Comparison of Time to Operation and Efficacies of Ultrasound-Guided Nerve block and General Anesthesia in Emergency External Fixation of Lower Leg Fractures (AO 42, 43, 44)

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Disclosure

• No Conflict to Disclose
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• **External fixation requires a long preoperative time** owing to NPO requirement, evaluation of underlying diseases and cooperation with an anesthetist.

• In an effort to compare the time to surgery, outcomes following surgery, we undertook a RCT of patients undergoing external fixation to evaluate the usefulness of ultrasound (US)-guided nerve block (NB) and general anesthesia (GA).
• Patients who undergo emergency external fixation surgery between June 2014 and April 2016 and were classified as AO types 42, 43, and 44 were included (Table 1)

<table>
<thead>
<tr>
<th>Variable</th>
<th>US-guided NB (n=20)</th>
<th>GA (n=20)</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age at surgery, years</td>
<td>55.6 (range, 33 to 77)</td>
<td>54.2 (range, 36 to 72)</td>
<td>.650</td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>68.45 (range, 57 to 79)</td>
<td>70.55 (range, 55 to 83)</td>
<td>.330</td>
</tr>
<tr>
<td>Sex, male</td>
<td>17 (85)</td>
<td>15 (75)</td>
<td>.429</td>
</tr>
<tr>
<td>Medical history</td>
<td>12 (60)</td>
<td>9 (45)</td>
<td>.342</td>
</tr>
<tr>
<td>Affected leg, right</td>
<td>14 (70)</td>
<td>9 (45)</td>
<td>.110</td>
</tr>
</tbody>
</table>

Table 1. Demographic data of patients in the US-guided NB and GA groups

Abbreviations: US, ultrasound; NB, nerve block; GA, general anesthesia.
Data presented as n (%).
Statistically significant difference (P < .05).
To evaluate the patients’ satisfaction with anesthesia, patients were asked to complete a questionnaire.

<table>
<thead>
<tr>
<th>Material and Method</th>
</tr>
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<tbody>
<tr>
<td>To evaluate the patients’ satisfaction with anesthesia, patients were asked to complete a questionnaire.</td>
</tr>
</tbody>
</table>

- **Anesthesia Record and Questionnaire**

  - **Patient Record**: Patient/guardian should fill out the information inside the bold rectangle.

  - **Patient’s name**
  - **Medical history**: None, CRF, Chronic liver disease.
  - **Sex/Age**: None, DM, Angina.
  - **Height/Weight**: cm/kg
  - **Room no.**
  - **Past operation history**: Yes, No
  - **Operation site**
  - **Anesthesia type**

- **Medication**: None, DM drug, Insulin, HTN drug, Aspirin, Anticoagulant drug.

- **VAS satisfaction score**: No to Extreme Satisfaction

- **Questionnaires**
  - Are you satisfied with your anesthesia method?
  - Did you experience any inconvenience during and after the surgery? If yes, please explain.
  - If you were to undergo the same surgery again, would you choose the same method, and why?
    1. Yes
    2. No
Results

- The lead time before the start of the operation in GA group was longer than that in the US-guided NB group. All patients in the US guided NB group chose US-guided NB over GA as their preferred anesthetic method for any possible future operation. (Table 3)

<table>
<thead>
<tr>
<th>Table 3. Comparison of outcomes between the US-guided NB and GA groups</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Variable</strong></td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>Lead time (h)</td>
</tr>
<tr>
<td>VAS satisfaction score</td>
</tr>
<tr>
<td>Complication</td>
</tr>
<tr>
<td>Same anesthesia in the future</td>
</tr>
</tbody>
</table>

Abbreviations: NB, nerve block; GA, general anesthesia; US, ultrasound; VAS, visual analog scale.

Data presented as n (%). Data presented as mean ± standard deviation.

* Statistically significant difference (P < .05).
Conclusion

• US-guided NB is considered an effective anesthesia method in emergency external fixation in patients with lower-extremity trauma.

• It is a fast and safe method without restriction of NPO time and reduce the frequency of complications and facilitating recovery.

• This method is expected to be used in the future for various diseases without restrictions in time, space, and patient conditions
• References


18. Sinardi, D, Marino, A, Chillemi, S, Siliotti, R, Mondello, E. Sciatic nerve block with lateral popliteal approach for hallux vagus correction. Comparison between 0.5% bupivacaine and 0.75% ropivacaine. Minerva Anestesiologica. 2004;70(9):625-629.