

A Randomised Controlled Study to Compare Efficacy and Safety of Bupivacaine plus Dexamethasone Versus Bupivacaine plus Fentanyl for Caudal Block in Children

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Abstract : Caudal block is one of the most commonly used regional anesthetic techniques in children. Currently, fentanyl is used as an adjuvant to bupivacaine to prolong analgesia but fentanyl is a narcotic. Dexamethasone, a glucocorticoid with strong anti-inflammatory effects provides improvement in post-operative analgesia and post-operative side effects. However, its analgesic efficacy and safety in comparison with fentanyl has not been extensively studied. So the objective of this randomized controlled study is to compare dexamethasone with fentanyl as an adjuvant to bupivacaine for caudal block in children in relation to the duration of caudal analgesia, post-operative analgesic requirement and incidence of post-operative nausea and vomiting. This study included 100 children, aged 1-6 years, undergoing lower abdominal surgeries. Patients were randomized into two groups, 50 each to receive a combination of dexamethasone 0.2 mg/kg along with 1 ml/kg bupivacaine 0.25% (group A) or combination of fentanyl (1 ug/kg) along with 1ml/kg bupivacaine 0.25% (group B). In the post-operative period, pain was assessed using a Modified Objective Pain Scale (MOPS) until 12 hr after surgery and rescue analgesia is administered when MOPS score 4 or more is recorded. Residual motor block, number of analgesic doses required within 24 hr after surgery, sedation scores, intra-operative and post-operative hemodynamic variables, post-operative nausea and vomiting (PONV), and other adverse effects were recorded. Data is analysed using unpaired t test and Significance level of $P < 0.05$ is considered statistically significant. Group A showed a significantly longer time to first analgesic requirement than group B ($p < 0.05$). The number of rescue analgesic doses required in the first 24 h was significantly less in group A ($p < 0.05$). Group A showed significantly lower MOPS scores than group B ($p < 0.05$). Intra-operative and post-operative hemodynamic variables, Modified Bromage Scale scores, and sedation scores were comparable in both the groups. Group A showed significantly fewer incidences of PONV compared with group B ($p < 0.05$). This study reveals that adding dexamethasone to bupivacaine prolongs the duration of postoperative analgesia and decreases the incidence of PONV as compared to combination of fentanyl to bupivacaine after a caudal block in pediatric patients.

Keywords : bupivacaine, caudal analgesia, dexamethasone, pediatric

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