Comparison of Time to Operation and Efficacies of Ultrasound-Guided Nerve Block and General Anesthesia in Emergency External Fixation of Lower Leg Fractures

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Category: Ankle, Trauma

Keywords: Ultrasound; Regional nerve block; Fracture; External fixation

Introduction/Purpose: This prospective study aimed to evaluate the usefulness of ultrasound (US)-guided nerve block (NB) for emergency external fixation of lower leg fractures, by investigating real time before the operation and the clinical result according to the anesthesia method (US-guided NB or general anesthesia [GA]).

Methods: From June 2014 to April 2016, 40 patients who underwent emergency surgery for external fixator application were enrolled in this study. We performed a randomized trial for US-guided NB and GA. We measured the lead time before the start of the operation after the decision to perform emergency surgery in both groups.

Results: The US-guided NB group comprised 17 men and 3 women with a median age of 55.6 (33–77) years. Twelve of these patients had conditions such as diabetes mellitus, hypertension, and kidney-related diseases. Fracture types 42, 43, and 44 in the AO classification were observed in 3, 12, and 5 cases, respectively. The average time taken to emergency operation was 4.3 (2–6.25) h. However, in the GA group, the average time taken to emergency operation was 9.4 (3–14) h. In the US-guided NB group, no cases of anesthesia failure and unstable vital signs during the operation occurred. Moreover, there were no postoperative complications related to the anesthesia method, such as aggravation of the general condition.

Conclusion: Emergency external fixation with US-guided NB in patients with lower-extremity trauma can be implemented in less time regardless of preoperative preparation, which is a requirement in GA.
Orthopaedic Ultrasound-guided Nerve Block Record

Patient Record: patient/guardian should fill out the information inside the Bold rectangle.

<table>
<thead>
<tr>
<th>Patient's name</th>
<th>Sex/Age</th>
<th>Height/Weight cm/kg</th>
<th>Room no.</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

**Medical history**
- None ( )
- DM ( )
- HTN ( )
- CRF ( )
- Chronic liver disease ( )
- Angina ( )
- Myocardial infarction ( )
- HTN ( )
- Brain-associated dis. ( )
- Psychiatric Hx. ( )
- Etc. ( )
- Past operation history (yes, no)
- Operation site (type)
- Anesthesia type

**Medication**
- None ( )
- DTM drug ( )
- HTN drug ( )
- Aspirin ( )
- Blood circulation enhancer ( )
- Osteoporosis drug ( )
- NSAIDS ( )
- Etc. ( )

**Anesthesia time record**
- Anesthesia start time hr min
- Anesthesia finish time hr min
- Anesthesia procedure time min
- Time of feeling numbness hr min
- Anesthesia revelation time min
- Time of starting to feel pain (the day / the next day) hr min
- Painlessness maintenance time hr
- Time of awakening from anesthesia (the day / the next day) hr min
- Anesthesia recovery time hr

**VAS satisfaction score**
- (out of 10)
- 0 1 2 3 4 5 6 7 8 9 10

**If you do the same surgery again, which anesthesia would you choose?**
1. General anesthesia ( )
2. Spinal anesthesia ( )
3. Nerve Block ( )

**Did you experience any inconvenience during the surgery?**
If yes, please explain. Which anesthesia would you choose in the future, and why?

**Anesthesia complication**
- Vital monitoring Special note:
- Pre-ane. & Prem. BPHR ( )
- Pre & Post-infant. BPHR ( )
- Intra-op. ( )
- Pre & Post-infant. BPHR ( )

**Doctor's Record:**
- Preoperative diagnosis:
- Tourniquet site:
- Tourniquet time: min
- Ultrasound-guided (yes, no)

<table>
<thead>
<tr>
<th>Date</th>
<th>Patients ID</th>
<th>Thigh level (mL)</th>
<th>Knee level (mL)</th>
<th>Ankle level (mL)</th>
<th>Superficial peroneal n.</th>
<th>Deep peroneal n.</th>
<th>Additional block</th>
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</thead>
<tbody>
<tr>
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<td></td>
<td>Obtura. n.</td>
<td>Common peroneal n.</td>
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<td>Sciatic n.</td>
<td>Deep peroneal n.</td>
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<td>Lt. ( )</td>
<td>Tibia n.</td>
<td>Popliteal n. (Sciatic n.</td>
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**Sedation**
- Preop. 1 hr inf. ( ) mg
- Op. room inf. ( ) mg
- Tourniquet Pain ( ) min
- Other ( )

**Nerve block treating doctor:**
- Doctor in charge: (sign)

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