

The effect of caudal anesthesia block on perioperative pain control and reduction of the anesthetic agent in pediatric infra-umbilical surgery: A prospective randomized trial study

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Abstract

Background: Caudal epidural block (CEB) is a commonly performed neuraxial block to provide effective pain relief and analgesia in pediatric patients undergoing infra-umbilical surgery.

Aims: This study aimed to compare the effectiveness of adding CEB to general anesthesia (GA) in terms of intra- and post-operative pain management.

Design: Prospective, randomized case-controlled study.

Setting: Operation theater, and postoperative recovery rooms at Salmaniya medical complex, Bahrain.

Material and methods: A total of 74 patients aged two months to six years with American Society of Anesthesiology physical status classification (ASA PS) I were recruited over a six-month period between December 2019 and May 2020. Patients were allocated into two groups (with CEB, (group A) or without CEB (group B)). Both groups were compared based on hemodynamic stability, level of sedation, analgesia need, pain score, and parental satisfaction. Postoperative pain was evaluated by the Children's Hospital Eastern Ontario Pain Scale (CHEOPS), Faces Pain Scale-Revised (FPS-R), and Face, Legs, Activity, Cry CONSOL ability (FLACC) scales.

Statistical analysis: Data were analyzed using SPSS program. Categorical and numerical variables of both groups were compared.

Results: Patients with CEB had better hemodynamic stability during the surgical procedure based on heart rate ($P=0.039$). Pain intensity scores were less in patients with CEB than those without

($P<0.001$). Fentanyl consumption was lower in group A compared to group B at the end of surgery ($P=0.002$). They were also ambulated earlier and discharged sooner than those without CEB. Parental satisfaction was 92.1% in group A compared to 63.9% in group B ($P=0.012$).

Conclusions: Adding CEB to GA for intraoperative and perioperative pain control in pediatric patients undergoing infra-umbilical surgery makes it more effective, safer, and with better parental satisfaction. .

Keywords: Caudal anesthesia, general anesthesia, perioperative, sedation, analgesic, pain management, pediatric.

Key messages:

- Using general anesthesia (GA) alone for intraoperative and perioperative pain control in pediatric patients undergoing infra-umbilical surgery requires high doses of opioids and inhalation agents and increases postoperative analgesic use leading to prolonged recovery.

Caudal epidural block (CEB) has faster start of sensory and motor block, and longer