

[NM-326] The utilization of liposomal bupivacaine in lieu of a thoracic epidural in a pediatric patient undergoing pneumonectomy.

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Introduction:

Traditionally, neuroaxial techniques have been used for post-operative pain management in the pediatric patient undergoing thoracotomy. Utilization of intercostal nerve blocks has been described but limited by the duration of action of currently available local anesthetics 1. For those who are not candidates for neuroaxial techniques, intravenous agents may be used but have their own side effects. We decided to explore the use of a liposomal bupivacaine, Exparel, for the use of postoperative analgesia with reported efficacy of over 96 hours. This drug recently gained Food and Drug Administration approval exclusively for wound infiltration but not peripheral nerve blocks².

Case Description:

A 15-year old male with refractory metastatic osteosarcoma with spread to the lungs after salvage chemotherapy presented for a left sided pneumonectomy. Pre-operative CT identified several new foci with vascular involvement. In the past, neuroaxial anesthesia was utilized for pain management. After further discussion with the patient and family, it was found that prior epidural placement had been difficult and pain management inadequate. It was decided to utilize Exparel, for intercostal injection combined with a multimodal approach.

The patient underwent an inhalational induction, single lung isolation, and placement of central monitoring. A balanced technique was employed utilizing sevoflurane at 1 MAC, with a sufentanil infusion at 0.7mcg/kg/min, and a Precedex infusion of 0.5mcg/kg/min. Following surgical dissection and hemostasis, a multi-level intercostal nerve block was performed between T3-T10 utilizing a total volume of 20cc of Exparel.

The patient was extubated and transferred to the intensive care unit. The postoperative pain regimen included a Precedex infusion for 24 hours at 0.5mcg/kg/min, Valium IV 4mg q6 hours and hydromorphone 0.5mg IV q3h prn. During the first 24 hours, the patient received one rescue dose of hydromorphone and rated his VAS (visual analogue scores) 2-6 (mean of 3) with the pain being related to the chest tube. During the subsequent 24 hours, he was placed on oral oxycodone at 8mg q6 hours and received one dose of hydromorphone 0.5mg IV for chest tube removal. VAS scores were reported between 0-6 (mean of 3).

Discussion

We describe a patient in which a liposomal agent allowed for a balanced analgesic plan with excellent patient pain control, satisfaction and prompt discharge from the hospital. Further investigation may allow for broader applicability in the clinical setting.

1. Drager C, Benziger D, Gao F, Berde CB. Prolonged intercostal nerve blockade in sheep using controlled-release of bupivacaine and dexamethazone from polymer microspheres. *Anesthesiology*. 1998; 89: 969–79.

2. Ilfeld BM, Malhotra N, Furnish TJ, Donohue MC, Madison SJ. Liposomal bupivacaine as a single-injection peripheral nerve block: a dose-response study. *Anesth Analg*. 2013 Nov;117(5):1248-56.
