Effect of using regional anaesthesia (Tap) block as a method of analgesia in cesarean section in Iraqi female patients: A postoperative study

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Abstract

Background: Effective and good pain management is important part during perioperative period of any surgery. Pain control is important because it is associated with lower level of outcomes and recovery such as delayed functions, poor breast feeding, more risk for postpartum depression with persisting pain. The aim of current study was to use regional anaesthesia under ultrasound guide as a way to decrease the need for more analgesia in postoperative period. Methods: Seventy patients selected for elective Cesarean Section under general anaesthesia prepared for the study at the time before end of effect of anaesthetic drugs. The patients were divided into two groups; ultrasound-guided TAP block (group A) which was done with 20mL lidocaine 1% on each side and the other group (group B) which had been given paracetamol 15mg|kg and diclofenac 75mg intravenously. Numeric rating scale was used to assess pain. Paracetamol was used if the score more than 3 and diclofenac was added when the score more than 6. Patients were monitored for numeric rating scale and whole analgesia utilized for the early 24 hour post-operatively. Results: Regional block with lidocaine decreased pain scores at 0, 2, 4, 6,12 and 24 hours. Also there was a difference in the scores at 0, 2, 4, 6,12 and 24 hours between the two groups. The duration of analgesia in TAP block with lidocaine lasted to about 20-24h. The whole analgesics utilization was also reduced in group A than group B. No complication was seen to TAP block in both the groups. Conclusion: Regional anaesthesia is good to do for patients undergoing surgery to lessen analgesic requirements especially in the early period post-operative with prolonged pain-free time and no extra need for injectable analgesia. Also, it provides better pain scores with less complications following Cesarean Section surgery.

Keywords: Cesarean Section, numeric pain score, analgesia, lidocaine, ultrasound guide TAP block.

Introduction

Effective and good pain management is important part during perioperative period of any surgery. Pain control is important because it is associated with lower level of outcomes and recovery such as delayed functions, poor breast feeding, more risk for postpartum depression with persisting pain (1). TAP block is an abdominal wall block that provides somatic coverage from T6 to L1 but most typically from T10 to L1 (2).

The way for transversus abdominis plane (TAP) block is applied through infiltration of a local anesthetic into a neurofascial plane between internal oblique (IO) and transversus abdominis (TA) muscles which will lead the local anaesthetic drug to spread between the T10 and L1 dermatomes. Thus, the TAP block is chosen for lower abdominal surgery and post-operative analgesia after lower segment Caesarean Section.

The TAP block has developed from a landmark-guided technique (blind) to ultrasound-guided technique. The continuous assessment of drug injection between IO and TA muscles ensures distribution of the local anesthetic to the nerves lying underneath the fascia of TA muscle.

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The use of analgesia (TAP block) had been practiced after many surgical procedures such as open appendectomy (3), hernia repair (4), laparoscopic cholecystectomy (5, 6), and Cesarean Section (7).

In this study, we applied the numeric rating scale for assessment and reassessment of pain, and we measured total analgesia utilized following TAP block in Cesarean delivery.

The aim of this study was to evaluate the effectiveness of regional anaesthesia through TAP block in decreasing pain and providing better outcomes on mothers after Cesarean delivery.

Materials and Methods

All patients undergoing elective Cesarean Section under general anaesthesia were enlisted into the study. Age group of participants was 18–38 years and their weights were between 75 and 83 Kg. Patients with skin infection at site of injections or allergy to drugs in question were excluded. All patients were prepared and continuously monitored during surgery and in the postoperative period.

During surgery and following closing the wound in supine position before awakening the patient from anaesthesia, the ultrasound probe was placed in a transverse plane between the lower costal margin and the iliac crest in the midaxillary line, the needle is advanced using in-plane technique. After ensuring proper position, local anaesthetic lidocaine 1% in a 20mL syringe (bilateral) each side is deposited with intermittent aspiration to ensure it was in correct site and no blood comes in the syringe. Then we waited for awakening the patient after end of surgery with close monitoring to each patient to evaluate the effect of used block.

Pain assessments were done for all patients at rest and with coughing at 0, 2, 4, 6, 12 and 24 hours following surgery. To assess pain, numeric rating scale was used. Patients scored to mark a point on the 10-point scale according to the intensity of pain (the numeric pain scale is a method used to determined exact level of pain that patient feels starting from zero, which means no pain, till ten which is the worst level of pain). Scores of 1, 2 and 3 mean mild pain, of 4, 5 mean moderate and scores of 7, 8, 9 and 10 mean sever level of pain. Patients were given intravenous paracetamol if the score was more than 3 maximally four times per day at 6-hour intervals. At any time, if pain relief was not enough (score more than 6), diclofenac was given in a dose of 75mg intravenously.

Results

Seventy patients were included in this study and divided into 2 groups; Group A received TAP block and Group B received intravenous analgesia. Criteria were included for all patients as in Table (1). Results of current study showed that that most of patients in group A, in immediate post operative period, were calm with VAS between 2 and 4, some had 6 score while patients in group B had pain with moderate to severe intensity as they explained so their scores were all above 6 (Table 2).

The patients in group A who had given regional anaesthesia became better after operation, sleeping, calm, early starting breast feeding, only 4 of them needed diclofenac 75mg injection after awaking from anaesthesia and then no more need for any analgesia for 22 hours. The other 6 patients had score 4 and were given only single dose paracetamol injection post operatively.

Patients in group B needed more analgesia as all had score between 6 and 10. All were given diclofenac 75mg intravenously immediately after full awaking post operation with another dose after 6 hours and paracetamol at 12- and 24-hour intervals. So, more need for analgesia in this group.
Table 1: Criteria of patients included in current study

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Value</th>
</tr>
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<tbody>
<tr>
<td>Primigravida</td>
<td>30</td>
</tr>
<tr>
<td>Multipara</td>
<td>40</td>
</tr>
<tr>
<td>Blood pressure (mmHg)</td>
<td>Between 120-80 to 115-70</td>
</tr>
<tr>
<td>Oxygen saturation (%)</td>
<td>Above 96</td>
</tr>
<tr>
<td>Heart rate</td>
<td>Between 72-85 per minute</td>
</tr>
<tr>
<td>Age (year)</td>
<td>Between 18-38 years</td>
</tr>
<tr>
<td>Associated diseases</td>
<td>Nill</td>
</tr>
</tbody>
</table>

Table 2: Numeric rating score in groups A and B patients

<table>
<thead>
<tr>
<th>Group</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td></td>
</tr>
<tr>
<td>(25 patients)</td>
<td>2</td>
</tr>
<tr>
<td>6 patients</td>
<td>4</td>
</tr>
<tr>
<td>4 patients</td>
<td>6</td>
</tr>
<tr>
<td>B</td>
<td></td>
</tr>
<tr>
<td>(22 patients)</td>
<td>6</td>
</tr>
<tr>
<td>7 patients</td>
<td>8</td>
</tr>
<tr>
<td>6 patients</td>
<td>10</td>
</tr>
</tbody>
</table>

Discussion

Our goal was to make patients more comfortable and pleased immediately after awaking from general anaesthesia. So, we were trying to find the best way to reach this satisfaction. The good postoperative period which means free of pain or at least tolerable level for each patient in order to minimize suffering, enhance early mobilization and discharge to home.

We depended on two plans, for Group A, pain control through regional anaesthesia by applying TAP block which had become popular in the last years after \(^8\) who initially described it in 2001 by using the traditional anatomical landmarks (higher incidence of failure rate), but recently the TAP block is done by using ultrasound to increase success rate (in the iliolumbar triangle of Petit) \(^9\).

We selected TAP block because it is easy, simple, safe and effective analgesic technique, appropriate for surgical procedures where parietal peritoneum is a significant component of postoperative pain.

In this study, the duration of postoperative analgesia with TAP block lasted for about 22-24 hours and there was a significant decrease for need of other analgesics. The benefit of TAP block was also in lowering pain score in group A more than in group B. The other plan based on need of patients by giving Paracetamol (when the score was more than 3). The most important finding was that there was significant reduction in utilizations of other analgesics. This finding was similar to that of \(^10\) who mentioned that duration of postoperative analgesia to be 290 minutes following TAP block with bupivacaine which was less than the time we had reached with our patients but they also
mentioned that four patients did not receive any rescue analgesia for 24 hours which was similar to our study in increasing pain-free time.

Also, (11) had reached similar results of our study as evaluated analgesic efficacy of TAP block after abdominal surgery and TAP block reduced VAS pain scores for up to 24 hours and not beyond that (they had used other type for pain estimations) and their patients underwent TAP block had reduced tramadol requirement for up to 48 hours (prolonged time more than our patients in time free of analgesia). These findings supported our study.

We did not record any complications in our patients. Most of other studies had also reported no complications with TAP block.

**Conclusion**

Depending regional anaesthesia via TAP block, there was significant reduction in the numeric rating scale of pain and analgesic needs for up to 24 hours without any complications. Also, the ultrasound has made the block easier, safer to done with a higher success rate. TAP block can safely be used as part of the multimodal pain regime for abdominal surgeries.

**Ethical Clearance**

The Research Ethical Committee at scientific research by ethical approval of both environmental and health and higher education and scientific research ministries in Iraq

**Conflict of Interest**

The authors declare that they have no conflict of interest

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**References**


