Intra-articular “cocktail” offers clinical advantages over femoral nerve block for postoperative analgesia in patients undergoing arthroscopic hip surgery

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Disclosures

- Brian Giordano, MD
  - Athrex: Consultant, Research Support, Royalties

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  - Have no financial relationships to disclose
Background

• Regional anesthesia strategies have significant utility among patients undergoing arthroscopic hip surgery

• Preoperative femoral nerve blocks, while efficacious, have many potential pitfalls, including technical difficulty, intravascular injections, increased postoperative fall risk, and iatrogenic peripheral neuritis

• The purpose of this study was to compare clinical efficacy and complication rate between intra-articular blockade and femoral nerve block in patients undergoing arthroscopic hip surgery
Methods

- A consecutive series of patients undergoing elective arthroscopic hip surgery (11/2013 – 04/2015) by a single surgeon were retrospectively reviewed.
- Patients divided into 2 groups:
  - Preoperative femoral nerve block for perioperative pain control
  - Intra-operative, intra-articular “cocktail” injection
- Demographic data, perioperative pain scores, narcotic consumption, incidence of falls, and iatrogenic peripheral neuritis were collected for analysis.
- Postoperative data was collected at routine clinical visits (1 week, 3 weeks and 6 weeks postoperatively)
**Femoral Block Technique**

- 22 gauge, 5 cm blunt tip needle (B. Braun Plexufix) was advanced via a lateral approach with in-plane ultrasound guidance (Sonosite S-Nerve with linear transducer) towards the femoral nerve.

- A mixture of 0.5% bupivacaine with 1:200,000 epinephrine was administered over 1-3 minutes with needle manipulation as necessary to achieve circumferential spread of local anesthetic around the femoral nerve.

- Spread of local anesthetic deep to the fascia iliaca was confirmed with ultrasound visualization.
Intra-articular Block Technique

• 14 gauge spinal needle was inserted into the joint under direct visualization and the joint was aspirated of all residual fluid.

• An intra-articular “cocktail” injection, consisting of 300mg Ropivicaine with epinephrine, 30mg Toradol and 5mg Morphine (Astramorph, AVINza, Duramorph) was then administered

• Care taken to avoid extravasation of the injectate.
Results

• 193 patients (65/125 M/F, 105/88 Fem Block/IA Cocktail)

• No significant difference between groups with regards to age, sex, smoking status, history of chronic pain, worker’s compensation, preoperative pain scores or intraoperative doses of narcotics

• No statistically significant differences between groups in patient reported pain scores at postoperative weeks 1, 3 and 6.

• Administration of an intra-articular block was associated with a significant reduction in the rate of postoperative falls and iatrogenic peripheral neuritis (P < 0.01)
Demographics

<table>
<thead>
<tr>
<th></th>
<th>Group 1, Fem Block (n=105)</th>
<th>Group 2, IA Block (n=88)</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex, n (Male)</td>
<td>38</td>
<td>27</td>
<td>0.42</td>
</tr>
<tr>
<td>Age, mean ± SD, y</td>
<td>33.4 ± 13.02</td>
<td>31.3 ± 14.05</td>
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<tr>
<td>Smoking Hx, n (Yes)</td>
<td>28</td>
<td>26</td>
<td>0.66</td>
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<tr>
<td>Workers Comp, n (Yes)</td>
<td>4</td>
<td>1</td>
<td>0.24</td>
</tr>
<tr>
<td>Hx Chronic Pain, n (Yes)</td>
<td>4</td>
<td>6</td>
<td>0.35</td>
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Outcomes

<table>
<thead>
<tr>
<th></th>
<th>Group 1, Fem Block</th>
<th>Group 2, IA Block</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preoperative pain, mean ± SD</td>
<td>3.54 ± 2.69</td>
<td>3.69 ± 2.43</td>
<td>0.69</td>
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<td>Intraoperative Dilaudid, mean ± SD, mg</td>
<td>0.18 ± 0.33</td>
<td>0.22 ± 0.37</td>
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<tr>
<td>Pain on PACU Arrival</td>
<td>4.59 ± 2.85</td>
<td>6.16 ± 2.56</td>
<td>&lt;0.01*</td>
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<td>Pain at Discharge</td>
<td>3.55 ± 2.26</td>
<td>4.28 ± 3.13</td>
<td>0.03*</td>
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<td>Pain at 1 week</td>
<td>3.05 ± 2.18</td>
<td>2.75 ± 2.16</td>
<td>0.34</td>
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<tr>
<td>Pain at 3 weeks</td>
<td>1.96 ± 2.13</td>
<td>1.82 ± 2.07</td>
<td>0.64</td>
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<tr>
<td>Pain at 6 weeks</td>
<td>1.70 ± 2.09</td>
<td>1.59 ± 1.95</td>
<td>0.70</td>
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<tr>
<td>Reported a fall, n</td>
<td>19</td>
<td>5</td>
<td>&lt;0.01*</td>
</tr>
<tr>
<td>Peripheral Neuritis, n</td>
<td>26</td>
<td>2</td>
<td>&lt;0.01*</td>
</tr>
</tbody>
</table>
Conclusion

• Intra-articular “cocktail” administration provides comparable postoperative pain control to preoperative femoral nerve blocks in patients undergoing arthroscopic hip surgery.

• Patients receiving intra-articular “cocktail” injections exhibited a significant reduction in the rate of postoperative falls and iatropgenic peripheral neuritis when compared to their femoral nerve block counterparts.

• Intraoperative, intra-articular anesthetic injections provide effective postoperative pain control in patients undergoing arthroscopic hip surgery.
References


Medicine of the Highest Order