Awake caudal anesthesia for anoplasty in a preterm newborn with complex cyanotic congenital heart disease

Preterm newborns with congenital heart disease present a high risk for general anesthesia. They pose a challenge to the anesthesiologist when they present for non-cardiac surgeries. A low birth weight newborn, born at 35 weeks of gestation was diagnosed with complex cyanotic congenital heart disease with features of Fallot's physiology with an SpO_2 of 75% in room air and a pH of 7.20, pCO_2 of 26 mmHg, and pO_2 of 51 Hg. The baby was scheduled for anoplasty at 5 days of birth. On the day of procedure, the intravenous (IV) line was in place and infective endocarditis prophylaxis administered 1 h prior to the procedure. Standard intraoperative monitoring including nasopharyngeal temperature was done. The operating room temperature was set at 25°C, and infant warmer was in place. IV atropine was used as a premedicant and IV phenylephrine was kept ready. Ringer's lactate 4 ml/kg was used as a maintenance fluid. The baby's weight at the time of surgery was 1.9 kg. Adequate preparation to administer general anesthesia with intubation and controlled ventilation was instituted. Two milliliter of 0.25% bupivacaine with 1 in 200,000 adrenaline was given in caudal epidural space with 23G hypodermic needle.[1] Efficacy of the block was confirmed by pinprick stimulation at sub umbilical level. We avoided the use of perioperative sedatives during the procedure. A pacifier was kept in the child's mouth to keep the child calm and immobile during surgery. Meticulous care was taken to de-air the IV sets and syringes before administration of fluid or drugs. The surgery lasted for 50 min in supine position. Motor recovery was achieved after 90 min. There was no requirement of additional analgesic for up to 8 h in the postoperative period.

Newborns with congenital heart disease undergoing noncardiac surgeries have a higher incidence of anesthesia-related adverse events when compared to normal newborns.[2] General anesthesia might precipitate hypercyanotic spells, the transition to fetal circulation, heart failure, worsening pulmonary hypertension, hypothermia, laryngospasm, postoperative apneic spells, etc. Thus whenever feasible, the neuraxial block is an acceptable alternative. It attenuates the stress response to abdominal surgeries and provides excellent postoperative pain relief with no or minimal need for narcotics, thereby decreasing the risk of postoperative hypoventilation/apnea.[3] Newborns tolerate the high levels of neuraxial blockade, as high as T4 level without impairment of hemodynamics.[4]

Spinal anesthesia is an alternative to caudal block. However we chose caudal anesthesia, as it is technically less difficult and has a higher success rate.[5] Ultrasound guided caudal anesthesia would be ideal to perform in these cases, as infants with anorectal anomalies may have associated spinal cord anomalies, tethered cord, etc.

We conclude that caudal anesthesia may be considered as an alternative anesthetic technique for major infra-umbilical surgeries in newborns with cyanotic congenital heart disease.

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Conflicts of interest

There are no conflicts of interest.

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