Liposomal bupivacaine versus continuous popliteal sciatic nerve block in total ankle arthroplasty

Ryan P. Mulligan, MD
Joel G. Morash, MD
James K. DeOrio, MD
Selene G. Parekh, MD

Department of Orthopaedic Surgery
Duke University Medical Center
Durham, NC
Disclosures

• None
CPSNB

- Continuous, indwelling popliteal sciatic nerve block (CPSNB) with 0.2% ropivacaine is safe, effective, and provides pain relief 2-3 days following surgery
- Commonly used for total ankle arthroplasty
- Requires care/need for removal
- May be removed inadvertently
- Risk for infection
- Residual neuropathic complications
- Increased cost?
Liposomal bupivacaine

• Alternative to CPSNB
  – Exparel (Pacira Pharmaceuticals, Parsippany, NJ)
• Periarticular injection that allows for slow, extended release of bupivacaine for up to 72 hours of analgesia
• Literature demonstrates safe and effective use
  – Forefoot surgery
  – Hip, knee, and shoulder replacement
Purpose

• Compare postoperative pain scores (VAS), need for extended narcotic use, and complications following total ankle arthroplasty (TAA) in patients receiving liposomal bupivacaine (LB) versus a continuous, indwelling poplital sciatic nerve block with ropivacaine
Methods

• Retrospective review of two fellowship-trained orthopedic foot and ankle surgeons TAA patients

• Anesthetic given based on surgeon preference
  – Preoperative single-shot popliteal sciatic nerve block with 0.2% ropivacaine followed by intraoperative periarticular injection of Exparel (Matsumoto et al)
  – Popliteal sciatic nerve block with indwelling catheter for continuous infusion of 0.2% ropivacaine
Methods

• Outcomes examined
  – VAS pain score at 8 hours, 24 hours, 1 week, and 3 weeks
  – Need for opioid pain medication refill
  – Physician office notification for pain issues/adverse events
  – 90-day medical/surgical complications

• Statistical analysis
  – Student’s test for continuous variables
  – Fisher’s exact for categorical variables
  – p < .05 considered significant
Results

- 75 patients
  - 41 LB
  - 34 CPSNB

<table>
<thead>
<tr>
<th></th>
<th>LB</th>
<th>CPSNB</th>
<th>p</th>
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<tbody>
<tr>
<td>Age</td>
<td>56.7</td>
<td>62.2</td>
<td>0.03</td>
</tr>
<tr>
<td>Gender</td>
<td>27 M / 14 F</td>
<td>21 M / 13 F</td>
<td>0.81</td>
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<tr>
<td>BMI</td>
<td>32.5</td>
<td>29.2</td>
<td>0.03</td>
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<tr>
<td>ASA</td>
<td>2.2</td>
<td>2.2</td>
<td>0.78</td>
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<tr>
<td>Laterality</td>
<td>26 R / 15 L</td>
<td>24 R / 10 L</td>
<td>0.63</td>
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<td>Indication</td>
<td></td>
<td></td>
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<tr>
<td>Primary OA</td>
<td>11 (27%)</td>
<td>6 (18%)</td>
<td>0.41</td>
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<tr>
<td>Post-traumatic OA</td>
<td>26 (63%)</td>
<td>27 (79%)</td>
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<tr>
<td>RA</td>
<td>4 (10%)</td>
<td>1 (3%)</td>
<td>0.37</td>
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<tr>
<td>Additional procedures</td>
<td>1.6</td>
<td>2.1</td>
<td>0.14</td>
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Results

- No statistical difference between groups
  - Complications
    - All superficial wound issues
  - Physician office contacts
  - ED visits
  - Readmissions
  - Reoperations
  - Opioid refills
  - VAS pain score
- No anesthetic complications

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<thead>
<tr>
<th></th>
<th>LB</th>
<th>CPSNB</th>
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<tbody>
<tr>
<td>Complications</td>
<td>2 (5%)</td>
<td>4 (12%)</td>
<td>0.40</td>
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<tr>
<td>Readmissions</td>
<td>1 (2%)</td>
<td>0</td>
<td>1.00</td>
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<td>ED visits without admission</td>
<td>0</td>
<td>0</td>
<td>1.00</td>
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<tr>
<td>Reoperations</td>
<td>0</td>
<td>0</td>
<td>1.00</td>
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<tr>
<td>Narcotic refills</td>
<td>16 (39%)</td>
<td>12 (35%)</td>
<td>0.81</td>
</tr>
<tr>
<td>Physician office contact episodes</td>
<td>2 (5%)</td>
<td>5 (15%)</td>
<td>0.23</td>
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VAS pain score at selected intervals:

- VAS (8 hours) = 1.8
- VAS (24 hours) = 3.2
- VAS (1 week) = 2.2
- VAS (3 weeks) = 1.9
Liposomal Bupivacaine Concerns

- 20 cc LB periarticular injection/increased edema
- Systemic toxicity
- Inadequate pain control
- Increased cost

- No increase in wound complications
- No anesthetic complications in either group
- No difference in physician office contacts, ED visits, or readmissions
  - Similar VAS at each time point
  - No increased need for opioid pain medication refill

- Exparel = $385
- CPSNB = $780
Conclusion

- Liposomal bupivacaine is a safe and effective option as a regional anesthetic in total ankle arthroplasty
- Results are comparable to CPSNB, with potential for cost savings
References


