Intro: The most common regional anesthetic in children is the caudal block. Such techniques provide postoperative analgesia, or can be used as an adjunct or alternative to general anesthesia (GA) in high risk infants. Single dose caudal Bupivacaine has been widely used as perioperative analgesia for lower limb, anoperineal, and lower abdominal procedures in children. The most serious complications, convulsions and cardiovascular collapse, may occur if large doses of local anesthetic (LA) are absorbed from the injection site, or when small doses are injected into a vein. Epinephrine-induced tachycardia is the most commonly sought signal of an inadvertent intravascular injection.

Case Report: A 15 week old male (2.6kg), ex-25 week premie with Grade IV IVH and RDS, presented for bilateral inguinal hernia repair and circumcision. GA was induced by mask with sevoflurane. IV access was obtained and the airway secured with an ETT. Sacral hiatus was easily palpated in the left lateral position. A 22g angiocath was inserted into the caudal space with no heme or CSF upon both passive and active withdrawal. Test dose 0.25% Bupivacaine with Epinephrine 1:200,000 (0.5cc) was injected. Within 5 seconds HR increased from 155 to 175, with markedly peaked T waves (see EKG). BP cuff was cycled immediately, and at 1 minute intervals, and increased 30 mmHg systolic. Within 1 minute EKG changes resolved and BP returned to baseline over two minutes. The caudal was repeated after 10 minutes with a 24g angiocath. No heme or CSF was passively or actively obtained. 0.5cc test dose of same solution was injected. BP increased and peaked T waves were again noted, of similar duration and resolving without sequelae. The caudal block was abandoned and anesthesia was maintained with sevoflurane. The patient was extubated and transported to NICU without complications.

Discussion: Children should have the benefits of regional anesthesia despite age or ability to cooperate. In children, regional techniques are often performed under GA, which limits the ability to monitor for CNS toxicity and may alter the hemodynamic response to an Epinephrine-containing test dose. To avoid potentially lethal cardiac toxicity associated with inadvertent intravascular injection of LA, HR and systolic BP have been commonly used as traditional indicators. Careful aspiration and passive backflow from catheter alone before injecting LA may not detect all intravascular placements. Therefore, addition of Epinephrine to provoke an increase in HR has been recommended. Monitoring EKG changes for detection of LA, particularly an increase in T wave amplitude, is also recommended for early detection of intravascular LA injection. When performing neuraxial blocks in anesthetized children, Epinephrine-containing LA solutions should be used to provide safe regional anesthetic techniques.