

A COMPARATIVE STUDY OF TWO DOSES OF INTRATHECAL CLONIDINE WITH BUPIVACAINE IN INGUINAL HERNIA SURGERIES

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Abstract

Background: Evaluate the duration of post-operative analgesia provided by two varying doses of clonidine with bupivacaine against bupivacaine alone in subarachnoid blockade in inguinal hernia surgeries. **Materials and Methods:** It is a prospective randomized double blinded study done in Department of Anaesthesiology, Dhanalakshmi Srinivasan Medical College Hospital. 90 adult patients satisfying inclusion criteria were enrolled in this study. Subjects were allocated in to three groups. Group A- Inj. 0.5% Bupivacaine 2.4cc + 0.2 cc normal saline, Group B - Inj. 0.5% Bupivacaine 2.4cc+ 15 µg clonidine, +0.1 cc normal saline, Group C- Inj.0.5% Bupivacaine 2.4cc+ Inj. Clonidine 30µg **Result:** Age distribution in the group A ranges from 39 to 64 years with mean age of 52.4 years and standard deviation of 7. In group B the age distribution ranges from 39-66 years with mean age of 50.3 years and standard deviation of 7.5. In group C the age distribution ranges from 39 to 69 years with mean of 52.9 and standard deviation of 8.5. The mean duration of surgery was 95.7, 95.8, 97.6 minutes with standard deviation of 14.8, 9.7, 10.7 in group A, group B, group C respectively. Shivering have occurred in 4 patients in group A and 3 patients in group B and 3 patients in group C. Dry mouth have not been observed in any of the cases of in the three groups. Nausea or vomiting have not been observed in any of the patients the three groups. **Conclusion:** This study shows that adding clonidine 15µg and 30µg to bupivacaine significantly prolongs the duration of post operative analgesia when compared to bupivacaine alone in inguinal hernia surgeries. Adding 30µg of clonidine significantly results in more duration of post operative analgesia than adding 15µg of clonidine to bupivacaine without any side effects.

INTRODUCTION

This study has been taken in search for a minimal dose of clonidine as an adjuvant with bupivacaine which produces maximum post-operative analgesia without or with minimal incidence of its side effects.^[1-4]

Aim of the Study

The aim of this study is to evaluate the duration of post-operative analgesia provided by two varying doses of clonidine with bupivacaine against bupivacaine alone in subarachnoid blockade in inguinal hernia surgeries.

MATERIALS AND METHODS

After getting the ethical committee approval the study was conducted in 90 patients undergoing elective inguinal hernia surgeries. It was a double

blinded study in which patients were randomly allocated into three groups A, B and C. After getting informed consent and explaining the procedure details to the patients, the anesthetic technique was performed.

Exclusion Criteria

- Patient refusal
- ASA III & IV patients
- Post spinal surgeries
- Spinal deformity
- H/o drug allergy

RESULTS

In this randomized double blinded study conducted in 90 patients, the subjects were allocated in to three groups.

Group A- Inj. 0.5% Bupivacaine 2.4cc + 0.2 cc normal saline

Group B- Inj. 0.5% Bupivacaine 2.4cc+ 15 µg clonidine +0.1 cc normal saline

Group C- Inj.0.5% Bupivacaine 2.4cc+ Inj. Clonidine 30µg.

A. Profile Of Cases Studied

Age distribution in the group A ranges from 39 to 64 years with mean age of 52.4 years and standard deviation of 7. In group B the age distribution ranges from 39-66 years with mean age of 50.3 years and standard deviation of 7.5. In group C the age distribution ranges from 39 to 69 years with mean of 52.9 and standard deviation of 8.5

The p value for three groups are not significant, so the three groups are comparable. [Table 1]

In group A 80% belongs to ASA I and 20% ASA II

In group B 76.7% belongs to ASA I and 23.3% ASA II

In group C 70% belongs to ASAI and 30% ASA II. [Table 2].

The mean duration of surgery was 95.7, 95.8, 97.6 minutes with standard deviation of 14.8, 9.7, 10.7 in group A, group B, group C respectively. [Table 3]

The post operative period till the patient demands systemic analgesic (ie. VAS score > 5) from the initiation of subarachnoid blockade.

In group A the mean duration of post operative analgesia was 175.9 minutes with standard deviation of 11.6.

In group B the mean duration of post operative analgesia was 194.9 minutes with standard deviation of 22.

In group C the mean duration of post operative analgesia was 272.2 minutes with standard deviation of 33.2. [Table 4]

In group A the mean requirement of 24 hour tramadol (100 mg) doses were 2, 3, 4 in 8, 21, 1 patients respectively.

In group B the mean requirement of 24 hour tramadol (100 mg) doses were 2, 3 in 13, 17 patients respectively.

In group C the mean requirement of 24 hour tramadol (100 mg) doses were 1, 2, 3 in 12, 16, 2 patients respectively. [Table 5]

Shivering have occurred in 4 patients in group A and 3 patients in group B and 3 patients in group C.

Dry mouth have not been observed in any of the cases of in the three groups.

Nausea or vomiting have not been observed in any of the patients the three groups. [Table 6]

Table 1: Age distribution

Age group	Cases in					
	Group A		Group B		Group C	
	No.	%	No.	%	No.	%
Upto 40 years	2	6.7	3	10	1	3.3
41-50 years	10	33.3	12	40	11	36.7
51-60 years	14	46.7	12	40	12	40
>60 years	4	13.3	3	10	6	20
Total	30	100	30	100	30	100
Range	39-64 yrs		39-66 yrs		39-69	
Mean S.D.	52.4 7		50.3 7.5		52.9 8.5	
'p'	0.4232 Not significant					

Table 2: ASA status

ASA	Group A		Group B		Group C	
	No.	%	No.	%	No.	%
I	24	80	23	76.7	21	70
II	6	20	7	23.3	9	30
Total	30	100	30	100	30	100

Table 3: Duration of surgery (in minutes)

Duration of surgery(min)	Group A	Group B	Group C
Mean	95.7	95.8	97.6
S.D	14.8	9.7	10.7
'p' 3 groups	0.7104 not significant		
A&B	0.8355 not significant		
B&C	0.4812 not significant		
A&C	0.4814 not significant		

Table 4: Post operative analgesia (in minutes)

Post op analgesia(min)	Group A	Group B	Group C
Mean	175.9	194.9	272.2
S.D	11.6	22.0	33.2
'p' 3 groups	0.0001 significant		
A&B	0.0001 significant		
B&C	0.0001 significant		
A&C	0.0001 significant		

Table 5: Number of tramadol(100mg) doses

No. of tramadol doses	Group A		Group B		Group C	
	No.	%	No.	%	No.	%
1	-	-	-	-	12	40
2	8	26.7	13	43.3	16	53.3
3	21	70	17	56.7	2	6.7
4	1	3.3	-	-	-	-
Mean	2.77		2.57		1.67	
S.D	0.5		0.5		0.61	
'p' 3 groups	0.0001 significant					
A&B	0.141 not significant					
B&C	0.0001 significant					
A&C	0.0001 significant					

Table 6: Complications

Complications	Group A		Group B		Group C	
	No.	%	No.	%	No.	%
Shivering	4	13.3	3	10	3	10
'p' A&B	0.5 not significant					
B&C	0.8 not significant					
A&C	0.5 not significant					

DISCUSSION

This is a randomized double blinded study conducted in 90 patients of ASA I and II undergoing elective inguinal hernia surgeries. Two different doses of clonidine 15 µg vs 30µg with spinal bupivacaine 2.4 ml was compared against 2.4 ml of bupivacaine alone.^[5-8]

Parameters observed were time of onset of sensory block and motor block, two segment regression time, duration of motor blockade, sedation score, duration of post operative analgesia and side effects.^[9]

1. The post op analgesia was significantly prolonged in group C and was 97 minutes more than the group A and 78 minutes more than group B.
2. The 24 hours analgesic requirements is significantly reduced in group C with 1.67 mean doses against 2.57 mean doses in group B and 2.77 mean doses in group A.
3. Hemodynamically there was no significant fall in mean arterial pressure in group B and group C and the requirement of vasopressors was similar in all groups.
4. There was significant fall in pulse rate in group c, but not to such extent requiring treatment, (except in one case).
5. Sedation was observed in group C, producing good intra operative comfort to the patient. Neither respiratory depression nor desaturation was observed in any of the case of group C.

CONCLUSION

This study shows that adding clonidine 15µg and 30µg to bupivacaine significantly prolongs the duration of post operative analgesia when compared to bupivacaine alone in inguinal hernia surgeries. Adding 30µg of clonidine significantly results in more duration of post operative analgesia than adding 15µg of clonidine to bupivacaine without any side effects.

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