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Comparative Study of Intrathecal Bupivcaine And Bupivacaine With Midzolam in Lower Limb Surgery in Adults

KEYWORDS

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ABSTRACT *AIMS AND OBJECTIVES:T o ascertain onset and duration of sensory blockade.*

To observe intraoperative and postoperative hemodynamic stability.

To measure duration of postoperative analgesia and subjective evaluation of analgesia.

Watch for any perioperative complications.

MATERIALS AND METHOD: A prospective randomized double blind study was carried out on patients belonging to ASA grade I/II aged 16-60 years posted for lower abdominal and lower linb surgeries.

.Group A: received 3ml (15 mg) 0.5 %hyperbaric bupivacaine + 0.2 ml of 0.9% saline intrathecally.

Group B: received 3 ml (15mg) 0.5% hyperbaric bupivacaine + 0.2 ml of preservative free midazolam.

RESULTS AND SUMMARY: Midazolam when used as an intrathecal adjuvant has desirable properties of stable hemodynamics, sedation, less respiratory depression, along with potentiating and prolonging the duration of analgesia in contrast to opioids which are prone to cause various of side effects e.g. nausea, vomiting, itching and respiratory depression.

CONCLUSION: We conclude that midazolam added to local anesthetics provides adequate anaesthesia and prolonged analgesia with stable hemodynamic parameters.

INTRODUCTION

Spinal anesthesia is extensively used for lower abdominal surgeries.Local anesthetics and adjuvants afford a symptomatic relief even in postoperative periods.Opiods carry the advantage of analgesia without sensory / motor blockade but urinary retention, respiratory depression, vomiting, pruritus limit their use. So intrathecal midazolam was used as it improves intraoperative and postoperative analgesia and prolongs sensory and motor blockade hence decreasing postoperative analgesic consumption.

MATERIALS AND METHOD:

A prospective randomized double blind study was carried out on patients belonging to ASA grade I/II aged 16-60 years posted for lower abdominal and lower linb surgeries.

(1)Preoperative preparation:

Patients were assessed preoperatively and all those who had history of allergy to any drug or contraindication to spinal anesthesia were excluded from the study. Lab investigations like complete blood count,blood sugar, renal function test,serum electrolyte, serum bilirubin,chest xray and ecg were reviewed.

(2)Premedication:

All patients were premedicated with inj. Ondansetron 4 mg iv just before induction of anesthesia.They were also preloaded with ringers lactate solution 10 ml/kg after gaining intravenous access with 18 G cannula.Standard monitoring was used- ECG,noninvasive blood pressure and pulse oximetry during surgery.

(3)Study groups:

30 subjects were randomly allocated in two groups

Group A received 3ml (15 mg) 0.5 %hyperbaric bupivacaine + 0.2 ml of 0.9% saline intrathecally

Group B received 3 ml 0.5% hyperbaric bupivacaine + 0.2 ml of preservative free midazolam.

(4)Anesthetic Technique:

Spinal anesthesia was performed at lumbur 3-4 intervertebral space using 23 G quinckes spinal needle via midline/ paramedian approach and the patient either in sitting /left lateral position. After free flow of clear CSF was obtained, anesthetic solution was injected at the rate of 0.2 ml/ sec .

(5)Monitoring:

Standard monitoring was used- ECG,noninvasive blood pressure and pulse oximetry during surgery. Time of intrathecal injection was noted and patient put in supine position.Sensory block was assessed by loss of sensation to pinprick ay every 2 mins for 15 mins then every 10 mins until maximum sensory level was achieved.Motor block was assessed as inability to move lower limbs.A dermatomal sensory loss from T10-S4 was considered satisfactory.Pulse rate,blood pressure,spo2 and respiratory rate were recorded every 5 mins for first half hour and then every fifteen mins.Supplemental oxugen was given via ventimask at 3L/minutes.IV fluids were administered for maintainance and according to surgical loss.Level of sedation was recorded every 30 mins as described by chernik.

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(6)Complications:
Any intraoperative complications like nausea/ vomiting,pruritus,shivering and respiratory depression were looked after.

(7)Statistical Data:
Descriptive data of boththe groups were compared by un-paired t test.For all the tests p value of less than 0.05 was considered statistically significant.

OBSERVATIONS AND RESULTS:

Intraoperative vital parameters(mean)

Time (min)	Group A				Group B			
	Pulse (Beats/Min)	BP (SBP/DBP mm of Hg)	RR (per min)	SpO2 (%)	Pulse (Beats/ in)	BP (SBP/DBP m of Hg)	RR (per min)	SpO2 (%)
5 min	91.8	122.6/78.2	16.8	98.9	82.3	122.6/77.3	17.5	98.7
10 min	85.5	119.8/74.1	16.8	98.8	80.2	117.4/72.4	17	98.7
15 min	82.8	108.2/69.0	17.2	98.6	80.5	112.9/69.6	17	98.5
30 min	80.6	110.2/69.6	16.3	98.4	78.1	109.6/68.1	17	98.3
45 min	79.9	114.8/72.4	16.2	98.6	77.4	113.4/70.2	17.2	98.4
60 min	81.3	118.1/69.1	16.2	98.4	75.6	113.4/69.2	16.9	98.3
90 min	82.4	120.6/78.2	16.7	98.3	73.6	115.2/70.8	16.8	98.2

Post operative vital parameters (mean)

Time (min)	Group A				Group B			
	Pulse (Beats/Min)	BP (SBP/DBP mm of Hg)	RR (per min)	SpO2 (%)	Pulse (Beats/Min)	BP (SBP/DBP mm of Hg)	RR (per min)	SpO2 (%)
PACU	84.1	122/74.4	17.2	98	75.6	117.7/72.5	16.9	98.2
30 min	85.3	122.8/77.3	16.7	98	73.6	119.6/75.2	16.6	98.1
60 min	85.8	119.6/73.2	16.4	98.1	76.8	121.6/76	16.4	98.2
90 min	87.8	126.9/79.6	16.3	98.2	78.8	123.3/77.8	16.5	98.2
120min	91.6	127.6/80.8	16.7	98.3	81	124.4/78.1	15.8	98.4
180min	95.8	128.9/81.4	16.7	98.4	78	126.5/81.0	16.4	98.5
240min	95.6	128.9/82.4	16.9	98.3	83	128.1/80.4	16.5	98.3

Duration of analgesia

	Group A (mean +SD)	Group B (mean +SD)	p value
S2 regression time (T1)(min)	220.6 ±18.8	243.6± 25.6	<0.01
Time to first rescue analgesic(T2)(min)	268 ±19.2	430.3 ±36.6	<0.01
Effective analgesia (T3=T2-T1)(min)	47.3 6.2	186.6± 19.6	<0.01

CONCLUSION

Primary objective of our study was to assess the efficacy of intrathecal midazolam along with bupivacaine for post-operative analgesia and to look for hemodynamic stability and safety with its use.

Demographic and surgical variables were comparable in both groups.

No statistically significant difference was found with re-gards to time to onset of sensory block,maximum sensory level achieved and time to achieve maximum block height as judged by pinprick method.

Peri and postoperative hemodynamic monitoring were also observed and treated.

Time to first rescue analgesic was prolonged significantly in group B.

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