

A study of comparison of efficacy of intrathecal bupivacaine plus midazolam vs bupivacaine alone for postoperatively analgesia in the patients of caesarean delivery

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Abstract

Background: "Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage. Inadequate pain control, apart from being inhumane, may result in increased morbidity or mortality. **Aims and Objectives:** To Study comparison of efficacy of intrathecal bupivacaine plus midazolam vs bupivacaine alone for postoperatively analgesia in the patients of caesarean delivery. **Methodology:** The present study was carried out during period of January 2009 to September 2009. sixty patients of age group 18-40 years were selected for the presented study. Patients undergoing caesarean section as SA grade I and II and not having fetal distress selected for study. Preoperative evaluation of all patients was done. Group A : (n=30) received Inj.Bupivacaine 0.5% heavy 2 ml (10 mg), Group B : (n=30) received Inj.Bupivacaine 0.5% heavy 2 ml (10 mg) + inj.Midazolam 0.5% , 0.2 ml (1mg). Pain was assessed by duration of analgesia and VAS-score at 1 hr and 3 hr. The statistical analysis was done by Chi -square test, unpaired t-test calculated by SPSS 19 version software. **Results :** In our study we have seen that The mean age in group A and Group B was 23.8 ± 3.47 Yrs. and 24 ± 4 comparable ($t=0.207, p>0.05$). The duration of anesthesia was more in Group B i.e. 88.66 ± 17.75 as compared to 86 ± 16.15 but the difference was not statistically significant ($t=0.608, p>0.05$). The duration of analgesia was more in Group B i.e. 246 ± 39 as compared to 200 ± 21 but the difference was not statistically significant ($t=0.608, p>0.05$). The doses required for analgesia was less in group A i.e. 2.93 ± 0.630 vs in Group B i.e. 2.96 ± 0.490 but the difference was not statistically significant ($t=0.226, p>0.05$). The most of the patients with VAS 2 or 3 were more in Group A as compared to Group B but the difference was not significant ($X^2 = 1.950, p>0.05$). The most of the patients with VAS 6,4, 3 or 2 were more in Group A as compared to Group B but the difference was not significant ($X^2 = 2.70, p>0.05$). **Conclusion :** It can be concluded from our study that addition of the midazolam improved the duration of analgesia, less VAS score but not significantly differed hence for the definite conclusion further studies with large samples are needed.

Key Words: intrathecal bupivacaine, midazolam, VAS (Visual Analogue Scale)

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INTRODUCTION

"Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage. Inadequate pain control, apart from being inhumane, may result in increased morbidity or mortality.^{1,2} It is a major symptom in many medical conditions, and can interfere with a person's quality of life and general functioning. The main purpose of perioperative pain control is providing an adequate comfort level and acceptable side effects for patients. Effective postoperative analgesia improves patients' outcome as observed by early ambulation,

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decrease in side effects, and reduce the incidence of postoperative chronic pain³⁻⁵ Among the local anesthetics, 0.5% hyperbaric bupivacaine is the most commonly used drug for spinal anesthesia.⁶ The most important disadvantage of single injection SAB is the limited duration. Adjuvants have long been used along with local anesthetics to prolong the duration of anesthesia and analgesia. So we have studied whether midazolam used as adjuvant is effective or not in the effective analgesia at tertiary health care centre.

METHODOLOGY

The present study was carried out during period of January 2009 to September 2009. sixty patients of age group 18-40 years were selected for the presented study. Patients undergoing caesarean section as SA grade I and II and not having fetal distress selected for study. Preoperative evaluation of all patients was done. Through general and systemic examination was done to rule out any systemic disease. All patients undergone all routine testing patients having fetal distress were excluded from the study. Group A: (n=30) received Inj.Bupivacaine 0.5% heavy 2 ml (10 mg), Group B: (n=30) received Inj.Bupivacaine 0.5% heavy 2 ml (10 mg) + inj.Midazolam 0.5% , 0.2 ml (1mg) .Pain was accessed by duration of analgesia and VAS-score at 1 hr and 3 hr. The statistical analysis was done by Chi -square test, unpaired t-test calculated by SPSS 19 version software.

RESULTS

Table 1: Distribution of the patients as per the age

Group	Mean age (Years)	S.D	t-value	p-value
A	23.8	3.47	0.207	
B	24	4		p>0.05

The mean age in group A and Group B was 23.8 ± 3.47 Yrs. and 24±4 comparable (t=0.207,p>0.05)

Table 2: Distribution of the patients as per the duration of anesthesia

Group	Mean duration of anesthesia (min)	S.D.	t-value	p-value
A	86	16.15		
B	88.66	17.75	0.608	p>0.05

The duration of anesthesia was more in Group B i.e. 88.66± 17.75 as compared to 86±16.15 but the difference was not statistically significant (t=0.608,p>0.05)

Table 3: Distribution of the patients as per the effective analgesia

Group	Mean duration of analgesia	S.D.	t-value	p-value
A	200	21		
B	246	39	5.606	p>0.05

The duration of analgesia was more in Group B i.e. 246±39 as compared to 200 ±21 but the difference was not statistically significant (t=0.608,p>0.05)

Table 4: Distribution of the patients as per the analgesic doses in 24 hours

Group	No. of analgesic doses in 24 hours	S.D.	t-value	p-value
A	2.96	0.490		
B	2.93	0.630	0.226	p>0.05

The doses required for analgesia was less in group A i.e. 2.93±0.630 vs in Group B i.e. 2.96±0.490 but the difference was not statistically significant (t=0.226,p>0.05)

Table 5: Distribution of the patients as per the VAS score at 1 hour

VAS	Group A	Group B	X ²	p-value
0	23	25		
1	2	3		
2	4	2		
3	1	0	1.950	P>0.05
Total	30	30		

The most of the patients with VAS 2 or 3 were more in Group A as compared to Group B but the difference was not significant (X²=1.950,p>0.05)

Table 5: Distribution of the patients as per the VAS score at 3 hour

VAS	Group A	Group B	X ²	p-value
1	2	4		
2	8	12		
3	12	9		
4	4	3		
6	4	2	2.70	P>0.05
Total	30	30		

The most of the patients with VAS 6,4, 3 or 2 were more in Group A as compared to Group B but the difference was not significant (X²=2.70, p>0.05)

DISCUSSION

Prolongation of pain relief by various adjuvants like opioids (like morphine⁷, fentanyl⁸, ketamine⁹, clonidine¹⁰, and neostigmine¹¹) were investigated by various investigators. However, each drug has its limitations and side effects, and the need for an alternative methods and drugs always exist. Discovery of benzodiazepine receptors in spinal cord in 1977¹² triggered the use of intrathecal midazolam for prolongation of spinal anesthesia. In vitro autoradiography has shown that there is a high density of benzodiazepine (GABAA) receptors in Lamina II of the dorsal horn in the human spinal cord, suggesting a possible role in pain modulation¹³. So far different animal studies have revealed no damage to the spinal cord, nerve roots, or meninges and in vitro studies suggested that clinically useful doses of intrathecal midazolam are unlikely to be

neurotoxic¹⁴⁻¹⁷. In our study we have seen that The mean age in group A and Group B was 23.8 ± 3.47 Yrs. and 24 ± 4 comparable ($t=0.207, p>0.05$). The duration of anesthesia was more in Group B i.e. 88.66 ± 17.75 as compared to 86 ± 16.15 but the difference was not statistically significant ($t=0.608, p>0.05$) The duration of analgesia was more in Group B i.e. 246 ± 39 as compared to 200 ± 21 but the difference was not statistically significant ($t=0.608, p>0.05$). The doses required for analgesia was less in group A i.e. 2.93 ± 0.630 vs in Group B i.e. 2.96 ± 0.490 but the difference was not statistically significant ($t=0.226, p>0.05$) The most of the patients with VAS 2 or 3 were more in Group A as compared to Group B but the difference was not significant ($X^2=1.950, p>0.05$) The most of the patients with VAS 6,4, 3 or 2 were more in Group A as compared to Group B but the difference was not significant ($X^2=2.70, p>0.05$) These findings are similar to Anirban Chattopadhyay they found use of midazolam as adjuvant with the local anesthetic in spinal anaesthesia significantly increases the duration of analgesia (median 320 min versus 220 min) but our results doesn't show the significant results hence needs the more studies with the big sample size for arriving at definite conclusion .

CONCLUSION

It can be concluded from our study that addition of the midazolam improved the duration of analgesia ,less VAS score but not significantly differed hence for the definite conclusion further studies with large samples are needed.

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