Impact of Sentinel Lymph Node Biopsy Omission in Elderly Women With Breast Cancer

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BACKGROUND

- Sentinel lymph node biopsy (SLNB) is the standard approach to axillary staging, but carries risk of wound complications, lymphedema, and impaired arm function.[1,2]
- The 2016 Society of Surgical Oncology's Choosing Wisely campaign recommended against SLNB in women aged ≥70 years with hormone receptor-positive, clinically node-negative breast cancer undergoing breast-conserving surgery – aiming to reduce surgical morbidity when nodal staging is unlikely to alter adjuvant treatment.[3,4]
- Reducing surgical morbidity is particularly relevant to older adults with co-existing frailty, a state of reduced physiologic reserve that has been shown to strongly predict adverse surgical outcomes.[5,6]
- The relative contributions of SLNB and frailty to short-term surgical outcomes in older women undergoing breast-conserving surgery are not well-described.[7]

AIMS

- Compare short-term surgical outcomes in women aged ≥70 years undergoing breast-conserving surgery with or without SLNB.
- Assess the relative effects of SLNB and frailty on outcomes, including 30-day complications, reoperation, readmission, and operative time.

METHODS

Data source: American College of Surgeons NSQIP database (2010–2022)

Population: Women aged ≥70 years with invasive breast cancer undergoing partial mastectomy (PM) with or without SLNB

Outcomes: 30-day complications, reoperation, readmission, and operative time

Analysis: Multivariable regression assessed associations between clinicodemographic factors and outcomes, adjusted for age, race, smoking status, frailty, and procedure type. Estimated marginal means assessed the adjusted effects of frailty and procedure type on outcomes

Frailty: Captured using the Modified Frailty Index-5 (mFI-5),[8] a 5-factor measure of frailty. Frailty level was classified as low (mFI-5 0–1) or high (2–5)

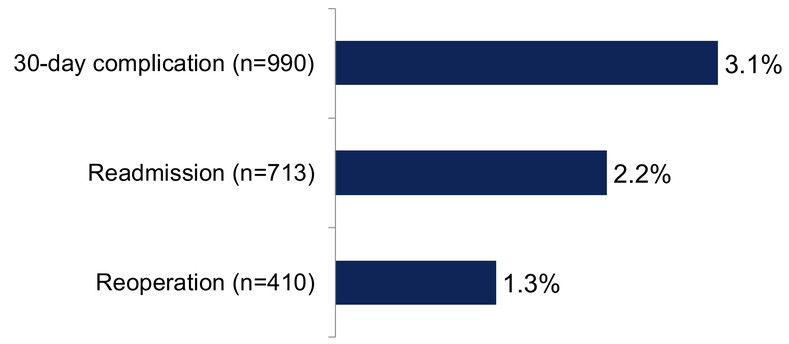
RESULTS

Table 1. Baseline characteristics of cohort, stratified by procedure

	PM (n=16,762)	PM+SLNB (n=15,446)	P-value
Age, mean ± SD (years)	77.2 ± 5.3	75.5 ± 4.6	<0.001
Race			<0.001
White	71.4%	75.4%	
Black	7.6%	7.6%	
Other/Unknown	21.1%	17.0%	
ASA class, mean ± SD	2.60 ± 0.57	2.54 ± 0.56	<0.001
Frailty			0.001
Low (mFI-5 0–1)	78.2%	80.2%	
High (mFI-5 2–5)	21.8%	19.8%	

PM, partial mastectomy; SLNB, sentinel lymph node biopsy; ASA, American Society of Anesthesiologists; mFI-5, 5-factor modified frailty index.

Figure 1. Unadjusted 30-day surgical outcomes



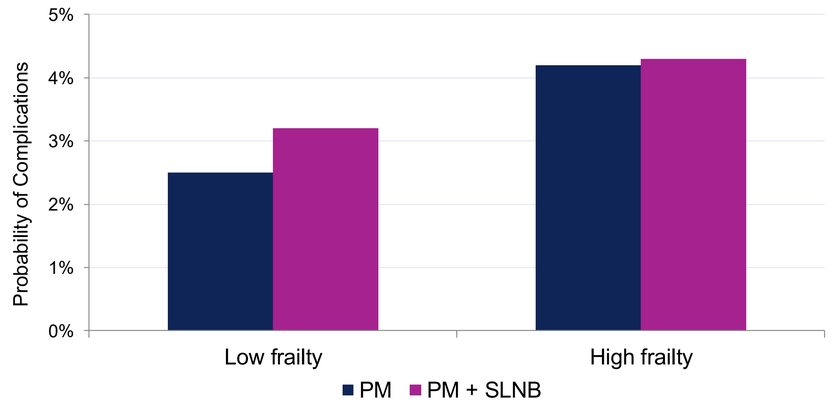
Mean operative time: **66.8 ± 37.0 min**

Table 2. Multivariable analysis testing strength of association between clinicodemographic factors and outcomes

	Complication OR (95% CI)	Reoperation OR (95% CI)	Readmission OR (95% CI)	Operative time IRR (95% CI)
Age	1.01 (0.99–1.02)	1.00 (0.98–1.02)	**1.03 (1.01–1.04)**	**0.99 (0.98–0.99)**
Frailty				
Low	Ref	Ref	Ref	Ref
High	**1.57 (1.36–1.81)**	**1.28 (1.02–1.61)**	**2.19 (1.87–2.56)**	0.99 (0.98–1.01)
Procedure				
PM	Ref	Ref	Ref	Ref
PM+SLNB	**1.22 (1.08–1.39)**	1.14 (0.93–1.40)	0.88 (0.75–1.03)	**1.30 (1.28–1.32)**

Adjusted for age, race, smoking status, frailty, and procedure type. Bold indicates 95% CI excluding 1. OR, odds ratio; IRR, incidence rate ratio; Ref, reference group.

Figure 2. Adjusted 30-day complication rate by frailty and procedure



Estimated marginal means. Frailty attenuated the effect of SLNB on complications.

KEY FINDINGS

- Of 32,208 women, 16,762 had PM alone and 15,446 had PM+SLNB. Women having PM alone were slightly older (77.2 vs 75.5 years) and more often highly frail (21.8% vs 19.8%).
- Postoperative morbidity was low: 3.1% had a 30-day complication, 2.2% were readmitted, and 1.3% required reoperation.
- Age had no significant impact on outcomes.
- High frailty was associated with higher odds of complications (OR 1.57), reoperation (OR 1.28), and readmission (OR 2.19).
- SLNB was associated with 30% longer operative time (IRR 1.30) and modestly higher odds of complications (OR 1.22), but not with reoperation or readmission.
- Among highly frail women, adjusted complication rates were similar with and without SLNB (4.3% vs 4.2%).

CONCLUSIONS

- Postoperative morbidity was low overall
- SLNB had a modest impact, but frailty was the dominant predictor of outcomes
- Age guides de-escalation, but frailty better predicts perioperative risk.
- SLNB omission is important but not the only driver of complications.
- Preoperative frailty assessment and optimization may improve outcomes.

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