

Background

- Inadequate pain control frequently extends length of stay (LOS) for patients undergoing mastectomy with implant-based reconstruction (IBR).
- Studies have demonstrated improved pain control and early mobilization with the use of paravertebral blocks (PVB) in patients undergoing IBR.
- Liposomal bupivacaine (LB) has recently shown promise for pain control in these patients.

Objectives

- To evaluate outcomes for patients undergoing mastectomy with IBR with either the use of PVB or intraoperative LB intercostal blocks.

Methods

- Review of a prospective database of patients undergoing mastectomy with IBR from August 2016 to January 2018 was performed.
- LB blocks were performed intraoperatively by 3 trained reconstructive surgeons while bupivacaine-based PVB was performed as a separate procedure by anesthesiologists.
- All opioids were converted to morphine milligram equivalents (MME). Clinical characteristics, opioid utilization and LOS data were compared between PVB and LB patients.
- Data are presented as mean \pm standard deviation or median (Interquartile range).

Table 1. Clinicopathologic differences between groups

Characteristics	LB N=50	PVB N=51	P-Value
Age	47.6 \pm 11.2	47.3 \pm 9.6	0.89
BMI	22.8 \pm 3.4	23.4 \pm 3.6	0.42
ASA			0.14
1	18 (36)	11 (21.6)	
2	26 (52)	32 (62.8)	
3	6 (12)	8 (15.7)	
Bilateral Mastectomy	35 (70)	36 (70.6)	0.99
Axillary Procedures			
SLND	35 (70)	30 (58.8)	0.02
ALND	7 (14)	15 (29.4)	
Separate Axillary Incision	27 (54)	21 (41.2)	0.23
Active Narcotic Use at Time of Surgery	2 (4)	0 (0)	0.24

Table 2. Differences in Hospital Resource Utilization

Characteristics	LB N=50	PVB N=51	P-Value
Operating Room Time (mins)	280 \pm 86	321 \pm 81	0.02
Length of Stay (days)	1.38 \pm 0.5	1.71 \pm 1.1	0.06
Readmission Rate (%)	6%	13.70%	0.32

Table 3. Differences in Pain Control and Opioid Use

Characteristics	LB N=50	PVB N=51	P-Value
Pain Scores			
Post-anesthesia Care Unit (PACU)	4.1 \pm 2.3	3.2 \pm 2.9	0.07
Post-operative day (POD) 0	4.3 \pm 2.3	4.1 \pm 2.0	0.99
POD 1	5.0 \pm 2.6	5.7 \pm 1.8	0.18
First 24-hours of Hospitalization			
Intravenous Opioid Use (MME)	24 (8-38)	4 (0-24)	0.003
Duration of Hospitalization			
Intravenous Opioid Use (MME)	24.5 (8-40)	4 (0-24)	0.006
Oral Opioid Use (MME)	37.5 (30-67.5)	35 (20-52.5)	0.27
Anti-emetic Use (%)	52	55	<0.001
Acetaminophen Use (mg)	1611 \pm 958	1992 \pm 2553	0.32

Results

- 51 patients (50.5%) underwent PVB and 50 (49.5%) underwent LB
- Patients in both groups were similar in terms of age, BMI, rates of bilateral mastectomy, and rates of separate axillary incisions
- Operative time was higher for the PVB group, while mean LOS and readmission rates were similar between groups
- Post-operative pain scores in the PACU, POD 0 and POD 1 did not significantly differ between patients who received PVB and those who received LB
- Patients receiving LB block had significantly more intravenous (IV) narcotic use during their entire hospitalization, while oral opioid utilization was similar between groups
- In the first 24 hours, LB patients also had significantly higher IV opioid use suggesting a faster transition to PO narcotics in the PVB group.
- Percentage of patients utilizing anti-emetics was higher in the PVB group while acetaminophen use was similar

Conclusions

- Intraoperative intercostal LB blocks are associated with a small, non-significant decrease in LOS
- LB does not decrease post-operative opioid consumption or pain scores in patients undergoing mastectomy with IBR.
- PVB should continue to be used as an adjunct for post-operative pain in the management of these patients.