

Outcome of tap block in the cesarean section on postoperative pain

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Abstract: This paper focuses on the Outcome of tap block in the cesarean section on postoperative pain where 100 patients from different hospitals in Iraq were included and distributed into two groups, 50 patients, which included pregnant women who underwent tap block, 50 control groups, which included pregnant women who underwent other types of anaesthesia for caesarean section.

In this study, the ages of the patients ranged from 28 to 43 years, and preliminary information was collected regarding age, weight, comorbidities, and the amount of morphine. In this study, pregnant women who underwent a caesarean section between August 2020 to October 2021 were included, and the data were analysed statistically by using IBM soft SPSS program and Microsoft Excel 2016

the results which found in this study were the incidence of pain in the immediate postoperative period was for 25 patients in the control group (95% CI: 90.9 - 94.2) and ten patients in the tap block group. The average reported pain intensity score was 4.5 ± 0.2 , and the pain intensity score was 4.5 ± 0.2 . The weakest is 0.5 ± 0.12 . As for complications after caesarean section, the frequency of complications was found in the control group more than in the tap block patients' group, with a statistical significance found.

Keyword: Caesarean Section, Anaesthesia, Postoperative, Pain, Tap Block.

Introduction

The transversus abdominis plane (TAP) is an anatomical space between the internal oblique muscle and the transverse muscle that runs the entire length of the abdominal wall to terminate at the aponeurosis of the rectus muscles. The TAP block is a newer technology that is rapidly expanding in postoperative local anesthesia and analgesia

Postoperative pain is often of the nociceptive type, that is comes from injury to tissues or organs whose nociceptive stimuli are perceived as painful. When there is direct nerve injury, or even stretching, or compression, there may also be neuropathic pain. [1,2] Even though the occurrence of postoperative pain is a physiological event, inadequate relief from this experience can mean greater risks to people's health. Adverse effects include neuroendocrine alterations involving the pituitary and adrenal responses, which can

cause negative repercussions in various body systems, such as the cardiovascular, respiratory, and digestive systems, as well as effects on the central nervous system. Severe pain after surgery is also a predictive factor for the chronicity of this experience. [3,4,5]

Reliance was made on the Visual Analogue Scale (VAS), a measure of 'psychological response' used in the questionnaires. The Visual Analog Scale is a measuring tool for personality traits or behaviors that cannot be measured directly. When answering an item on the scale, respondents indicate their level of agreement with a statement by stating their position via a solid line between two points. This continuous or "analog" aspect of the scale distinguishes it from discrete scales such as the Likert scale. There is evidence showing that visual analog scales have higher parametric properties than discrete measurements, and thus a wide range of statistical methods can be applied to these measurements. [6,7]

Additional harms for women who undergo caesarean section include an impaired ability to care for their infant, breastfeed effectively, and interact with the newborn in the puerperium. In addition, the researchers point out that caesarean section represents the leading cause of chronic pain in women. [8]

Some estimates put the incidence of pain in the immediate postoperative period for cesarean delivery at 77.4%, 100%, 12, and severe 13. Women's perception of the quality of this pain has not been well investigated; However, there is evidence that the words most used to describe it belong to the sensorimotor discriminatory dimension of the traumatic experience. [9]

Transverse abdominal level block (TAP) was first described as an abdominal wall block based on anatomical references and consisted of the administration of a local anesthetic (LA) in TAP, and its use has since become common in abdominal surgery, although its use has not been fully integrated into a clinical practice routine. The advent of ultrasound technology has made it possible to reduce the risk of block failure, which is unacceptably high using the anatomical reference technique, as well as reduce the potential complications associated with this technique [11,12,13]

In view of the increasing incidence of cesarean delivery identified worldwide and the need to expand knowledge about the incidence and characteristics of this experience in the immediate postoperative period,[14] this study was developed with the aim of estimating the incidence, severity, and quality of pain. Postoperative period in women who have undergone cesarean section. The aim of this study is to gain knowledge of the outcome of tap block in the cesarean section on postoperative pain.

Material and Method

One hundred patients from different hospitals in Iraq were included and distributed into two groups, 50 patients, which included pregnant women who underwent tap block, and 50 control groups, which included pregnant women who underwent other types of anesthesia for caesarean section.

In this study, the ages of the patients ranged from 28 to 43 years, and preliminary information was collected regarding age, weight, comorbidities, and the amount of morphine. In this study, pregnant women who underwent a caesarean section between August 2020 to October 2021 were included.

Postoperative analgesia was performed with an IV morphine bolus using a patient-controlled analgesia regimen. Pain was studied according to a visual analog scale at 12 and 24 h at rest and in motion, the time the first analgesic bolus was administered, and the number of doses at 24 h. Adverse effects such as nausea/vomiting, drowsiness, and pruritus were also evaluated. The degree of patient satisfaction was asked. Inclusion criteria: We will recruit women undergoing a scheduled caesarean section, age exclusion criteria below 25 years, and patients with potentially fatal comorbidities.

In this study, the Visual Analog Scale (VAS) was relied upon, which is a "psychometric response" measure used in questionnaires. The Visual Analog Scale is a measuring tool for personal characteristics or behaviors that cannot be measured directly. When answering an item on the scale, respondents indicate their level of agreement with a statement by stating their position via a solid line between two points. This continuous or "analog" aspect of the scale distinguishes it from discrete scales such as the Likert scale. There is evidence showing that visual analogue measures have superior parametric properties over discrete measures, and therefore a wider range of statistical methods can be applied to these measurements.

The data was analyzed statistically by using IBM soft SPSS program and Microsoft Excel 2016, where the numerical variables were represented (mean, SD), and the type of statistical relationships were found in this study through p-value < 0.05.

Results

Table 1- Demographic results of patients.

Items	Patient, N= 50	Control, N= 50	P-value
Age	34 ± 5.1	33 ± 2.6	0.5
Weight, (Kg)	66 ± 4	65 ± 4.4	0.52
ASA			
I/II	32 (64%)	34 (68%)	0.047
III/IV	18 (36%)	16 (32%)	0.045
Comorbidities			
Cardiac diseases	9 (18%)	8 (16%)	0.0472
Respiratory diseases	12 (24%)	13 (26%)	0.0471
Renal pathologies	16 (32%)	15 (30%)	0.0471
Hepatic dysfunction	6 (12%)	7 (14%)	0.0473
Anemia	7 (14%)	7 (14%)	0.05
Smoking			
Yes	12 (24%)	14 (28%)	0.0454
No	38 (76%)	36 (72%)	0.0432
Economic level			
Low	7 (14%)	13 (26%)	0.0344
Middle	32 (64%)	20 (40%)	0.0267
High	11 (22%)	17 (34%)	0.0352

Figure 1- Determine the time of surgery for patients who underwent TAP Block.

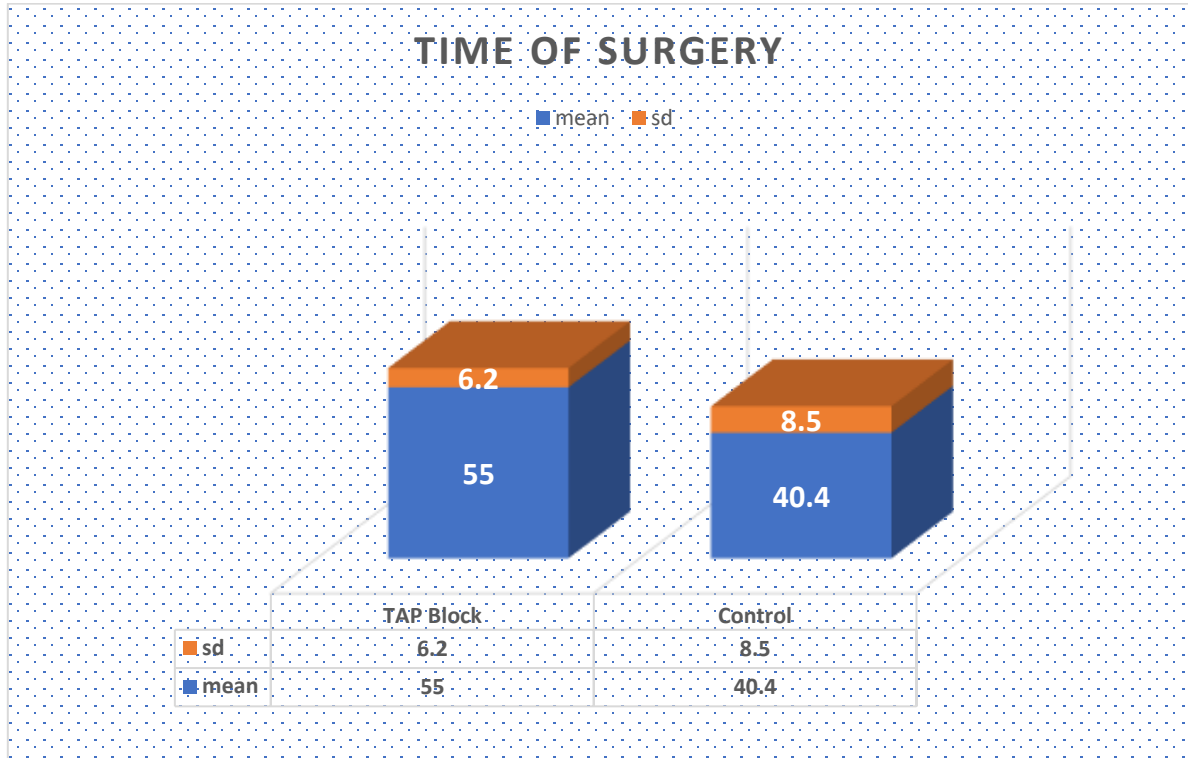


Figure 2- Morphine implementation during the first 24 postoperative hours.

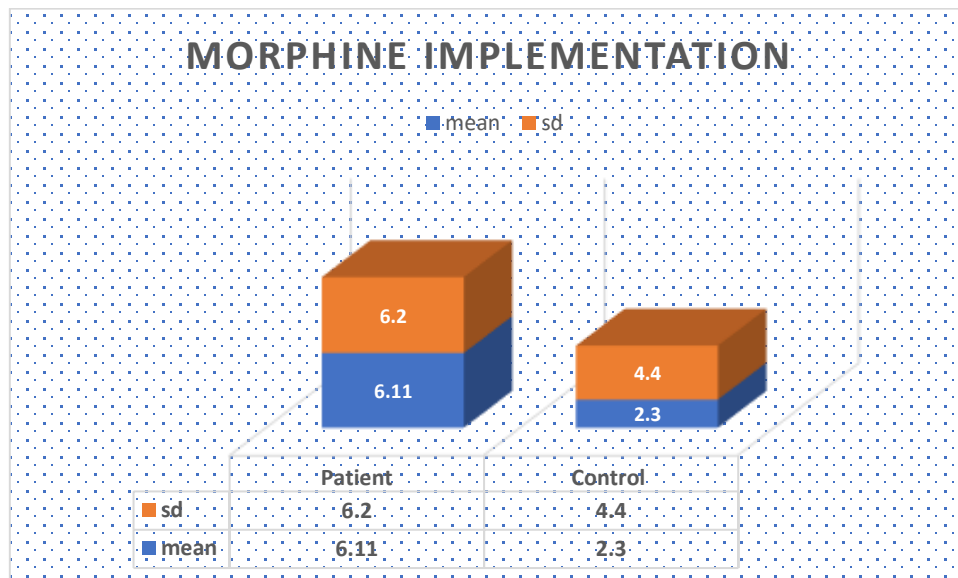


Figure 3- Diclofenac (mg) implementation in 24 h.

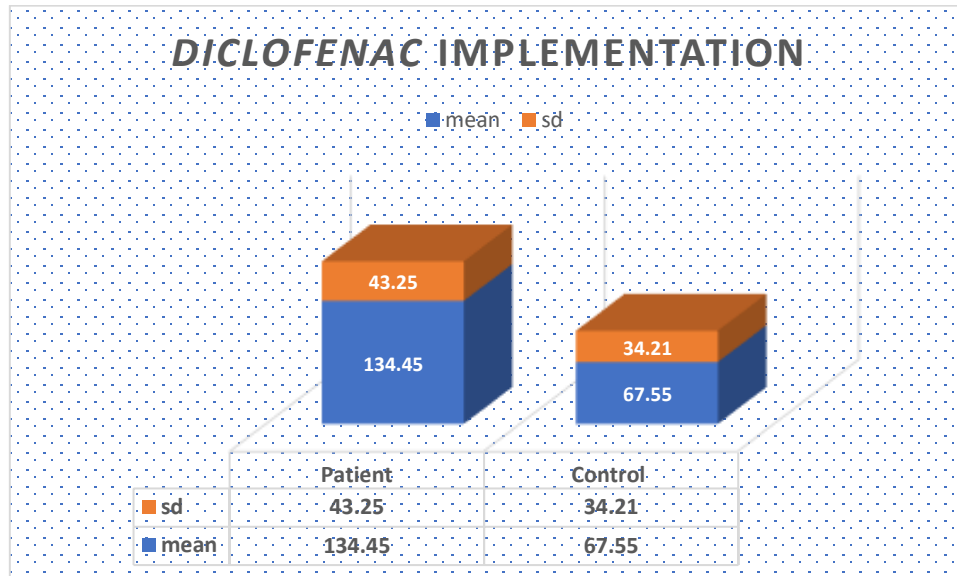


Table 2- Evaluation of pain scores for patients who underwent caesarean section according to VAS.

Variables	TAP Block	Control	P-value
After 2 hours	1.1±0.23	4.5±0.2	0.032
After 4 hours	1.2±0.3	2.5±0.38	0.025
After 6 hours	0.5±0.12	1.55±0.4	0.033
After 24 hours	0.6±0.11	1.1±0.45	0.041

Table 3- Complications related to caesarean section.

Complications	TAP Block (N=50)	Control (50%)	P-value
Blood loss	3 (6%)	4 (8%)	0.0472
Endometritis	2 (4%)	6 (12%)	0.032
Blood clots	3 (6%)	5 (10%)	0.034
Surgical injury	2 (4%)	5 (10%)	0.025

Table 4- Visual pain scores during a deep breath in each group over the first 24 postoperative hours.

Visual pain scores	TAP Block (N=50)	Control (50%)	P-value
2 hr	1.64±0.43	4.1 ± 0.3	0.022
4 hr	1.5 ± 0.5	2.5 ± 0.5	0.027
6 hr	1.2 ± 0.6	1.23 ± 0.23	0.036
24 hr	1.1 ± 0.3	2.3 ± 0.7	0.039

Discussion

In this study, 100 patients were collected and divided into two groups, 50 patients and 50 controls. The aim of this study was to find out the Outcome of tap block in the cesarean section on postoperative pain.

The study revealed that the patient group included pregnant women who underwent tap block by caesarean section. Through the statistical analysis, the ages of the patients ranged from 28 to 43 years. The rate of weight to pregnant women in the patient group was greater than that of the control group, and the presence of comorbidities was revealed and the most frequent was Renal pathologies, as shown in Table 1.

Table 2 illustrates the Evaluation of pain scores for patients who underwent caesarean section according to VAS, where it was found that pain increased in the control group at all levels compared to the group of patients for pregnant women who underwent tap block Where the pain was estimated for the two groups over a period of 24 hours, and it was noted that the most periods that the pregnant woman suffers from was after two hours, and it was noted that the pain decreased with the increase of the time period, and a statistically significant relationship was found between the control group and the pain intensity estimate after two hours with a P-value 0.032.

A meta-analysis published in PubMed in 2010 (7) concluded that the TAP block reduced pain at rest and when moving in the first 24 hours after abdominal surgery. We included seven randomized controlled trials involving different abdominal surgical procedures, of which 3 were cesarean sections. In all, there were 364 participants, in which the TAP group of 180 received the block compared to the control group that did not receive any intervention. A meta-analysis shows a significant reduction of 22 mg [95% CI: -31 to 13 mg] in 24-hour morphine consumption in the TAP group compared to the control group. [15,16,17]

Meta-analysis shows a significant reduction of 22 mg [95% CI: -31 to '13 mg] in morphine consumption within 24 hours. Subgroup analysis shows a greater saving of morphine in patients with TAP block based on surface references compared to those directed by ultrasound. [18,19]

The TAP block reduced the degree of pain at rest and during movement in the first 24 hours without providing data on the magnitude of this decrease. Only a few studies measure the effect of the block on the incidence of side effects (nausea/vomiting and sedation), with sparse results. [20]

Conclusion

It can be concluded that the transverse abdominal block analgesia technique after cesarean delivery versus no intervention is effective in reducing postoperative pain in women, both at rest and during movement, within the first 24 hours. In addition, its use reduces the amount of analgesics required in the postoperative period and prolongs the time for the first application. It is also a technique with few complications and is well accepted by women, so it is recommended to use it in cases where there are no contraindications.

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