INTERNATIONAL JOURNAL OF CURRENT MEDICAL AND PHARMACEUTICAL RESEARCH
ISSN: 2395-6429, Impact Factor: 4.656
Available Online at www.journalcmpr.com
Volume 8; Issue 04(A); April 2022; Page No.177-184
DOI: http://dx.doi.org/10.24327/23956429.ijcmpr20220040

Research Article

TO STUDY EFFICACY OF TRANSVERSUS ABDOMINIS PLANE BLOCK FOR POST CESAREAN DELIVERY ANALGESIA-A RANDOMISED CONTROLLED DOUBLE BLINDED TRIAL

Yasha Tiwari and Prashant Kumar Paikra

Department of Anaesthesiology, CIMS, Bilaspur (C.G)

ARTICLE INFO

Article History:
Received 13th January, 2022
Received in revised form 11th February, 2022
Accepted 8th March, 2022
Published online 28th April, 2022

Key words:
Transversus abdominis plane block, post caesarean analgesia, Bupivacaine

ABSTRACT

Primary Objectives
To study efficacy of TAP block for post cesarean delivery analgesia in terms of
1. Postoperative pain severity and level of sedation.
2. Analgesia need and improve patient satisfaction.

Secondary Objectives
1. To assess post-operative nausea &vomiting(PONV).
2. Comparison with available data.

Materials and Methods: Total 68 parturients undergoing cesarean section were randomized to 2 groups after approval of institutional ethical committee and with written informed consent to receive either bilateral TAP block at the end of surgery in group Swith 15 ml of 0.25% bupivacaine or no TAP block in group C, in addition to standard analgesic75 mg diclofenac 8 hourly. Assessment at ward at 0,4,8,12,24 hr for pain(VAS score),PONV and sedation was done. Additional use of rescue analgesic tramadol was noted. Difference between the two means was tested using student t test & p value <0.05 was considered significant.

Results: Demographic profile did not vary significantly in both groups.The VAS scores at 24hrs was 5.24 ± 0.92 at 24 hrs in S group vs 5.76 ± 0.74 in group C and vary significantly lower in the study group when compared to the control group at all time intervals (p<0.05).Time to first rescueanalgesic (7.15hrs vs 9.29hrs) and PONV at 8hrs (0.53 vs0.18) and 12hrs (0.12 vs 0) vary.Total requirement of rescue analgesic was also significantly reduced in the study group.

Conclusion: TAP block was effective in providing analgesia with reduction in tramadol use during 24hrs after cesarean section when used as adjunctive to standard analgesia.

INTRODUCTION

Pain after cesarean section is usually described as moderate to severe by most patients and failure to adequately treat may affect mother-baby bonding, care of baby, and breastfeeding[1].

Effective pain control is an important aspect of recovery for women after caesarean delivery. There are two components of cesarean section pain due to abdominal wall incision and visceral that arises from the uterus.

The usual trend is to prescribe an opioid or a NSAID at a fixed interval to all patients as components of multimodal analgesia in the postoperative period.

However, opioids, whether given via the spinal or systemic route, are frequently associated with adverse effects such as nausea, pruritus, sedation, and occasionally respiratory depression[2]. NSAIDS also have side effects like decreased hemostasis, renal dysfunction, gastrointestinal hemorrhage and deleterious effects on bone healing.

There is also the common occurrence of delayed administration of analgesic during which time patients suffer pain. Due to this irregularity in dosage, fluctuating blood levels of the drug occur because of which patient experiences no analgesia sometimes and more side effects at other times.

Analgesia can be produced by intercepting pain pathway from peripheral to higher cns centres. Drugs acting peripherally as in regional analgesic technique have minimum deranging effects on other body functions.

Regional analgesic techniques with local anesthetics have gained widespread popularity for providing postoperative analgesia. The major advantage being less side effects like gastric irritation, nausea, vomiting, respiratory depression from routine analgesics and also decreased requirement of NSAIDS.

Transversus Abdominis Plane Block (TAPB)

Transversus abdominis plane (TAP) block was firstdescribed by Rafi[3] and works by blocking the thoracolumbar nerves (T6–L1) which supply sensory fibers to the anterior abdominal wall. It has been used to provide analgesia for various surgical

Corresponding author:* **Yasha Tiwari
Department of Anaesthesiology, CIMS, Bilaspur (C.G)

procedures. Local anesthetic infiltration into the surgical site relieves pain at the incision site and is used widely as part of multimodal analgesia regimens.[4]It allows sensory blockade of nerves plexus supplying lower abdominal wall skin and muscle via local anesthetic deposition above transversus abdominis muscle(TAM).

TAPB can be performed through lumbar triangle of petit, this triangle is formed by external oblique muscle anteriorly, lattismus dorsi muscle poateriorly, iliac crest inferiorly. Petit's triangle can usually be identified as a defect of 1cm above the iliac crest in midaxillary line[4].

We planned to assess the efficacy of Transversus Abdominis Plane Block for post cesarean delivery analgesia with 15 ml of 0.25% bupivacaine bilaterally in comparison with plain subarachnoid block (SAB).

MATERIALS AND METHODS

The study was initiated after approval of institutional ethical committee & written informed consent obtained from all patients. Study was carried out in department of anesthesia at our institute from November 2016 to September 2018.The study population consisted of sixty eight parturients who were classified as American Society of Anesthesiologists (ASA) physical status I or II, undergoing elective or emergency caesarean section under spinal anesthesia.

Inclusion criteria

1. Pregnant women aged between 20-35 years.
2. ASA status 1 or 2.
3. 3. Patient undergoing elective or emergency caesarean section under spinal anesthesia.

Exclusion criteria

1. Patient refusal.
2. Patient with Hb level <9 gm %, relevant drug allergy.
3. Patient with intraoperative events like hypotension and excessive blood loss.
4. Patient with any contraindication to spinal anaesthesia..
5. Infection at injection(block) site
6. Clotting abnormalities
7. Psychiatric disorders

Intervention Allocation

The patients were divided into 2 groups-

GROUP S (Study group)-patients receiving bilateral TAP Block(15ml of 0.25% bupivacaine on each side)

GROUP C (Control group)- patients receiving bilateral TAP Block(15ml of saline on each side)

Preoperative Assessment and Patient Preparation

1. Name, Age, Height, weight and diagnosis of the patient were noted.
2. Careful pre anaesthetic check-up was carried out in all patients with detailed clinical history, thorough clinical examination-both general and systemic with vital parameters, particular attention being paid to evidence of gross renal and liver disease, coagulation disorders, history of sensitivity to bupivacaine. Airway assessment and spine examination were done
3. Inspection at the site of block, that is over the lumbar triangle of Petit for evidence of infection
4. Investigations like Complete Blood Count, blood group, bleeding time and clotting time were noted in all patients.
5. Xylocaine sensitivity tests of all patients was done.

Inclusion and exclusion criteria were taken into consideration and patients fulfilling the criteria were considered to participate in this study. A written informed consent was taken. Preparation of patients included overnight fasting for 8-10hrs for elective, and aspiration prophylaxis(ranitidine 50mg,ondensetron 4mg and metoclopramide 10mg) was given for emergency caesarean section.

In the operation theatre after intravenous insertion of 20-G cannula in the operating room,a wedge was placed under right buttock for displacing uterus to left side, before induction of SAB, all patients were preloaded with Ringer lactate solution 10ml/kg over 15 minutes.

Monitoring

Monitoring included three lead ECG in Standard lead II, automated non invasive Blood pressure, Respiratory rate, Pulse oximetry for peripheral oxygen saturation (SpO2), The base line Heart rates, systolic, diastolic and mean Blood pressure, SpO2 respiratory rate, were recorded.

Subarachnoid Block was administered with hyperbaric bupivacaine 10-12mg at L2-L3 space. All the parameters like pulse rate, systolic blood pressure, diastolic blood pressure, mean arterial pressure SPO2 were recorded till 20 minutes.

Postperatively, bilateral TAP block was administered to all the patients. Baseline VAS scores were noted. Patients were monitored in wards for VAS scores at 0 hr, 4 hr, 8 hr, 12 hr and24hr,1st rescue analgesic requirement, total analgesic requirement in 24 hr period, postoperative nausea vomiting, sedation score and side effects.

Procedure of the Block

At the end of caesarean section, under all aseptic precautions with the patient in the supine position, the iliac crest was palpated from anterior to posterior until latissimus dorsi muscle insertion was felt. Triangle of Petit was located (anteriorly bounded by external oblique and posteriorly by latissimus dorsi muscle and inferiorly by iliac crest).

A 22 gauge 5 cm long regional anesthesia needle was inserted in the triangle of Petit identified just as a defect 1cm above the iliac crest in midaxillary line. The needle was advanced gently in the same direction until "pop" sensation or give way were felt, which signals entry into facial plane between external and internal oblique muscles. Further advancement results in 2nd "pop" and this indicated entry into TAP.TAP block after careful negative aspiration 15ml of 0.25% bupivacaine in group S bilaterally was slowly injected in 5 ml increments with check aspiration to rule out intravascular placement and in group C same procedure was followed with 15 ml normal saline on each side. A.

Patients were monitored for vitals for half an hour with baseline (0 hr) VAS scores noted. There after patients were transferred to ward and routine analgesia with diclofenac IV 75 mg tds and assessment at ward was done.

Assessment of Analgesia

Pain was assessed by visual analogue scale (VAS)

- 1st analgesic requirement was defined as when VAS score was more than 4.
- Total number of analgesic requirement in the 24 hr time period was recorded.

Analgesia was given by injection of diclofenac 75mg iv three times a day Tramadol injection 100mg iv was given as rescue analgesic. Total rescue doses of analgesia in 24 hour time period was recorded. The time of TAP block administration was considered as time 0.

Visual analogue scale

1. absolutely no pain
2. negligible pain
3. very very minimal pain
4. very minimal pain
5. minimal pain
6. pain requiring relief
7. pain with little distress
8. severe pain 0-3-mild pain
9. very severe pain 4-7-moderate pain
10. very very severe pain >7-severe pain
11. unimaginable pain

VAS >4 – 100 mg iv tramadol as rescue analgesia on patient request was given.

Adverse effects

- Occurence of nausea and vomiting
- Sedation
- Needle trauma to visceral organs like liver
- Neural ischaemia
- Intraperitoneal injection
- Infection and bowel hematoma
- Poor failed block

Statistical Analysis

Study design

This was a prospective, randomized, and double blinded clinical comparative study to study efficacy of TAP block for post cesarean delivery analgesia in cesarean patients.

Sample Size – 68

34 in each group

The effect size was estimated using the expression

$$N = \frac{(Z_{2alpha} + Z_{beta})^2 \times (P1\,(1-P1) + P2\,(1-P2))}{(P1-P2)^2}$$

Where,
P1-Proportion 1-19%
P2-Proportion 2-68%
Alpha- 0.05
Beta- 0.95

To compensate any kind of failure, we increased the smoke size to 34 in each group which can provide significant difference in the parameters of interest.

Statistical analysis

The data was collected, compiled and analysed using EPI info (version 7.2). The qualitative variables were expressed in terms of percentages. The quantitative variables were both categorised and expressed in terms of percentages or in terms of mean and standard deviations. Difference between two proportions was analysed using chi square or fisher exact test. Difference between the two means was tested using student t test. All tables were graphically represented. All analysis was 2 tailed and the significance level was set at 0.05.
Computer generated randomisation was done.

Blinding

It is a double blinded study. A study anaesthetist (Person A) prepared study drugs, (Person B) gave the block after the caesarean delivery after spinal anaesthesia. (Person C) was responsible for postoperative VAS scores till 24hrs and for nausea, vomiting and other side effects along with complications.

RESULT

We included 34 patients in each group in our study.
Demographic data of patients like Age, Weight, Height, Type of surgery (emergency or elective), ASA status were comparable in both groups and the difference was not statistically significant.

Table 1 Distribution of the study subjects based on the ASA grade

ASA grade	Control group		Study group		P value
	No[r]	%	No[r]	%	
I	29	85.29	30	88.24	0.7204
II	5	14.71	4	11.76	
Total	34	100	34	100	

Among both the control and study group, majority of them were ASA grade I and this difference was not statistically significant (p>0.05)

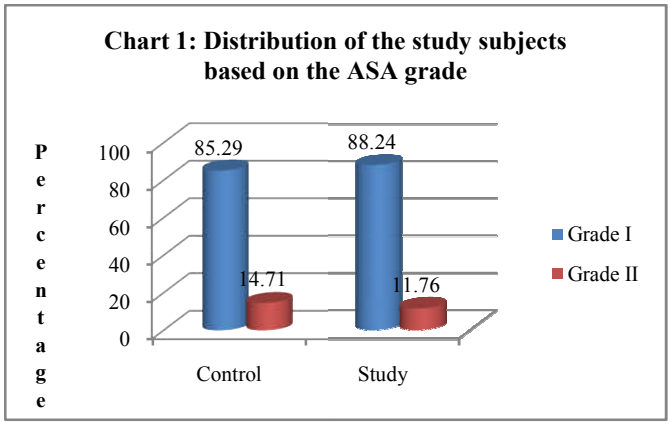


Table 2 Distribution of the study subjects based on the type of operation

Type of operation	Control group		Study group		P value
	No[r]	%	No[r]	%	
Elective	9	26.47	6	17.65	0.3802
Emergency	25	73.53	28	82.35	
Total	34	100	34	100	

Among the control group, 26.47% underwent elective surgeries and 73.53% underwent emergency surgeries. Among the study group, 17.65% underwent elective surgeries and 82.35% underwent emergency surgeries. This difference was not statistically significant (p>0.05)

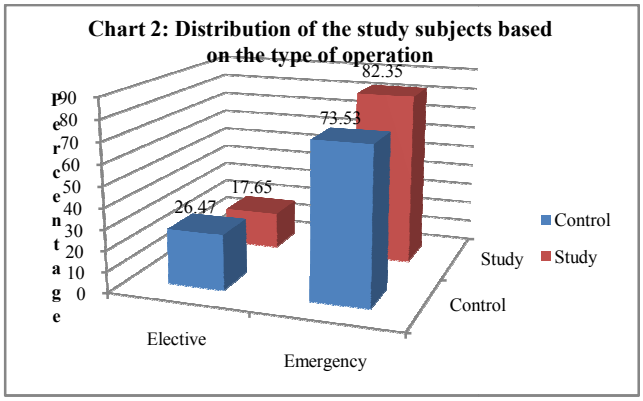


Table 3 Distribution of the study subjects based on the pulse at different intervals

Pulse	Control group		Study group		P value
	Mean	SD	Mean	SD	
Baseline	91.53	11.37	87.94	9.70	0.1782
0 min	92.12	13.27	88.41	7.80	0.1660
10min	95.47	11.83	92.47	5.99	0.2231
20min	100.24	9.54	98.88	8.09	0.5306

At all levels the difference was not statistically significant. (p>0.05)

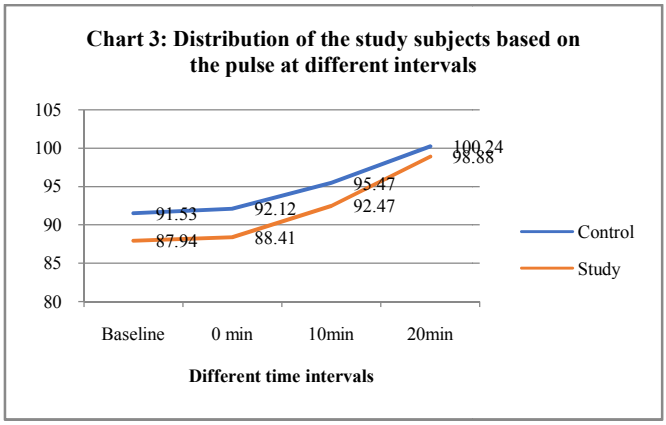


Table 4 Distribution of the study subjects based on the VAS score at different intervals

VAS score	Control group		Study group		P value
	Mean	SD	Mean	SD	
Baseline	1.12	0.73	0.76	0.61	0.0335
4 hour	2.79	1.01	2.26	0.96	0.0303
8 hour	4.18	0.83	3.29	0.72	<0.001
12 hour	5.00	0.98	4.38	0.85	0.0074
24 hour	5.76	0.74	5.24	0.92	0.0113

At baseline the VAS scores were 1.12 ± 0.73 in control group. Among the study group, the VAS scores at baseline were 0.76 ± 0.61 which increased to 5.24 ± 0.92 at 24 hours post surgery. The VAS scores were significantly lower in the study group when compared to the control group at all time intervals

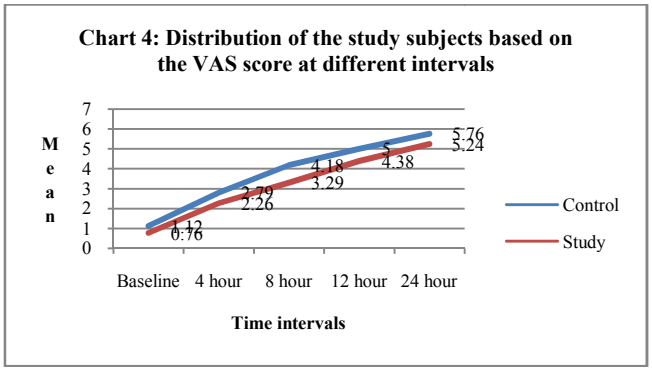


Table 5 Distribution of the study subjects based on the PONV at different intervals

PONV	Control group		Study group		P value
	Mean	SD	Mean	SD	
Baseline	0	0	0.06	0.24	0.1607
4 hour	0.09	0.29	0.09	0.38	1.000
8 hour	0.53	0.66	0.18	0.39	0.0097
12 hour	0.12	0.33	0	0	0.0398
24 hour	0	0	0	0	--

Postoperative nausea and vomiting was of lower duration in the study group when compared with the control group. This difference was statistically significant at 8 hour and 12 hour time interval (p<0.05)

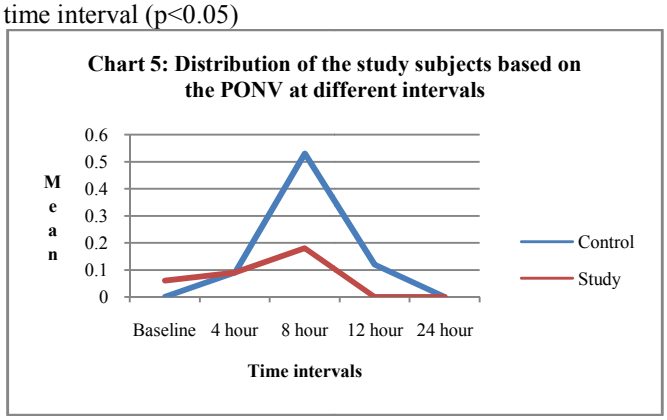


Table 6 Distribution of the study subjects based on the sedation score at different intervals

Sedation score	Control group		Study group		P value
	Mean	SD	Mean	SD	
Baseline	0.82	0.39	0.74	0.45	0.3878
4 hour	0	0	0	0	--
8 hour	0	0	0	0	--
12 hour	0	0	0	0	--
24 hour	0	0	0	0	--

The sedation scores were lower in study group when compared to control group at baseline, but the difference was not statistically significant (p>0.05)

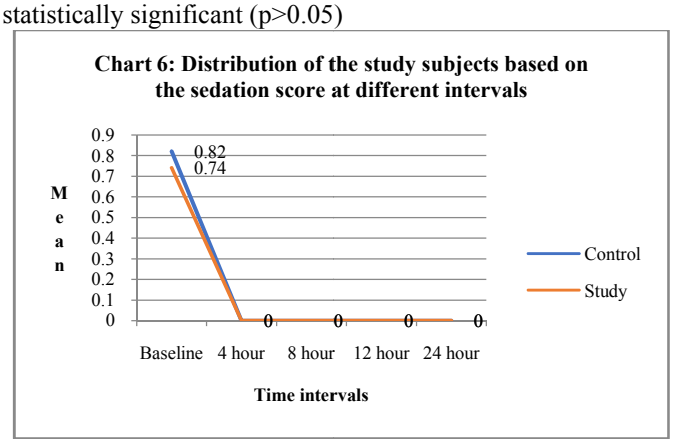


Table 7 Distribution of the study subjects based on the time to first analgesic rescue

Time to first analgesic rescue	Control group		Study group		P value
	Mean	SD	Mean	SD	
	7.15	1.73	9.29	2.46	<0.001

The mean time to first analgesic score was 7.15 ± 1.73 and 9.29 ± 2.46 among the control and study groups respectively and this difference was statistically significant (p<0.05).

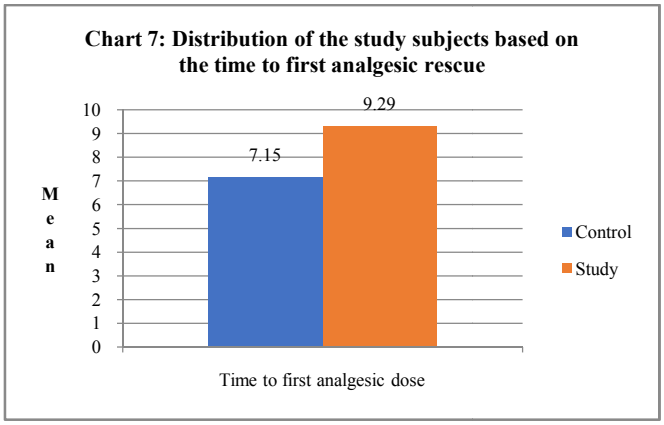
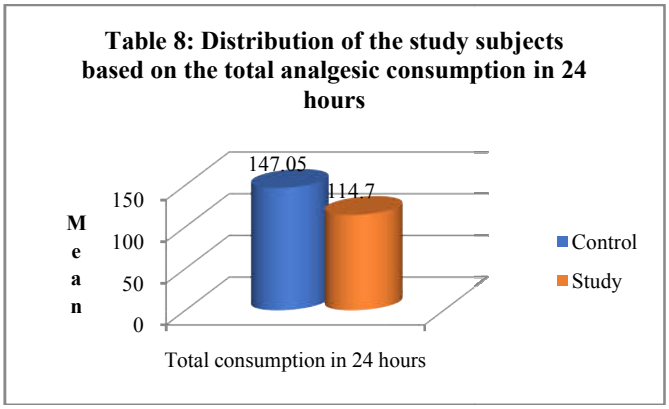


Table 8 Distribution of the study subjects based on the total analgesic dose

Total analgesic consumption in 24hours	Control group		Study group		P value
	Mean	SD	Mean	SD	
	147.64	66.21	114.70	35.94	0.01181

The total analgesic dose required in 24 hours was 147.64 ± 38.69 and 114.70 ± 35.94 respectively in control and study groups and this difference was significant.(p=0.011)



DISCUSSION

Lower segment caesarean section (LSCS) is a major surgical procedure with substantial post-operative pain[5].Achieving good pain relief is challenging because of the altered physiology and of the possibility of transmission of drugs through breast milk. Risk of thromboembolic disease is increased during pregnancy, which may be further exacerbated by immobility related to pain during the puerperiumas postulated byJeff Gadsden *et al*(2005)[6].

Hence, women having a caesarean delivery present a unique set of challenges to the anaesthetist after operation, so we have chosen this subgroup of patients for our study. Women after a cesarean delivery want to be alert, comfortable and mobile in order to care for their baby. The analgesic regimen should ensure effective and safe analgesia as substantial pain and discomfort are anticipated after caesarean delivery[7].

Although, a variety of choices of drugs and routes of administration are available, we are yet to achieve a safe and effective method of pain control after LSCS[8].Given these issues,peripheral nerve block techniques like transversus abdominis plane (TAP) block were introduced as an effective component of multimodal analgesia after caesarean delivery. These techniques not only reduced pain quite successfully but also eliminated some of the problems associated with the use of systemic opioids or central neuraxial blocks[9,10]. So we have opted for studying the effect of TAP block in post caesarean delivery as a part of multimodal analgesia. There are various reports regarding the dermatomal spread of LA in TAP as there is variation in anatomical plane depending on approach used for administering the block.[11-14].We have also used posterior approach for administering TAPB to our patients by double pop blind technique.

McDonnel, Curley G *et al*(2008) compared the pain score in patients receiving standard postoperative analgesia (patient controlled analgesia with morphine +NSAIDS) alone and patients receiving standard postoperative analgesia +TAPB with levobupivacaine upto 24hrs. They found that TAP block reduced pain even upto 24hr[15].

Terry T.Tan *et al*(2012) studied the analgesic efficacy of usg guided transversus abdominis plane block after cesarean delivery under general anesthesia in 40 women. They found that 24 hour morphine consumption was significantly lower in study group and had higher satisfaction scores[16].

Maitreyi Gajanan Mankikar *et al* (2018) studied Ultrasound-guided transversus abdominis plane block for post-operative analgesia in patients undergoing caesarean section. Each patient was assessed post-operatively by a blinded investigator at regular intervals up to 24 h for visual analogue score (VAS) and requirement of analgesia. They found out that TAP block with ropivacaine compared with normal saline reduced post-operative VAS at 24 h with prolongation of time for rescue analgesia in the study group and reduced mean requirement of tramadol in the first 24 hour in the study group[17].

A similar result was observed by Uma Srivastava *et al* (2016) who determined the efficacy of TAP block in patients undergoing cesarean section found that at 36 and 48hr,the scores although were lower in group B(group receiving TAP block), it was not statistically significant whereas it was significantly reduced till 24hours of postoperatively[18].We have also assessed postoperative pain in our patients till 24 hours.

Analgesia

Table 04 shows the distribution of the study subjects based on the VAS score at different intervals

At baseline the VAS scores were 1.12 ± 0.73 in control group. The score rose steadily to 5.76 ± 0.74 till 24 hours post surgery. Among the study group, the VAS scores at baseline were 0.76 ± 0.61 which increased to 5.24 ± 0.92 at 24 hours post surgery. The VAS scores were significantly lower in the study group when compared to the control group at all time intervals ($p<0.05$).

Table showing significant reduced VAS scores till 24 hours postoperatively

Study	Local anesthetic solution	Duration of analgesia by TAPB
McDonnell (2007)	Levobupivacaine 3.75mg/ml 20ml (bilaterally)	24hrs
McDonnell (2008)	Ropivacaine 7.5mg/ml(15-20ml) bilaterally	6-12hrs
Belavy (2009)	Ropivacaine 5mg/ml (20ml) bilaterally	24hrs
Uma shrivastava (2016)	Bupivacaine 2.5mg (20ml) bilaterally	Significant upto 24 hrs
Present study	Bupivacaine 2.5mg (15ml)bilaterally	24hrs

Ashok Jadon *et al*(2018) evaluated the analgesic efficacy of tap block for post caesarean analgesia found out that at all points at 0, 2, 4, 6, 8, 10, 12, 18 & 24 hr pain scores both at rest and on movement were lower in the study group ($p < 0.0001$)

The use of continuous catheter technique by infusion or intermittent injection of local anaesthetic into the TAP may be used to prolong the analgesia from of a block[19].

N. Pratheeba *et al*(2018) comparedthe postoperative analgesic efficacy of wound site infiltration (WSI) and ultrasound‑guided transversus abdominis plane block (TAPB) with 0.5% ropivacaine in lower abdominal surgeries under spinal anesthesia found out that Postoperative VAS scores in Group TAP were significantly reduced at 30 min, 1st h, 1 h 30 min, 2, 4, 6, 8, 10, 12, 18, and 24 h ($P < 0.001$). The VAS scores in the WSI group was high from the beginning of 30 min to 24 h when compared to the TAP group, but no statistical difference was observed after 8 h in both the groups[20].

Maitreyi *et al*(2018) evaluated analgesic efficacy of TAP block with ropivacainefor 24 h after caesarean section through a Pfannenstiel incision In their sudy VAS was noted at 2, 4, 6, 8, 12, 18 and 24 h.VAS was reduced after TAP block with 0.5% ropivacaine for the first 8–10 h post‑operatively as compared to patients receiving placebo block.

Table showing studies with significant reduction in VAS scores at 8th and 12th hr-

Study	Study group	Control group	P value
N.Prateebha (2018)	2.58±1.343 (TAP) at 8th hour	2.53±1.245 (WSI)	0.0001
Seyed Hamid(2018)	3.92 (0.63)at 12th hour	5.81 (0.80)	<0.001
Present study	3.29	4.18	**<0.001**

Seyed Hamid Reza Faiz *et al*(2018) aimed to compare the two approaches of ultrasound guided lateral and posterior TAP blocks to control pain after cesarean section. They found mean of postoperative time of first requirement for analgesics (hour) and mean meperidine requirement (mg) 36 hours after surgery among posterior and lateral groups[21].

Total number of analgesic requirement in 24 hour

Table 14 shows Distribution of the study subjects based on the total analgesic dose. Vijayalakshmi Sivapurapu *et al* (2013) compared the analgesic efficacy of transversus abdominis plane block with that of direct infiltration of local anesthetic into surgical incision in lower abdominal procedures. They found out that patients who underwent TAP block had reduced 24 h morphine requirement. (P =0.001) Morphine (mg) 22.15 ± 4.14 29.15 ± 3.93

They concluded that advantage of performing transversus abdominis plane block after caesarean section might be even more obvious after general anaesthesia[22].

Terry T. Tan *et al* (2012) performed the study to postulate the advantage of performing transversus abdominis plane block after caesarean section might be even more obvious after general anaesthesia found out that patients in the TAP block group consumed significantly less morphine in 24 h than those in the control group mean (SD) 12.3 (2.6) vs. 31.4mg (3.1), P<0.001

D. Belavy *et al*(2009) evaluated the analgesic efficacy of the ultrasound (US)-guided TAP block in patients undergoing caesarean delivery found out that cumulative morphine use at 24 h was significantly lower in the active group at all intervals[23].

Uma Srivastava *et al*(2016)determined the efficacy of TAP block in patients undergoing cesarean section.They found out thatmean tramadol use within first 4 h of surgery was similar in both groups but subsequently it was significantly less 8, 12, and 24 hr after surgery in group B in relation to control group. The cumulative tramadol usage during first 24 h after surgery was significantlyreduced in study group B in comparison to control group C (75 ± 22 vs. 168 ± 45 mg in groups B and C, respectively, $P < 0.0001$).

Ashok *et al*(2018) evaluated the analgesic efficacy of tap block for post caesarean analgesia in a randomised controlled trial. They found out that the median (IQR) number of tramadol doses consumed in the TAP group was 0 (0,1) compared to 2 (1,2) in the control group ($p < 0.0001$)

Prateebha *et al*(2018)compared the postoperative analgesic efficacy of wound site infiltration (WSI) and ultrasound guided transversus abdominis plane block (TAPB) with 0.5% ropivacaine in lower abdominal surgeries under spinal anaesthesia. They found that the total doses of rescue analgesics administered were also low in the TAP group (1.41 ± 0.538) with $P < 0.0001$ in comparison to WSI group (2.24 ± 0.637) with $P < 0.001$.

L. Vamsee Kiran (2018)*et al* compared the relative efficacy of Ultrasound‑guided Ilioinguinal‑iliohypogastric Nerve Block versus Transverse Abdominis Plane Block for Postoperative Analgesia following Lower SegmentCesarean Section. They found out that all patients in both the study groups required one dose ofrescue analgesics, but subsequently, 57% of patients didnot require any further analgesics till 24 h in the TAP blockgroup, whereas in ILIH group, only 13% did not requirefurther analgesics ($P = 0.00$)

Side effects-

Sedation scale

Level of sedation will be assessed as sedation score of 0–3, where
0 = awake and alert,
1 = quietly awake,
2 = asleep but easily arousable
3 = deep sleep, responding to painful stimulus
The sedation scores were lower in study group when compared to control group at baseline, study=0.74 vs control=0.82 but the difference was not statistically significant (p>0.05).At 4,8,12,24 hr the sedation score was not significant.

Nausea and vomiting

Nausea was defined as subjectively unpleasant sensation associated with awareness of the urge to vomit and Vomiting was defined as the forceful expulsion of gastric contents from the mouth. Treatment of nausea is ondensetron 4 mg iv.

The nausea and vomiting were assessed by categorical scaling scale.
0=no symptoms
1=only nausea
2=nausea and vomiting

Post operative nausea and vomiting was of lower duration in the study group when compared with the control group. This difference was statistically significant at 8 hourand 12 hour time interval ($p<0.05$).

Complications

In our study we did not encounter any type of complication associated with the TAPB or any type of toxicity with the drugs under study.

Complication	Number of patients
Injury to viscera	Nil
Intravascular, Intraneural injection	Nil
Infection	Nil
Flank hematoma	Nil
Failed block	Nil
Local anaesthetic toxicity	Nil
Local anaesthetic sensitivity	Nil

However, TAP block with ultrasound guidance and with combinations of additives in blocklike need to be studied more. There are more recent options such as patient-controlled epidural with an elastomeric pump, wound infiltrations with catheter, and bilateral quadratus lumborum blocks with proven success.

CONCLUSIONS

Hemodyanamic parameters like pulse, non invasive systolic and diastolic pressures, saturation were comparable at different intervals in both the groups. The VAS scores were significantly lower in the study group when compared to the control group at all time intervals ($p<0.05$).

The mean time to first analgesic score was 7.15 ± 1.73 and 9.29 ± 2.46 among the control and study groups respectively and this difference was statistically significant ($p<0.05$). The total analgesic dose required in 24 hours was 117.64 ± 38.69 and 114.70 ± 35.94 respectively in control and study groups and this difference was significant.($p=0.011$) Postoperative nausea and vomiting was of lower duration in the study group when compared with the control group. This difference was statistically significant at 8 hour and 12 hour time interval ($p<0.05$).

The sedation scores were lower in study group when compared to control group at baseline, but the difference was not statistically significant ($p>0.05$). On the basis of observations made, the following conclusions can be drawn: The VAS scores in study group patients postoperatively till 24hrs was significantly reduced as compared to control group. There was significant reduction in time to first rescue analgesic and total quantity of analgesic consumed in 24 hrs.

Adverse effects like nausea and vomiting were reduced in patients with TAP block. In our present study, we did not face any complications of the block or the study drug. To conclude though usg is more authentic, in current scenario as ours is a developing country not much centers are resourceful so we recommend this block with blind landmark technique as a part of multimodal analgesic in parturients of caesarean section.

Financial support and sponsorship :- Nil

References

1. Quan K August 16 2010.Vital signs:Assessing pain; pain, the fifth vital sign.suit 101/content/vital signs-assessing pain -a10965.
2. L.Vamsee Kiran, T. Sivashanmugam1, V. R. Hemanth Kumar1, N. Krishnaveni1, S. Parthasarathy1 Relative Efficacy of Ultrasound‐guided Ilioinguinal‐iliohypogastric Nerve Block versus Transverse Abdominis Plane Block for Postoperative Analgesia following Lower Segment Cesarean Section: A Prospective, Randomized Observer‐blinded Trial Anesth Essays Res 2017;11:713-7.
3. Rafi AN.Abdominal field block :a new approach via lumbar triangle. Anaesthesia 2001;56:1024-6
4. Ismail S, Afshan G, Monem A, Ahmed A. Postoperative analgesia following caesarean section: Intravenous patient controlled analgesia versus conventional continuous infusion. Open J Anesthesiol 2012;2:120‐6
5. Farragher RA, Laffey JG. Postoperative pain management following caesarean section. In: Shorten G, Carr D, Harmon D, *et al*., editors. Postoperative pain management: an evidence-based guide to practice. 1st ed. Philadelphia: Saunders Elsevier; 2006. p. 225–8
6. Jeff Gadsden, MD*, Stuart Hart Post-Cesarean Delivery Analgesia (Anesth Analg 2005;101:S62–S69
7. McDonnell NJ, Keating ML, Muchatuta NA, Pavy TJ, Paech MJ. Analgesia after caesarean delivery. Anaesth Intensive Care 2009;37:539‐51.
8. Ashok Jadon, Priyanka Jain* Role of ultrasound guided transverses abdominis plane block as a component of multimodal analgesic regimen for lower segment caesarean section: a randomized double blind clinical study Jadon *et al*. BMC Anesthesiology (2018) 18:53
9. McDonnell JG, O'Donnell B, Curley G, Heffernan A, Power C, *et al*. The analgesic efficacy of transversus abdominis plane block after abdominal surgery: a prospective randomized controlled trial. Anesth Analg. 2007;104(1):193–7.
10. Siddiqui MR, Sajid MS, Uncles DR, Cheek L, Baig MK. A meta-analysis on the clinical effectiveness of transversus abdominis plane block. J Clin Anesth. 2010;23(1):7–14.
11. McDonnell J, Laffey J. Transversus abdominis plane block. Anesth Analg 2007;105:883.
12. Hebbard P. Subcostal transversus abdominis plane block under ultrasound guidance. Anesth Analg 2008;106:674-5.
13. Laffey J, McDonnell J. Subcostal transversus abdominis plane block under ultrasound guidance. Anesth Analg 2008;106:674-5.
14. Tran TMN,Ivanusic JJ,Hebbard P,Barrington MJ.Determination of spread of injectate after ultrasound-guided transverses abdominis plane block:a cadaveric study Br J Anaesth Jan 2009 102(1):123-127
15. McDonnell J, Curley G, Carney J, Benton A, Costello J, Maharaj C, *et al*. The analgesic efficacy of transversus abdominis plane block after cesarean delivery: a randomized controlled trial. Obstetric. Anesthesiol. 2008;106(1):186–91
16. Terry T. Tan, Wendy H.L. Teoh, David C.M. Woo, Cecilia E. Ocampo, Mukesh K. Shah and Alex T.H. Sia A randomised trial of the analgesic efficacy of ultrasoundguided transversus abdominis plane block after caesarean delivery under general anaesthesia Eur J Anaesthesiol 2012; 29:88–94
17. Maitreyi Gajanan Mankikar, Shalini Pravin Sardesai Ultrasound‐guided transversus abdominis plane block

for post‑operative analgesia in patients undergoing caesarean section Indian Journal of Anaesthesia | Vol. 60 | Issue 4 | Apr 2016
18. Uma Srivastava, Shilpi Verma, Efficacy of trans abdominis plane block for post cesarean delivery analgesia: A double-blind, randomized trial Saudi Journal of Anesthesia Vol. 9, Issue 3, July-September 2015
19. Ashok Jadon, Priyanka Jain* Role of ultrasound guided transverses abdominis plane block as a component of multimodal analgesic regimen for lower segment caesarean section: a randomized double blind clinical study Jadon *et al*. BMC Anesthesiology (2018) 18:53
20. N. Pratheeba, R. Remadevi, I. Joseph Raajesh Comparison of Postoperative Analgesic Efficacy of Wound Site Infiltration and Ultrasound‑guided Transversus Abdominis Plane Block with 0.5% Ropivacaine in Lower Abdominal Surgeries under Spinal Anesthesia Anesthesia: Essays and Researches ¦ Volume 12 ¦ Issue 1 ¦ January-March 2018
21. Seyed Hamid Reza Faiz1 Mahmoud Reza Alebouyeh2 Pooya Derakhshan2 Comparison of ultrasound-guided posterior transversus abdominis plane block and lateral transversus abdominis plane block for postoperative pain management in patients undergoing cesarean section: a randomized double-blind clinical trial study Journal of Pain Research 2018:11 5–9
22. Vijayalakshmi Sivapurapu, Arumugam Vasudevan, Sumanlata Gupta, Ashok S Badhe Comparison of analgesic efficacy of transversus abdominis plane block with direct infiltration of local anesthetic into surgical incision in lower abdominal gynecological surgeries Journal of Anaesthesiology Clinical Pharmacology | Jan-Mar 2013 | Vol 29 | Issue 1
23. 23.D. Belavy1 2, P. J. Cowlishaw1, M. Howes1 and F. PhillipsUltrasound-guided transversus abdominis plane block for analgesia after Caesarean delivery Department of Anaesthesia British Journal of Anaesthesia 103 (5): 726–30 (2009)

How to cite this article:

Yasha Tiwari and Prashant Kumar Paikra (2022) 'To Study Efficacy of Transversus Abdominis Plane Block For Post Cesarean Delivery Analgesia-A Randomised Controlled Double Blinded Trial', *International Journal of Current Medical and Pharmaceutical Research,* 08(04), pp 177-184.

****