



" COMPARISON OF INTRATHECAL 0.75% HYPERBARIC ROPIVACAINE VS INTRATHECAL 0.5% HYPERBARIC BUPIVACAINE IN LOWER LIMB AND LOWER ABDOMINAL SURGERIES: AN OBSERVATIONAL STUDY"

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KEYWORDS :

INTRODUCTION

- Ropivacaine , a newer amino amide local anaesthetic agent similar to bupivacaine in chemical structure, and has been well studied for spinal anaesthesia.
- The preliminary studies evaluated efficacy and safety of isobaric ropivacaine for neuraxial blockade.
- Intrathecal ropivacaine was found to be safe, with shorter duration of action than bupivacaine and lesser incidence of transient neurological symptoms.^[1]
- The aim of this study is to observe and compare the efficacy of intrathecal hyperbaric ropivacaine with intrathecal hyperbaric bupivacaine for lower abdominal and lower limb surgeries.^[1]
- Ropivacaine produces more differential blockade allowing better separation between sensory and motor block.
- Hence a better choice for postoperative pain relief , when compared to bupivacaine , it produces lesser motor blockade of shorter duration and hence permitting earlier mobilization and discharge.^[2]

Objectives

- To compare onset and duration of sensory blockade.

Methodology

- Study Design:** An observational study.
- Study Period:** August 2022 to July 2024
- Place Of Study:** Kanachur institute of medical sciences and research centre, Mangalore.
- Ethical Consideration:** The study was conducted in accordance with the Institutional guidelines and Ethical committee clearance was obtained before the study.

INCLUSION CRITERIA	EXCLUSION CRITERIA
patients aged between 18 to 60years .	h/o hypersensitive reaction to local anaesthetics
patients belonging to ASA grade 1 and grade 2	comorbidities such as severe anemia, heart disease, severe hypovolemia, shock, septicemia, uncontrolled hypertension, coagulopathies.
Patients who have given informed written consent	Refusal to give consent
	Patients on anticoagulant therapy
	Local infection at the site of proposed puncture for spinal anaesthesia

$$D. \text{ Sample size: } n = \frac{2(Z\alpha + Z\beta)^2 s^2}{d^2}$$

 $Z\alpha = 1.96$ for 95% confidence interval

 $Z\beta = 0.84$ for 80% statistical power

 s = pooled standard deviation for sensory block b/w the two

$$\text{groups(RP \& BP)} = 2.5^{[1]}$$

$$d = \text{Mean difference b/w the 2 groups} = 2.1$$

Therefore number of subjects required in each group is 23
Total samples = 46

Methodology (contd..):

- The study was started after obtaining institutional ethical committee clearance.
- In this observational study, 46 patients of ASA grade 1 and grade 2 in the age group of 18 to 60 years of either sex undergoing elective and emergency lower abdominal and lower limb surgeries under spinal anaesthesia at Kanachur Institute of Medical Sciences, Mangalore, were observed.
- They were allocated to receive either 3ml of 0.75% hyperbaric ropivacaine (n=23) or 3ml of 0.5% hyperbaric bupivacaine (n=23) based on anaesthesiologist's discretion and clinical indications and those cases were observed intra op and post op.
- Intra operatively onset and duration of sensory blockade, and motor blockade, and continuous hemodynamic monitoring was done.
- Pinprick sensation using a 25G hypodermic blunt tip needle was used to assess sensory blockade.
- The degree of motor blockade was assessed using modified Bromage scale.
- Visual analogue scale was used to assess post op analgesia.

Statistical Analysis

- Data was entered in MS excel spreadsheet and analysed using IBM SPSS version 2.0 software.
- Results are presented and as descriptive statistics in the form of mean/proportion and percentage.
- Independent sample T test was used to find statistical significant difference between demographic details, onset and duration parameters of sensory and motor blockade and hemodynamic parameters between two groups.
- $P < 0.05$ was considered as statistically significant.

RESULTS

Sensory Block Characteristics:

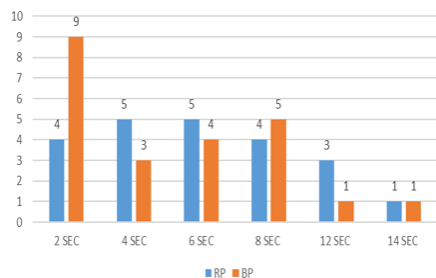
- Sensory block onset was significantly delayed in Group RP as compared to Group BP. In addition, duration of sensory blockade was significantly shorter in group RP as compared to group BP. Onset of sensory blockade

Onset Of Sensory Blockade

GROUP	RP	BP	RP	BP
2 SEC	4	9	17.39%	39.13%
4 SEC	5	3	21.74%	13.04%
6 SEC	5	4	21.74%	17.39%
8 SEC	4	5	17.39%	21.74%

12 SEC	3	1	13.04%	4.35%
14 SEC	1	1	4.35%	4.35%

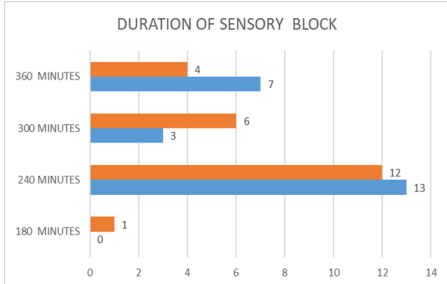
ONSET OF SENSORY BLOCKADE



Duration of sensory blockade

Table : Duration Of Sensory Blockade

DURATION OF BLOCK	BP	RP	BP(%)	RP(%)
180 MINUTES	0	1	0.00%	4.35%
240 MINUTES	13	12	56.52%	52.17%
300 MINUTES	3	6	13.04%	26.09%
360 MINUTES	7	4	30.43%	17.39%



DISCUSSION

- Ropivacaine is introduced as an alternative to routinely used bupivacaine for surgeries of short duration especially in ambulatory setup.
- The differential blockade produced by ropivacaine is an advantage in situations where we want to avoid prolonged sensory blockade.
- Early ambulation of the patients relieves the anxiety of the patients themselves.
- This is more useful in cases of surgeries lasting for short duration and patients can be discharged in the same day. Thus the drug is fit for ambulatory surgeries.

CONCLUSION

- In this study, Hyperbaric Ropivacaine used for intrathecally has delayed onset of sensory block. It also has shorter duration of sensory blockade.
- Thus, we can conclude that Ropivacaine can be used as a good alternative to Bupivacaine in case of shorter duration of surgeries especially in an ambulatory setup.

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