

A Feasibility Study of Intraoperative Surgeon-performed Pecs I/II Blocks for Mastectomy with Immediate Reconstruction

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BACKGROUND

- Pectoralis field blocks are a well-established modality for post-operative pain control after mastectomy with reconstruction.
- They are typically performed by an anesthesia pain team prior to surgery.
- Potential advantages to having the surgeon perform the block intraoperatively after the breast is removed and prior to reconstruction include avoiding a second skin prep, ease of procedure, and longer duration of block effect postoperatively.
- We conducted a pilot study to determine the feasibility of a randomized double-blinded trial comparing post operative pain control after Pecs blocks performed by the pain team prior to skin incision vs. by the surgeon after the breast has been removed and before reconstruction.

METHODS

Patients 18-80 years of age with breast cancer undergoing bilateral mastectomies and axillary surgery with immediate expander or implant reconstruction

- Randomized
- Double-blinded

n = 10

Group I: Pecs block by anesthesia, after induction and prior to incision, n = 5

Group II: Pecs block by surgeon, after mastectomy and prior to reconstruction, n = 5

Exclusions included:

- Patients undergoing lumpectomy for breast cancer
- Patients getting mastectomies for prophylaxis
- Patients weighing < 50 kg
- Patients allergic to local anesthetics
- Patients with bleeding disorders

Primary Outcome

- Difference in post-operative average pain scores

Secondary Outcomes:

- Post-operative narcotic use
- Post-operative nausea and vomiting
- Duration of block procedure
- Time in operating room
- PACU length of stay
- Inpatient length of stay

Pecs I/II Blocks

Pecs I/II Blocks

- High-frequency transducer
- Lateral third of clavicle probe placement, oriented obliquely
- 3rd rib, pectoralis major and minor, serratus anterior, and pleura identified
- Pajunk 80 mm needle, 0.25% bupivacaine, 5% saline (for hydrodissection)
- 15 cc bupivacaine injected between pectoralis minor & serratus anterior muscles
- 10 cc bupivacaine injected between pectoralis major & minor muscles
- Procedure duration recorded from probe placement to needle removal

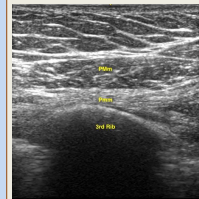


Figure 1. Ultrasound Anatomy Pecs I

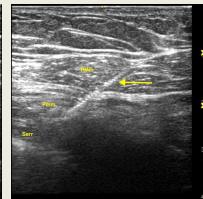


Figure 2. Pecs II Injection

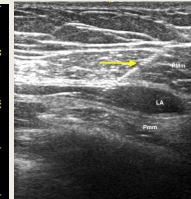


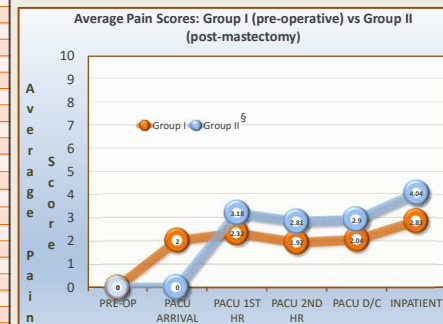
Figure 3. Post-Pecs I Injection

RESULTS

Table 1. Patient Characteristics

Variable	Group I n = 5 (%)	Group II n = 5 (%)	p-value
Age	45.4	51.0	.497
BMI	27.50	26.48	.633
H/O chronic opioid use	0	0	
Clinical Stage			1.00
0	1 (20)	0 (0)	
I	1 (20)	2 (40)	
II	1 (20)	3 (60)	
III	2 (40)	0 (0)	
Neoadjuvant chemotherapy	3 (60)	3 (60)	1.00
Type of axillary surgery			.167
Sentinel LN Biopsy	5 (100)	2 (40)	
Axillary LN Dissection	0 (0)	1 (20)	
Both	0 (0)	2 (40)	
Type of mastectomy			.524
Nipple-sparing	2 (40)	4 (80)	
Skin-sparing	3 (60)	1 (20)	
Type of reconstruction			.524
Implant	4 (80)	2 (40)	
Tissue Expander	1 (20)	3 (60)	
Location of implant or expander			1.00
Pre-pectoral	5 (100)	4 (80)	
Sub-pectoral	0	1 (20)	

Fig 4. Comparison of average pain scores in PACU and during 24 hour inpatient stay



§ All p-values were not statistically significantly different.

* Inpatient APS were the average for entire length of inpatient stay.

RESULTS

Table 2. Group I (pre-operative) vs. Group II (post-mastectomy) Blocks

Variable	Group I	Group II	p-value
Duration of block procedure (min)	9.40	9.60	.950
Time in operating room (hr)	6.99	7.59	.386
PACU length of stay (hr)	2.29	1.77	.365
Nausea in PACU	0	0	
Vomiting in PACU	0	0	
Total amount of narcotic (PACU + inpatient) (MME)	28.3	58.4	.207
Inpatient length of stay (day)	0.72	1.03	.209
Inpatient stay > 24 hours (#)	0 (0%)	2 (40%)	.444

KEY FINDINGS

- Pecs I/II blocks administered by the surgeon after completion of mastectomy & before reconstruction is feasible.
- Procedure duration is similar to preoperative block performed by the anesthesiologist without increased time in the operating room.
- Pain scores in the immediate postoperative period were similar for the two groups.

CONCLUSIONS

These results support a randomized trial to examine the impact of block timing on intraoperative & postoperative narcotic use, short- & long-term pain control, operating room time, & wound outcomes.

REFERENCES

- Bashandy G, et al, Pectoral nerves I & II blocks in multimodal analgesia for breast cancer surgery: a randomized clinical trial. Reg Anesth Pain Med 2015, 40(10): 68-74.
- Parras T, et al, PECS blocks. Anesthesia Tutorial of the Week 346. January 31, 2017.
- Versyck B, et al, Analgesic efficacy of the Pecs II block: a systematic review & meta-analysis. Anaesthesia 2019, 74, 663-73.