
A Comparative Clinical Study Of 0.25% Bupivacaine with Dexmedetomidine And 0.2% Ropivacaine with Dexmedetomidine in Paediatric Caudal Block For Infra Umbilical Surgeries

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Abstract:

Background: Caudal epidural block is one of the most popularly used regional techniques in pediatric patients. Various drugs in different concentrations have been used for the technique. Local anesthetic like Ropivacaine produces differential neuraxial blockade with less motor block and reduced cardiovascular toxicity. To increase the duration of action of local anesthetics and thereby analgesia extending to the post-operative period, various adjuvants like Dexmedetomidine, α_2 agonist has been used. Lower concentration of local anesthetics can be used for the procedure as motor blockade is not much required. Hence we have compared Bupivacaine 0.25% combined with $1\mu\text{g}/\text{kg}$ of Dexmedetomidine and Ropivacaine 0.2% combined with $1\mu\text{g}/\text{kg}$ Dexmedetomidine at a volume of $1\text{ml}/\text{kg}$ in children undergoing infra umbilical surgeries.

Aims And Objectives: To assess the safety, efficacy, onset and duration of analgesia of 0.25% Bupivacaine and 0.2% Ropivacaine when equal volumes of Dexmedetomidine is added as an adjuvant in pediatric caudal block.

Material And Methods: *The Current Study is a comparative randomized study where sampling method was purposive sampling. Statistical analysis was done using student's t test and chi square test. 60 children aged between 1 to 6 years weighing < 20 kgs posted for surgery were divided into two groups of 30 each. GROUP BD received 0.25% Bupivacaine 1ml/kg + 1µg/kg Dexmedetomidine and GROUP RD received 0.2% Ropivacaine 1ml/kg + 1µg/kg Dexmedetomidine. Post-operatively, duration of analgesia was assessed using the observational pain scale and FLACC score, duration of sedation was assessed using sedation score and the duration of motor block was assessed using modified bromage scale.*

Results: *The onset of action in Group BD (Bupivacaine) and RD (Ropivacaine) was 6.70 ± 0.23 mins and 6.653 ± 0.15 mins respectively. The duration of analgesia was 549.66 ± 4.66 mins in group BD (Bupivacaine) and 650.16 ± 6.03 mins in group RD (Ropivacaine).*

Conclusion: *There was no significant difference in the onset of action, duration of sedation and vital parameters between the two groups. Ropivacaine with Dexmedetomidine produced longer duration of analgesia compared to Bupivacaine with Dexmedetomidine. Ropivacaine caused less motor blockade than bupivacaine. Hence 0.2% Ropivacaine 1ml/kg with Dexmedetomidine 1µg/kg is a better choice than 0.25% Bupivacaine 1ml/kg with Dexmedetomidine 1µg/kg.*

Keywords: *Caudal block, Dexmedetomidine, Bupivacaine, Ropivacaine.*