Continuous Axillary Block For Effective Long-term Postoperative Analgesia

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INTRODUCTION

In patients undergoing elective or emergency surgery on the upper extremity below the elbow, axillary block is commonly used to provide intraoperative analgesia. Using a single injection technique, duration of the block is limited up to a maximum of approximately 12-14 h, depending on the choice of local anesthetic (1). Especially if trauma to hand or forearm is severe (Fig 1) and extended microscopical surgery on vessels and nerves is performed, this timeframe is too short to allow adequate coverage of the postoperative period.

In 1977 Selander et al. (2) introduced catheter placement into the axillary perivascular sheath in anesthesia practise, making continuous axillary blockade (CAB) possible. There is very few literature concerning the outcome of postoperative continuous axillary plexus blockade (3). The departement of our hospital is performing a large repertoire of procedures ranging from simple excision of tumors to complex microsurgical reconstruclion of hand and forearm. Our departement is performing continuous postoperative analgesia with this method for more then ten years. This retrospective study was designed to assess the value of this method for postoperative pain control.

METHODS

A retrospective study was performed on 160 patients undergoing forearm and hand surgery between June 1995 and December 1998:

138 Patients received an axillary catheter Contiplex B. Braun (Fig 2) prior to surgery, in 22 patients catheter placement followed immediately after the procedure.

Table 1: Demographics

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Gender</th>
<th>female: 35</th>
<th>male: 125</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>6y – 83y</td>
<td>mean: 43y</td>
<td></td>
</tr>
<tr>
<td>Case</td>
<td>elective: 66</td>
<td>emergency: 94</td>
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To provide continuous axillary block, all patients received postoperative 0.25 bupivacaine infusion 4-10 ml/hr via axillary catheter. Pain level and patient satisfaction during the duration of the infusion was evaluated using a visual analog scale (VAS). The dosage was started with 8ml 0.25 bupivacaine and then adapted depending on the visual analog scale.

**RESULTS**

- Duration of bupivacaine infusion lasted between 2 - 64 days (mean 5.6 days).
- Out of 160 Patients studied, sufficient data regarding their pain level could be obtained in 130 patients.
- 92 Patients (71%) had a pain level of 3 VAS or below, while undergoing treatment with CAB (Fig 3).

**CONCLUSIONS**

1. Continuous axillary block is highly effective for postoperative long-term analgesia.
2. In our opinion this technique should be considered if extended postoperative pain, due to the nature of the injury or the surgical intervention is expected.
3. Although complication rate is low and clearly outweighed by the benefits, careful local care at the catheter placement site is required to minimize risk of infection.

**References**

1. McGlade et al.: A comparision of 0.5%ropivacaine and 0.5%bupivacaine for axillary brachial plexus anaesthesia. Anaesth Intensive Care (Australia) Oct 1998; 26(5):515-20
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