

Efficacy of Local Bupivacaine Wound Infiltration during Caesarean Section under Spinal Anaesthesia

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ABSTRACT

Aim: Efficacy of local bupivacaine wound infiltration during caesarean section under spinal anaesthesia.

Methodology: We enrolled a total of 200 cases (100 cases in each group) selected for elective caesarean section under spinal anaesthesia, age range between 18-45 years and ASA I & II, we excluded those cases having known allergy to tramadol or bupivacaine. We used standardized surgical technique of caesarean section. This study was conducted at: Rawalpindi Medical College, Rawalpindi from January to May 2017. Patients were randomized in two equal groups of 100 cases. Group-A cases were given 20 ml of 0.5% bupivacaine infiltrated into peritoneum, subcutaneous tissue and skin under direct vision before closure of abdominal wall incision. In Group-B patients received local wound infiltration. Both groups received intravenous tramadol on demand according to pain score on visual analogue scale for first 24 hours after caesarean section with a usual dose of 400mg/24 hours in 3-4 divided doses. On demand tramadol was given when pain score on VAS \geq 5. Post-operative pain was measured using visual analogue scale at 4, 12 and 24 hours interval after caesarean section and final outcome was measured at 24 hours.

Results: In our study, pain score in Group-A was 1.57 ± 0.81 and in Group-B 2.77 ± 1.08 . Requirement of analgesia in Group-A was 33.14 ± 48.22 and in Group-B 79.00 ± 74.41 .

Conclusion: Local bupivacaine wound infiltration is an effective method of postoperative pain relief and decreases analgesia requirements as compared to placebo after caesarean section.

Keywords: Caesarean section, local bupivacaine wound infiltration, efficacy

INTRODUCTION

The rate of caesarean section is improving worldwide and became a commonest surgical procedure¹. Previous local data shows that 36.96% cases had caesarean section in 2010². Breech presentation, dystocia, placenta previa, previous history of caesarean section and fetal distress are among the commonest indications of caesarean section.² Post-operative pain and its control is a challenging task for obstetricians³. Pain relief after caesarean delivery helps in rapid uncomplicated recovery and also reduces patients' distress⁴. Scarcity exists regarding appropriate method of treatment for controlling post-operative pain.³ Despite significant side effects, opioids analgesics are considered as the mainstay of treatment³. Various side effects including respiratory distress, dizziness, nausea & vomiting, ileus and urinary retention are the known side effects⁵. The use of local anesthetic drugs due to good analgesic properties and reduced side effects are being used commonly for the management of surgical pain.⁵ Local anaesthetic injection into the wound relieves pain by direct inhibition of noxious impulses from the site of injury⁶. Various trials reported that the use of pre-emptive local anaesthetics to relieve postoperative pain with is beneficial⁷. Contrary to this, some of the studies are showing variable results regarding the use of bupivacaine after caesarean delivery, and showing no significant difference between cases and controls. Considering this variability, we planned to evaluate the efficacy of local infiltration of wound with 20 ml of 0.5% bupivacaine after caesarean section on post-operative pain scores and postoperative narcotic requirements, the results may be helpful while recommending its use in our population.

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PATIENTS AND METHODS

We enrolled a total of 200 cases (100 cases in each group) selected for elective caesarean section under spinal anaesthesia, age range between 18-45 years and ASA I & II, we excluded those cases having known allergy to tramadol or bupivacaine. We used standardized surgical technique of caesarean section. Patients were randomized in two equal groups of 100 cases. Group-A cases were given 20 ml of 0.5% bupivacaine infiltrated into peritoneum, subcutaneous tissue and skin under direct vision before closure of abdominal wall incision. In Group-B patients received local wound infiltration. Both groups received intravenous tramadol on demand according to pain score on visual analogue scale for first 24 hours after caesarean section with a usual dose of 400mg/24 hours in 3-4 divided doses. On demand tramadol was given when pain score on VAS \geq 5. Post-operative pain was measured using visual analogue scale at 4, 12 and 24 hours interval after caesarean section and final outcome was measured at 24 hours.

RESULTS

Age distribution of the patients was done which shows that 67(67%) in Group-A and 74(74%) in Group-B were between 18-30 years while 33(33%) 26(26%) in Group-B were between 31-45 years, mean \pm sd was calculated as 28.21 ± 5.11 in Group-A and 29.37 ± 6.74 in Group-B (Table 1)

Comparison of pain score in both groups was recorded which shows 1.57 ± 0.81 in Group-A and 2.77 ± 1.08 in Group-B, p value was calculated as 0.000 (Table 2)

Comparison of requirement of analgesia in both groups reveals that in Group-A 33.14 ± 48.22 and in Group-B 79.00 ± 74.41 , p value was calculated as 0.000 (Table 3)

Table 1: Age distribution (n=200)

Age (in years)	Group-A (n=100)		Group-B (n=100)	
	n	%	n	%
18-30	67	67	74	74
31-45	33	33	26	26
Total	100	100	100	100
Mean±SD	28.21±5.11		29.37±6.74	

Table 2: Comparison of pain score in both groups (n=200)

Mean Pain score	Group-A (n=100)	Group-B (n=100)
	1.5±0.81	2.77±1.08

P value=0.000

Table 3: Comparison of analgesia requirement in both groups (n=200)

Analgesia requirement	Group-A (n=100)	Group-B (n=100)
	33.14±48.22	79.00±74.41

P value=0.000

DISCUSSION

In our study, pain score in Group-A was 1.57 ± 0.81 and in Group-B 2.77 ± 1.08 . Requirement of analgesia in Group-A was 33.14 ± 48.22 and in Group-B 79.00 ± 74.41 . Our findings are in agreement with a study showing mean VAS for pain at 24 hours was 2 ± 1 vs 3.7 ± 1.3 for bupivacaine and distilled water groups respectively,⁵ while amount of tramadol used at 24 hours was 98 ± 26.65 vs 225 ± 46.57 for bupivacaine and control groups respectively,³ these findings showing a significant lower pain score and requirement of post-operative analgesia in patients with administered with local bupivacaine wound infiltration as compared to placebo during caesarean section under spinal anaesthesia.

Another study⁷ assessed the effects of local anaesthetic agent wound infiltration and/or abdominal nerve blocks on pain after caesarean section and well-being of mothers and interaction with her baby, they concluded that infiltration of local anaesthetics and abdominal nerve blocks as adjuncts to regional analgesia and general anaesthesia are beneficial in caesarean sections by reducing opioid consumption.

In contrast, a meta-analysis including 19 trials of pre-incisional compared with post-incisional administration of local anaesthetics is not in favour of pre-incisional infiltrations⁸. The probable reason may be four other studies showing decrease analgesic consumption, reduction in pain, or delay until first analgesic request with pre-incisional analgesic.

The efficacy of local wound infiltration with 20 ml of 0.5% bupivacaine after caesarean delivery on post-

operative pain and requirements of postoperative narcotic was significantly higher which is the basis of recommendation its use locally. However, we conclude that wound infiltration with local bupivacaine is a better choice for postoperative pain relief which reduces analgesia requirement after caesarean delivery.

CONCLUSION

Local bupivacaine wound infiltration is an effective method of postoperative pain relief and decreases analgesia requirements as compared to placebo after caesarean section.

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