

Comparison of Ultrasound Guided Erector Spinae Plane Block and Caudal Block for Postoperative Analgesia in Paediatric Patients Undergoing Unilateral Infraumbilical Surgery

Dr. Sumegha Dadala

Vardhman Mahavir Medical College and Safdarjung Hospital, New Delhi, India

Abstract

Background and Aims: Effective postoperative analgesia is essential in children undergoing infraumbilical surgery. Caudal block is widely used but may provide limited duration of analgesia. Ultrasound-guided erector spinae plane (ESP) block offers broader somatic and visceral analgesia with direct visualization. This study aimed to compare ultrasound-guided ESP and caudal blocks for postoperative analgesia in paediatric patients undergoing infraumbilical surgery.

Methods: This prospective randomized comparative study was conducted over 18 months at VMMC & Safdarjung Hospital, New Delhi. Seventy children aged 2–7 years, weighing 5–20 kg and classified as ASA I–II, undergoing elective unilateral infraumbilical surgery were randomized into ESP (n=35) and caudal (n=35) groups. Both blocks used ultrasound guidance and 0.25% bupivacaine 0.5 mL/kg. Postoperative pain was assessed using FLACC scores at 0, 1, 2, 4, 6, 12 and 24 hours. Time to first rescue analgesia, total analgesic requirement, haemodynamic parameters and adverse events were recorded.

Results: ESP produced significantly lower FLACC scores at 0 and 1 hour compared with caudal block (1.60 ± 0.55 vs 2.06 ± 0.04 ; $p=0.023$ and 1.71 ± 0.71 vs 3.17 ± 1.20 ; $p<0.001$). Block duration was significantly longer with ESP (4.04 ± 2.23 vs 2.88 ± 1.58 hours; $p<0.001$), with delayed first rescue analgesia (3.80 ± 2.22 vs 1.60 ± 1.60 hours; $p<0.001$). Fentanyl rescue was required in 5.7% versus 31.4% of children ($p=0.004$). ESP was associated with greater haemodynamic stability, with no reported adverse events.

Conclusion: Ultrasound-guided ESP block provided superior early postoperative analgesia, prolonged analgesic duration, reduced rescue opioid requirement and greater haemodynamic stability compared with caudal block in children undergoing unilateral infraumbilical surgery.