)
- Nodal positivity in direct to ALND increased: 55.6% in 2009-2012, to 69.7% in 2013-2014, to 75.9% in 2015-2019 ($p = 0.002$)



Contemporary Practice

- 75.3% (241/320) underwent SLN surgery with the following distribution: SLN- in 123 (51.0%), SLN+ in 111 (46.1%), SLN failed 7 (2.9%)
 - 98.4% (121/123) patients with SLN- were spared ALND
 - In those who had cALND, 59/95 (62.1%) had additional positive nodes
- Distribution among ypN+ in those direct to ALND was: 55.0% ypN1, 25.0% ypN2, and 20.0% ypN3
 - *did not differ ($p = 0.30$) from patients who had cALND after SLN surgery

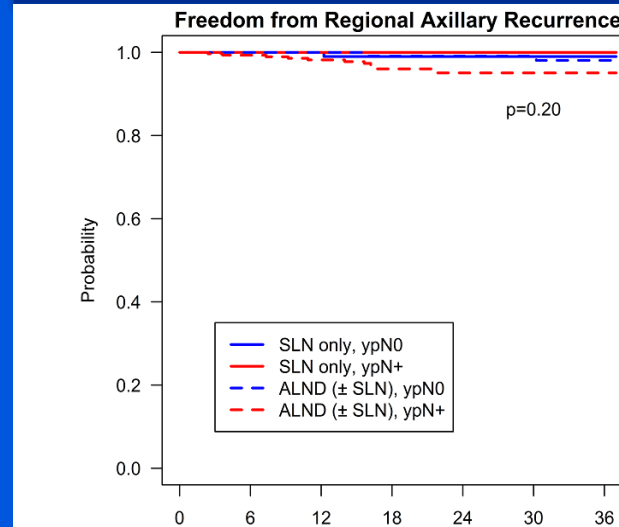


Factors associated with decision for SLN surgery (2015-2019)

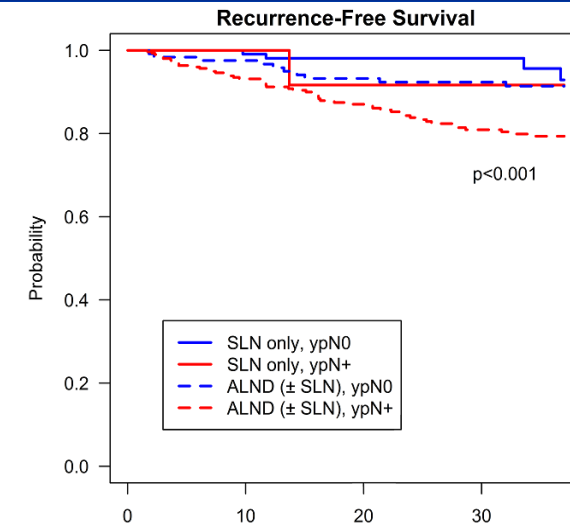
Variable	Odds Ratio (95% CI)	p-value
Clinical T category		0.01
T1 vs T4	8.0 (2.2, 31.5)	
T2 vs T4	3.6 (1.2, 10.7)	
T3 vs T4	2.5 (0.8, 7.4)	
Clinical N category, cN1 vs cN2/cN3	6.4 (3.3, 12.8)	<0.001
HER2 status, Positive vs Negative	2.1 (1.2, 4.1)	0.02

Recurrence Data

- Median follow-up 34 months
- 17 regional LN recurrences
 - 16/442 ALND
 - 1/162 SLN only
- Two-year freedom from regional recurrence rate: 99.1% among SLN patients, 96.4% among ALND patients (p=0.10)
- Recurrence free survival was significantly better in SLN only versus ALND patients (97.4% vs 86.5% at 2 years, p=0.003)



	# at risk						
	0	6	12	18	24	30	36
SLN only, ypN0	139	121	101	80	65	46	37
SLN only, ypN+	20	19	14	10	9	5	5
ALND (± SLN), ypN0	125	120	115	109	104	98	92
ALND (± SLN), ypN+	318	284	246	216	190	177	159



	# at risk						
	0	6	12	18	24	30	36
SLN only, ypN0	139	121	99	80	65	46	36
SLN only, ypN+	20	19	14	9	8	5	5
ALND (± SLN), ypN0	125	118	113	107	103	97	91
ALND (± SLN), ypN+	318	280	236	205	179	163	147

Summary

- Increase in the use of SLN and a decrease in the use of ALND in this population
- Rate of positive axillary nodes in direct to ALND increased over time
 - Highlights a clinical ability to reserve ALND for higher risk tumor biology and poorer response to NAC
- **Low axillary recurrence rate after SLN only = oncologic safety of utilizing SLN surgery**
 - Not supporting that by performing SLN surgery only, the patients have better outcomes but rather that the patients whose disease and clinical circumstances qualify them for SLN only surgery do not have worse oncologic outcomes from omitting ALND

Conclusions

This study documents the adoption of clinical trial results and practice change of incorporating SLN surgery after NAC in patients who present with cN1-N3 disease at our institution. Axillary recurrence data supports that SLN surgery alone in select patients who have an excellent response to NAC is not oncologically inferior to ALND with short-term follow-up.

References

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