[NM-226] Caudal block with intermittent re-dosing of local anesthetic for abdominal surgeries in infants

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Ongoing reports about anesthesia related neurotoxicity in fetal brain makes regional anesthesia more appealing for pediatric anesthesiologists. Case reports:We present 3 cases of infants that underwent regional anesthesia. First case is a 2 months old 6kg baby-boy, full term, scheduled for a left inguinal hernia repair, hydrocelectomy and diagnostic laparoscopy. The baby was placed in lateral decubitus and we used a 18G Jelco angiocath to access the caudal space.We inserted a 20G catheter to the level of T12-L1. Using the ultrasound we were able to visualize in real time the advancement of catheter and spread of local anesthetic.Supplemental sedation of 10 mcg of Precedex was given. The surgeon performed a diagnostic laparoscopy to check for the presence of a right inguinal hernia. The pneumoperitoneum produced some discomfort in the baby and we assisted the baby with mask ventilation to avoid hypoventilation and hypercarbia. The caudal catheter was removed at the end of the case after bolusing with 3 ml of 0.125% Bupivacaine. There were minimal changes in vital signs for the entire procedure and the patient was discharged home with the parents.
The second case is a former 26 weeks premature boy, birth weigh 841 gr, now 12 weeks postconceptional age, 2.5 kg, on ¼ L O2 nasal canula, scheduled for bilateral inguinal hernia repairs and circumcision. His neonatal course was significant for prolonged intubation, BPD, anemia, apnea of prematurity and s/p PDA ligation. He was extubated 2 weeks prior coming to the OR and maintaining. We performed a caudal block with 2 ml of 0.2% Ropivacaine and we redosed with 0.4 ml of 3% Chloroprocaine. The third case was a 41 day old infant born at 30 weeks gestation with a right inguinal hernia complicated by bronchopulmonary dysplasia and was on mechanical ventilation for the first day of his life. He was currently on ¼ liter of oxygen and weighed 2.6 kg. We performed a spinal anesthetic with 0.75% bupivacaine and placed a 22G Angiocath in the caudal space for additional dosing of 3% chloroprocaine. Discussion: Spinal anesthesia that provides a solid motor block has a much shorter duration in infants than in adults and is not a viable option for longer surgeries. Some authors report an incidence of failed spinal as high as 21% 1) Our novel approach was to visualize in real time the spread of local anesthetic with the ultrasound in order to minimize the chances of a failed block.In addition using the caudal block for rescue as the spinal block wears off is a good way to keep the child comfortable until the procedure is complete. Additional sedation with Precedex was used as a drug of choice as there are no evidence to suggest any neurotoxicity for this drug and does not depress the respiratory drive. There is a paucity of reports about using mask ventilation and regional anesthesia for laparoscopic surgery. A short period of pneumoperitoneum was well tolerated by our patients.
Summary: Our limited experience suggests that regional anesthesia is a viable option in skilled hands to perform surgeries in neonates and infants without exposing the immature brain to general anesthetic drugs.
1.Frumiento C:Spinal anesthesia for preterm infants undergoing inguinal hernia repair.Arch Surg,2000
