Ultrasound-guided, continuous brachial plexus blockade in a neonate with upper extremity gangrene

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Introduction

- Despite being a well-established regional anesthetic technique in pediatric anesthesia, brachial plexus blockade is infrequently used in infants and young children.[1,2]
- Continuous peripheral nerve blocks for post-operative analgesia have only been described in patients over 6 months of age.[3]
- Regional blocks (notably spinal injections) in infants may eliminate the need for general anesthesia.[4]
- A 10 day old, 3.4 kg female presented for a second operative debridement of a gangrenous right upper extremity wound.
- During her first debridement, the patient required 50mcg of fentanyl, and remain intubated post-op.

Regional Technique

- Following the induction of general anesthesia, the block site was cleansed with betadine, and the brachial plexus was identified with ultrasound.
- A 20-gauge, 1.5cm angiocatheter was inserted above the clavicle and advanced towards the brachial plexus utilizing an in-plane ultrasound view.
- Once located adjacent to the brachial plexus, the needle was removed, and the angiocatheter was secured at a depth of 1cm. A bolus dose of 3 mL of 0.2% ropivacaine was injected and infusion of 1.5% chloroprocaine was started at 2 mL/hr.
- The patient required 10mcg of fentanyl during the case.
- The patient's trachea was extubated at the completion of the case and the local anesthetic infusion continued for 7 days.

Clinical Course

- There was a limited need for systemic opioids during the chloroprocaine infusion.
- The patient tolerated dressing changes on postoperative days 3 and 6. In both cases, 0.5% ropivacaine (1.0-1.2 mL) was bolused through the catheter.
- Following catheter removal, subsequent dressing changes required the use of general anesthesia.
- Following successful skin grafting, the patient was discharged home on day of life 26.

Discussion

- With increasing concern for the potential neurotoxic effects of anesthetic agents during the first months of life, there has been a renewed interest in regional anesthetic techniques.
- Successful placement of a brachial plexus catheter obviated the need for at least two subsequent anesthetic exposures and provided excellent pain relief to the patient.
- This case supports the utility of continuous regional anesthetic techniques in infants.

References

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