Case Report

A 7.9 kg, 13 month female with a complicated past medical history including prematurity and time on ECMO for arrhythmia induced cardiomyopathy presented for omphalocele repair. Her oral amiodarone and lidocaine medications were transitioned to intravenous infusions in the preoperative period with the lidocaine infusing at 20 μg/kg/min. An epidural was placed to prevent a sympathetic cascade which could cause dysrhythmias as well as facilitating immediate post operative extubation by minimizing splinting and opioid induced hypercarbia.

A 24 gauge catheter was threaded in the T12-L1 interspace after the depth was determined by ultrasound. A test dose of 0.8 mL of 1.5% lidocaine with 1:200,000 epinephrine was injected and then followed with 2 mL of 0.2% ropivicaine. An infusion was started with 0.125% ropivicaine and 2.5 mcg/mL hydromorphone at 1.6 mL/hr. The remainder of the anesthetic proceeded uneventfully, and she was extubated at the conclusion.

The infusion was continued without rate change, and she did not respond when pressure was placed at the incision site. The catheter was removed 48 hours later, and the patient was transitioned to oral pain medications as well as oral anti-arrhythmics.

Discussion

Epidural anesthesia is an often utilized technique for postoperative pain control. The benefits are numerous and have been reported to include decreased respiratory complications, maintenance of cardiovascular stability, attenuation of stress responses, reduced hospital stays, and improved surgical outcome.

The major concern in placing an epidural in this patient was the potential for local anesthetic toxicity given the patient’s lidocaine infusion. If cardiac toxicity does occur, the resuscitation is well known to be difficult and often prolonged. Because of this, the prevention of local anesthetic toxicity is an important part of any regional anesthetic. EKG evidence of local anesthetic toxicity includes enlarging T waves, ST changes, bradycardia, or tachycardia. Ventricular arrhythmias can ensue leading to asystole.

Even though the pharmacodynamics of ropivicaine has been studied in infants and children, these levels do not take into account other local anesthetics that may have additive toxic effects or alter their clearance. Any infusion should be started at the lowest effective dose, and the patient frequently assessed in order to optimize efficacy while minimizing potential adverse reactions.

Conclusions

The use of epidural anesthesia in a patient on a lidocaine infusion can safely be utilized if the increased risk of local anesthetic toxicity is considered and managed with lower epidural doses and clinical monitoring for toxicity.