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Comparison of efficacy of Ropivacaine and ropivacaine with clonidine for caudal analgesia in paediatric patients

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Abstract
To compare Ropivacaine (0.25%) and Ropivacaine (0.25%) with Clonidine (1µg/kg) for caudal analgesia in pediatric patients for infra-umbilical surgeries for 1) The duration of postoperative analgesia. 2) The degree of sedation. This study was conducted in 60 children of ASA physical status I and II, weighing less than 20 kg undergoing elective infra-umbilical surgeries. Group A (control): (0.25%) plain Ropivacaine 1ml/kg + Normal saline Group B (study): (0.25%) plain Ropivacaine 1mg/kg + 1µg/kg Clonidine + Normal saline All patients were observed for 2 hours in recovery room. HR, BP, RR were monitored continuously. Postoperative pain was assessed at 30 min,1, 2, 4, 6, 8, 10, 12, 18 and 24 hours after recovery from anesthesia using observer pain score(OPS). Duration of analgesia (time from caudal block to first dose of rescue analgesic or OPS >= 11) was recorded. The time of first rescue analgesia received and total number of doses received in 12 hours were noted in both the groups postoperatively. The duration of analgesia in the post-operative period was prolonged in Group B (10.07±1.15 hours) as compared to Group A (4.85±0.95 hours) OPS score was 11.53±2.47 at 4 hours in Group A and 11.66±3.47 at 10 hours in Group B. There was no significant difference in mean sedation score of both the groups. we conclude and recommend that the addition of clonidine 1µg/kg to Ropivacaine (0.25%) 1ml/kg in caudal epidural, significantly prolongs the duration of analgesia without any adverse effects in pediatric patients undergoing infra-umbilical surgeries.

Keywords: Ropivacaine, Analgesia, paediatric, surgeries

1. Introduction
Caudal analgesia in pediatric patients is popular for infra-umbilical surgeries because of its simplicity, safety and effectiveness. Its advantages are postoperative pain relief, early feeding, early ambulation and early discharge from hospital so less risk of cross infection. Caudal block with local anesthetic agent is an established technique.

Objective
To compare Ropivacaine (0.25%) and Ropivacaine (0.25%) with Clonidine (1µg/kg) for caudal analgesia in pediatric patients for infra-umbilical surgeries

1. The duration of postoperative analgesia.
2. The degree of sedation.

Method
Caudal block was performed with full aseptic precautions with patient in the left lateral position. The following landmarks were palpated:

1. Posterior superior iliac spine
2. Sacral cornu
3. Sacral hiatus-1-1.5” above the tip of coccyx felt as ‘V’ or ‘U’ shaped

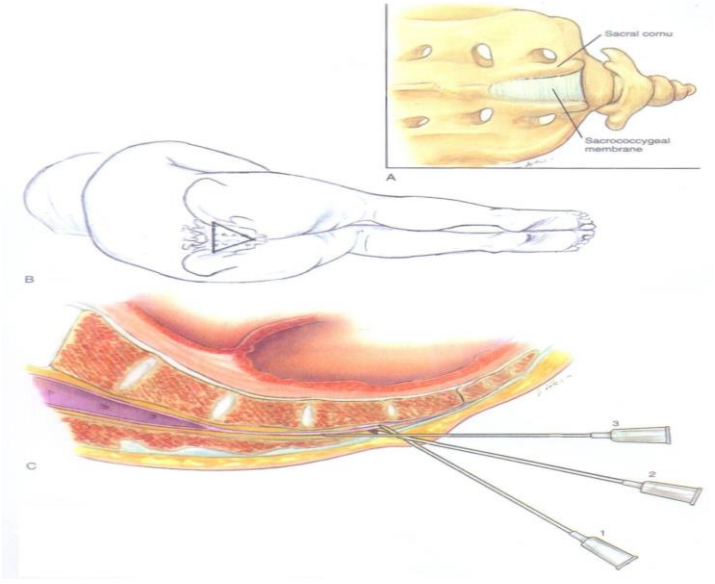

Fig 1

This study was conducted in 60 children of ASA physical status I and II, weighing less than 20 kg undergoing elective infra-umbilical surgeries.
Group A (control): (0.25%) plain Ropivacaine 1ml/kg + Normal saline
Group B (study): (0.25%) plain Ropivacaine 1mg/kg + 1µg/kg Clonidine + Normal saline

Ropivacaine was not exceed more than 3 mg/kg.

Mean age, weight and sex distribution in both the groups are nearly same without any significant differences.
Majority of surgeries were herniotomy, hypospadias repair, hip spica + ORIF etc. in both the groups.
Then patient was given Inj. Propofol 2mg/kg and LMA was inserted and fixed. Anesthesia was maintained on O2 + N2O + Sevoflurane.

All patients were observed for 2 hours in recovery room. HR, BP, RR were monitored continuously. Postoperative pain was assessed at 30 min,1, 2, 4, 6, 8, 10, 12, 18 and 24 hours after recovery from anesthesia using observer pain score(OPS).
Duration of analgesia (time from caudal block to first dose of rescue analgesic or OPS >= 11) was recorded. The time of first rescue analgesia received and total number of doses received in 12 hours were noted in both the groups postoperatively.

Result

Table 1

	Group A	Group B	P -value
Mean duration of caudal analgesia Mean ±SD	4.85±0.95	10.07±1.15	<0.001 (significant)

The duration of analgesia in the post-operative period was prolonged in Group B (10.07±1.15 hours) as compared to Group A (4.85±0.95 hours)
OPS score was 11.53±2.47 at 4 hours in Group A and 11.66±3.47 at 10 hours in Group B. There was no significant difference in mean sedation score of both the groups.
The duration of post-operative caudal analgesia in group B was significantly prolonged as compared to group A. In Group A 18 (60%) patients required two dose of rescue analgesic within 12 hours where in Group B none of the patients required second dose of rescue analgesic.

Conclusion

We conclude and recommend that the addition of clonidine 1µg/kg to Ropivacaine (0.25%) 1ml/kg in caudal epidural, significantly prolongs the duration of analgesia without any adverse effects in pediatric patients undergoing infra-umbilical surgeries.

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