

EFFECT OF BUPIVACAINE INFILTRATION ON POSTOPERATIVE PAIN SCORE

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ABSTRACT

Objective: Adequate pain relief is vital for early recovery and mobilization after surgery. The purpose of our study was to compare the two groups after open cholecystectomy in terms of the effect of long acting local anesthetic agent (Bupivacaine) infiltration on postoperative pain score.

Material And Method: This randomized controlled trial was conducted in the surgical units of Khyber Teaching Hospital, Peshawar from 1st January 2014 to 31st December 2014. The study excluded patients in ASA III or above, patients with acute complicated cholecystitis. 0.25% Bupivacaine 2ml/kg body weight was infiltrated into the incision at the time of wound closure in group A. Postoperative pain was assessed by Visual Analogue Scale (VAS). Patients were asked about the intensity of their pain 4 hours, 8hours, 12 and 24 hours after surgery on a Visual Analogue Scale. Total dose and timing of first injection of Tramadol were recorded. Data was entered on a structured proforma and analyzed on SPSS version 20. P value of less than 0.05 was considered significant.

Result: The study included 100 patients. 50 patients in group A (Bupivacaine infiltration group) and 50 in group B (control group). There was statistically significant difference between the two groups in postoperative pain score at 4, 8 and 12 hours after surgery but not at 24 hours. VAS score at 4 hours was 2.3 in group A and 3.6 in group B, at 8 hours 2.5 in group A and 3.9 in group B, at 12 hours 2.2 in group A and 3.8 in group B, at 24 hours 4 in group A and 4.2 in group B. Time to first injection of Tramadol was 10 hours in group A while 4 hours in group B.

Conclusion: Infiltration of Bupivacaine into the incision at the time of wound closure provides effective postoperative analgesia and should be used routinely.

Keywords: Postoperative pain, Cholecystectomy, Bupivacaine, Local anesthetic.

INTRODUCTION

Postoperative pain causes significant morbidity to the patient. Adequate pain relief is vital for early recovery and mobilization after surgery. Adequate pain relief also shortens the hospital stay.¹ Many techniques are available for pain control after surgery. Many authors reported on the use of local anesthetic infiltration into the surgical incision for pain relief.^{1,3} Long acting local anesthetic agent is infiltrated into the incision at the time of wound closure. It acts as an adjunct to the parenteral analgesic agents. Studies have reported that local anesthetic infiltration reduces the dose and need for narcotic analgesic agents after surgery.^{5,6} The purpose of our study was to compare the two groups after open cholecystectomy in terms of the effect of long acting local anesthetic agent (Bupivacaine) infiltration on postoperative pain score.

MATERIAL AND METHODS

This randomized controlled trial was conducted in the surgical units of Khyber Teaching Hospital, Peshawar.

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war from 1st January 2014 to 31st December 2014. Study samples were selected by simple random sampling technique using lottery method. The study included all patients above 18 years undergoing open cholecystectomy. Sample units were selected after taking written informed consent. The study excluded patients in ASA III or above, patients with acute complicated cholecystitis.

Cholecystectomy was carried out through right subcostal incision under general anesthesia by consultants. 0.25% Bupivacaine 2ml/kg body weight was infiltrated into the incision at the time of wound closure in group A.

Postoperative pain was assessed by Visual Analogue Scale (VAS). Patients were asked about the intensity of their pain 4 hours, 8hours, 12 hours and 24 hours after surgery on a Visual Analogue Scale. The VAS consists of a 100-mm horizontal line marked at one end with the words "no pain" and at the other end with the words "worst pain imaginable." The researcher asked the patients to mark the line at the point that best represent the intensity of their pain. The VAS numeric value was the distance in millimeters from "no pain" to the point marked by the patient. Tramadol intravenous injection was administered to those with VAS score of 5 and above. Total dose and timing of first injection of Tramadol were recorded.

All the data was entered on a structured proforma. Data was analyzed by SPSS version 20. Mean, standard deviation were used for continuous data while frequency

and proportions for categorical or dichotomous data. Tests of significance included independent sample T test for continuous or discrete data and Chi-square test for categorical or dichotomous data. 95% confidence interval was used. P value of less than 0.05 was considered significant.

RESULT

The study included 100 patients. 50 patients were in group A (local Bupivacaine infiltration group) and 50 in group B (control group). There was no statistically significant difference in patient demographics between the two groups.

There was statistically significant difference between the two groups in postoperative pain score at 8 and 12 hours after surgery but not at 24 hours. VAS score at 4 hours was 2.3 in group A and 3.6 in group B (p value <0.05), at 8 hours 2.5 in group A and 3.9 in group B (p value <0.05), at 12 hours 2.2 in group A and 3.8 in group B (p value <0.05), at 24 hours 4 in group A and 4.2 in group B (p value >0.05). Detail in Table 1.

Time to first injection of Tramadol was 10 hours in group A while 4 hours in group B (p value <0.05). Mean mobilization time was 8 hours in group A and 14 hours in group B (p value <0.05). There was no difference between the two groups in terms of hospital stay. Mean duration of hospital stay was 3 days.

Table I: Postoperative Pain Score.

| VAS■ | Group A* | Group B* | P value |
|----------|----------|----------|---------|
| 4 Hours | 2.3 | 3.6 | <0.05 |
| 8 Hours | 2.5 | 3.9 | <0.05 |
| 12 Hours | 2.2 | 3.8 | <0.05 |
| 24 Hours | 4 | 4.2 | >0.05 |

■ Visual Analogue Scale

* Group A= Local Bupivacaine Infiltration Group

* Group B= Control Group

DISCUSSION

Postoperative pain is a source of significant morbidity after surgery. Many techniques are available for pain control. Patient controlled analgesia with narcotic analgesics is preferred by majority.^{3,4} Unfortunately, patient controlled analgesia is not widely available in our setup. Many authors have reported the benefit of infiltration of surgical incision with local long acting anesthetic agent Bupivacaine. Bupivacaine has quick onset and long duration of action; it reduces the dose requirement for narcotic analgesics after surgery. Local Bupivacaine infiltration also prolongs the duration before the first injection of narcotic analgesic agent.⁷⁻⁹ Less nausea and vomiting occur in local anesthetic group compared to those receiving narcotic analgesics.

Many authors have reported the benefit of local bupivacaine infiltration in reducing postoperative pain score.^{3,4,5} In our study postoperative pain score was less at 8 and 12 hours in bupivacaine group compared to control group (p <0.05) this is consistent with other

studies.¹⁻⁵ Local Bupivacaine infiltration also allows early mobilization after surgery. In our study, mean mobilization time after surgery was 8 hours in group A and 14 hours in group B. This is comparable with other studies.^{2,3,7-11} In short, infiltration of long acting local anesthetic into the incision is associated with reduced postoperative pain score, less narcotic analgesic requirement and hence reduced narcotic analgesic related postoperative side effects.

CONCLUSION

Infiltration of Bupivacaine into the incision provides effective postoperative analgesia and should be used routinely.

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