ISSN:0975 -3583,0976-2833 VOL14, ISSUE 09, 2023

TO COMPARE THE POST-OPERATIVE ANALGESIC EFFICACY OF USG GUIDED THORACIC PARAVERTEBRAL BLOCK (TPVB) VS SERRATUS ANTERIOR PLANE BLOCK (SAPB) IN MODIFIED RADICAL MASTECTOMY

Prashant Kumar Rai[1*], Pallav Singh[2], Abhay Raj Yadav[3], Suhas Kumar Mall[4], Astha Gupta[5], Anubhav Bhushan[6], Pushpraj Singh[7], Abhilasha Barthwal[8], Shahbaz Ahmad[9], Santosh Kumar Sharma[10]

1.Assistant Professor, Department of Anesthesiology, Baba Raghav Das Medical College, Gorakhpur, Uttar Pradesh- 273013, India
2.Senior Resident, Department of Anesthesiology, Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow, Uttar Pradesh, India
3.Assistant Professor, Department of Anesthesiology, Baba Raghav Das Medical College, Gorakhpur, Uttar Pradesh- 273013, India
4.Assistant Professor, Department of Trauma and Emergency Medicine, AIIMS, Gorakhpur, Uttar Pradesh, India
5.Assistant Professor, Department of Anesthesiology, Baba Raghav Das Medical College, Gorakhpur, Uttar Pradesh- 273013, India
6.Assistant Professor, Department of Anesthesiology, Baba Raghav Das Medical College, Gorakhpur, Uttar Pradesh- 273013, India
7.Senior Resident, Department of Emergency Medicine, KGMU, Lucknow Uttar Pradesh, India
8.Junior Resident, Department of Anesthesiology, Baba Raghav Das Medical College, Gorakhpur, Uttar Pradesh- 273013, India
9.Professor, Department of Anesthesiology, Baba Raghav Das Medical College, Gorakhpur, Uttar Pradesh- 273013, India
10. Associate Professor, Department of Anesthesiology, Baba Raghav Das Medical College, Gorakhpur, Uttar Pradesh- 273013, India

***Corresponding author:**
Prashant Kumar Rai, Assistant Professor, Department of Anesthesiology, Baba Raghav Das Medical College, Gorakhpur, Uttar Pradesh- 273013, India

ABSTRACT

Aim: The aim of the present study was to observe and compare post-operative analgesic efficacy of Ultrasound-guided Thoracic Paravertebral block and Ultrasound-guided Serratus anterior plane block in the form of VAS score.

Methods: The proposed study was conducted on total of 60 female patients, aged 18-65 years, ASA grade I and II, posted for elective unilateral MRM surgery at Nehru hospital, B.R.D medical college, Gorakhpur after approval from ethical committee and written informed consent from all patients in between the duration of December 2017-November 2018.

Results: In the present study, 60 females were included in the study. In group I, 19 patients were in ASA I and 18 patients in ASA II respectively. We observed that mean surgical time was comparable in group I and group II 1.90+0.20h vs 1.87+0.23h respectively and mean time of sensory blockade was 17.80+3.18 vs 19.10+3.26 in group I and group II respectively. Median VAS score at rest, we observed that the score was in group I vs group II respectively at 1h, 2(2-2) vs2(1-2), 6h 2(1-2) vs 2(2-2), 12h 2(2-3) vs 2(2-2.25), 18h 2(2-4) vs 3(2-3), 24h 2(2-3) vs 3(3-4) post operatively. Median VAS score on abduction of arm we observed that the score was in group I vs group II respectively at 1h 3(2.75-3) vs 3(3-3), 6h 3(2-3.25) vs 3(2-3), 12h 3(2-4) vs 3(3-4), 18h 3(3-4) vs 4(3-5) and 24h 3(2.75-4) vs 4(4-5) post operatively. Time taken for first rescue analgesia (duration of block) was in Group I (20.18 ± 5.55h) as compared to Group II (18.00 ± 3.21h). Out of 30 patients, in Group I (20 patients) and in Group II (21 patients) did not required any rescue analgesia in 24h.

Conclusion: The results obtained in our study indicate TPVB provides effective postoperative analgesia for patients undergoing modified radical mastectomy. TPVB offer significant advantages in terms of postoperative pain, postoperative fentanyl consumption and patient satisfaction.

Keywords: Analgesia, Nerve Block, Radical Mastectomy, Ultrasound Interventional

1. INTRODUCTION

Breast cancer was the most common type of cancer among females in the Asia-pacific region, accounting for 18% of all cases in 2012, and was the fourth most common cause of cancer related deaths (9%).[1] Modified Radical Mastectomy is the definitive treatment in these patients which is associated with significant postoperative pain. Postmastectomy pain is one of the major concerns for the patient and various modalities are available for post–operative analgesia in the form of regional anesthesia and pharmacological drugs. In regional anesthesia, various available options are Thoracic epidural, Thoracic Paravertebral block (TPVB), Pectoral nerve block, Serratus anterior plane block (SAPB) for post-operative analgesia in Modified Radical Mastectomy [MRM].[2]

Thoracic epidural analgesia may be associated with sympathetic blockade, technical difficulty and higher neurological risk.[3] Paravertebral block is a safe method and was initially utilized as alternative to spinal anesthesia due to less cardiovascular and respiratory effects of central neuraxial block which may be used as primary anesthetic management or as adjunct to general anesthesia for perioperative pain control. With the use of ultrasonography in thoracic paravertebral block, one can reduce the various complications of thoracic paravertebral block (injuries due to multiple pricks, pleural puncture, vascular puncture, chances of pneumothorax, transient Horner's syndrome, total spinal anesthesia). Paravertebral block can be used for intraoperative and post-operative analgesia to improve the patient's outcome, reduce complication rates, hospital cost and duration of stay.[4]

Pectoral nerve block (PECS I and PECS II) described by Blanco, is superficial block that targets the lateral and median pectoral nerves in Inter-fascial plane between the Pectoralis major and Pectoralis minor muscle [PECS I]. Injection into vascular structure is the potential side effect of the Pectoral nerve block.[5] Serratus Anterior Plane Block (SAPB) is USG guided anesthetic technique in which local anesthetic is injected superficial or deep to Serratus anterior muscle. It blocks lateral cutaneous branches from T2-T6 intercostal nerves, long thoracic nerve and thoracodorsal nerve. Both USG guided Thoracic Paravertebral block (TPVB), and Serratus anterior plane block (SAPB), are given in our hospital for post-operative analgesia in breast surgeries patients.[6]

Hence the aim of the study was to compare USG guided thoracic paravertebral block and USG-guided Serratus anterior plane block for post-operative analgesia in MRM patients.

ISSN:0975 -3583,0976-2833 VOL14, ISSUE 09, 2023

2. MATERIAL & METHODS

The proposed study was conducted on total of 60 female patients, aged 18-65 years, ASA grade I and II, posted for elective unilateral MRM surgery at Nehru hospital, B.R.D medical college, Gorakhpur after approval from ethical committee and written informed consent from all patients in between the duration of December 2017-November 2018.

EXCLUSION CRITERIA

1. Refusal or consent denied from patient
2. Patient on anticoagulant treatment without monitoring of coagulation profile
3. Local site infection
4. Pregnancy
5. Previous thoracic surgery on ipsilateral side
6. Localized tumor
7. Empyema
8. Total pleurectomy
9. Abnormal/distorted thoracic anatomy
10. Drug allergy

All the selected patients were randomly divided in two groups of 30 patients each, based on computer generated random sequence.

GROUP I (30 patients): General anesthesia + Ultrasound-guided Thoracic Paravertebral block (TPVB) performed pre-operatively with total of 30 ml 0.25% bupivacaine, 10 ml at each level of T3 T4 T5.

GROUP II (30 patients): General anesthesia + Ultrasound-guided serratus anterior plane block performed preoperatively with 30 ml of 0.25% bupivacaine.

METHODOLOGY

PREOPERATIVE EVALUATION

Pre-operative Anesthetic Assessment was done in every patient night before surgery. Procedure and VAS score [0-10,0=no pain and 10=worst pain] was explained to all patients. Routine and specific investigations were sent. Premedication was given to all patients with tablet ranitidine 150 mg on night before surgery and tablet alprax 0.25 mg on night before surgery as well as early morning on the day of surgery with sips of water. All patients were advised NPO according to recent ASA guideline.

PREOPERATIVE PERIOD

In the preoperative area, multi-para monitors were attached to patients and baseline vitals i.e. Heart Rate, Non-Invasive Blood Pressure, ECG, SpO2 were recorded. After securing intravenous line, all patients were pre-medicated with 1 mcg/kg fentanyl intravenously. In the preoperative holding area/nerve block room, the patients in group I received USG guided thoracic paravertebral block and those in group II, received USG guided serratus anterior plane block. All the patients were observed for at least 15 minutes before shifting patients to operative room. Paravertebral block was performed with the patient in sitting position placing a 6-13 MHz linear USG probe of Sonosite portable ultra sound system [Sonosite, Micromax, Washington]. After all aseptic precautions, the probe was placed on the back 2.5 cm lateral to vertebral spine at T3, T4 & T5 and paravertebral space was identified. After image optimization skin was anesthetized with Inj Lignocaine 2%, 3 ml at each level. A 21G 100mm needle (Stimuplex A, B Braun Melsungen AG,Germany) is advanced in plane until the tip of the needle rests in paravertebral space. Then total of 30 ml 0.25% bupivacaine,10 ml at each level T3 T4 T5 injected through needle. Anterior displacement of pleura seen after successful block. For SAPB, patient was in supine position, the Ultrasound probe was moved to mid axillary line and kept it in cephalo-caudal direction to visualize the 4th and 5th rib,

ISSN:0975 -3583,0976-2833 VOL14, ISSUE 09, 2023

serratus anterior [deep and superficial], lattismus dorsi [superficial and posterior] and pleura. The in-plane approach was used and a total of 30 ml of 0.25% bupivacaine solution was injected in the plane between lattismus dorsi and serratus anterior muscle at 4th rib, along mid axillary line and visualized in real time.

INTRAOPERATIVE PERIOD

After holding time of 15 minutes, patient was shifted to OT table and standard multi-para monitors were attached with monitoring of Heart rate, Non-Invasive Blood Pressure, SpO2 and ECG. General anesthesia was given using Inj Propofol [2 mg/kg i.v] + Inj fentanyl[1 mcg/kg i.v] + inj glycopyrrolate [0.01mg/kg]+ Inj Midazolam[0.04mg/kg i.v] + Inj vecuronium [0.1 mg/kg i.v]. Endotracheal intubation was done to secure the airway. Maintenance of anesthesia was done with O2+N2O+isoflurane and intermittent vecuronium 0.01mg/kg i.v. Neuromuscular blockade was reversed by neostigmine 0.05 mg/kg iv with glycolpyrrolate 0.01 mg/kg i.v. Paracetamol infusion was given in dose 15 mg/kg intra-operatively and then 8 hourly considering multimodal analgesia.

POSTOPERATIVE PERIOD

Post-operative rescue analgesia was provided on demand [Visual Analogue Score >4] with fentanyl 1mcg/kg in both groups. Post-operative pain was assessed at 1h, 6h, 12h, 18h, and 24h with VAS at rest and during movement of the ipsilateral upper limb.

STATISTICAL ANALYSIS

The observations were recorded upto 24 hour in both group, tabulated and statistical analysis was done using SPSS 17.0 software. Continuous variables are presented as mean + SD or median (IQR), and categorical variables are presented as absolute numbers and percentage. Data were checked for normality before statistical analysis. Normally distributed continuous variables were compared using the unpaired t test, whereas the Mann-Whitney U test was used for those variables that were not normally distributed. Categorical variables were analysed using either the chi square test or Fischer's exact test. For all statistical analysis the p value less than 0.05 was considered to be statistically significant while $p<0.001$ was considered highly statistically significant.

3. RESULTS

Table 1: Gender and ASA distribution

Sex	**Group 1**		**Group 2**	
	Frequency	**%**	**Frequency**	**%**
Female	30	100.0%	30	100.0%
Total	30	100%	30	100%
ASA				
I	19	63.3%	18	60.0%
II	11	36.7%	12	40.0%
Total	30	100%	30	100%

In the present study, 60 females were included in the study. In group I, 19 patients were in ASA I and 18 patients in ASA II respectively.

Table 2: Comparison of surgical time and time of sensory blockade in both groups

	Group 1	**Group 2**	**p value**
	Mean ± SD	**Mean ± SD**	
Surgical time (h)			

ISSN:0975 -3583,0976-2833 VOL14, ISSUE 09, 2023

MEAN±SD	1.90 ± 0.20	1.87 ± 0.23	0.549
Time of sensory blockade (min) MEAN+SD	17.80 ± 3.18	19.10 ± 3.26	0.123

We observed that mean surgical time was comparable in group I and group II 1.90+0.20h vs 1.87+0.23h respectively and mean time of sensory blockade was 17.80+3.18 vs 19.10+3.26 in group I and group II respectively.

Table 3: Comparison of median vas score at rest and abduction of arm in both groups in first 24 hours

VAS at rest	**Group 1**	**Group 2**	**p value**
	Median (IQR)	**Median (IQR)**	
1 h	2 (2 - 2)	2 (1 - 2)	0.710
6h	2 (1 - 2)	2 (2 - 2)	0.363
12h	2 (2 - 3)	2 (2 - 2.25)	0.965
18h	2 (2 - 4)	3 (2 - 3)	0.343
24h	2 (2 - 3)	3 (3 - 4)	0.020*
VAS at abduction			
1h	3 (2.75 - 3)	3 (3 - 3)	0.349
6h	3 (2 - 3.25)	3 (2 - 3)	0.713
12h	3 (2 - 4)	3 (3 - 4)	0.121
18h	3 (3 - 4)	4 (3 - 5)	0.001*
24h	3 (2.75 - 4)	4 (4 - 5)	<0.001**

Median VAS score at rest, we observed that the score was in group I vs group II respectively at 1h, 2(2-2) vs2(1-2), 6h 2(1-2) vs 2(2-2), 12h 2(2-3) vs 2(2-2.25), 18h 2(2-4) vs 3(2-3), 24h 2(2-3) vs 3(3-4) post operatively. Median VAS score on abduction of arm we observed that the score was in group I vs group II respectively at 1h 3(2.75-3) vs 3(3-3), 6h 3(2-3.25) vs 3(2-3), 12h 3(2-4) vs 3(3-4), 18h 3(3-4) vs 4(3-5) and 24h 3(2.75-4) vs 4(4-5) post operatively.

ISSN:0975 -3583,0976-2833 VOL14, ISSUE 09, 2023

Graph 1A & B: Comparison of median vas score at rest and abduction of arm in both groups in first 24 hours

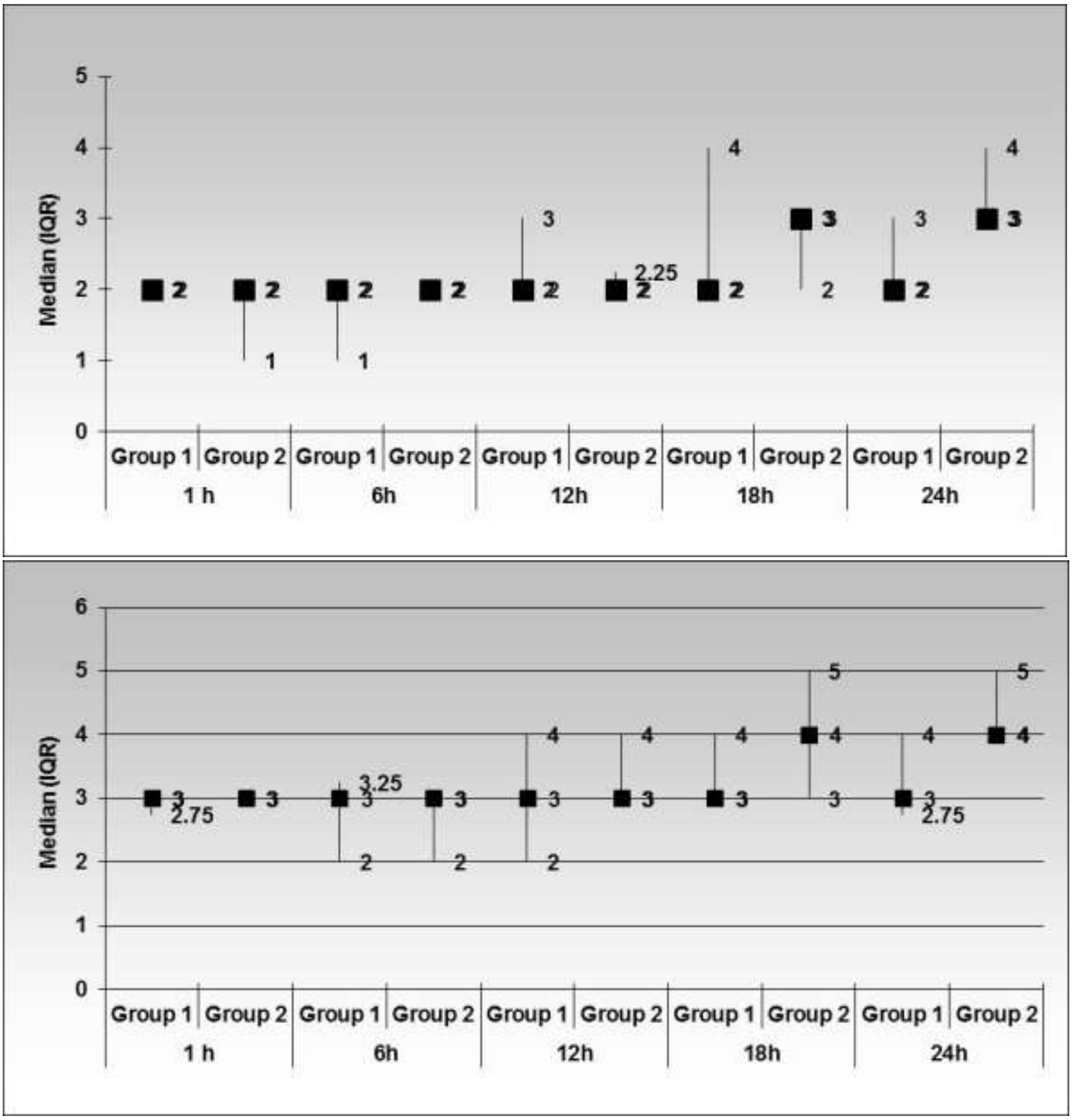


Table 4: Comparison of time for first rescue analgesia consumption in both groups in first 24 hours and Comparison of total rescue analgesia (fentanyl) consumption in both groups in first 24 hours

	Group 1	**Group 2**	**p value**
	Mean ± SD	**Mean ± SD**	
Time for first rescue analgesia (fentanyl) consumption (h) MEAN ± SD	20.18 ± 5.55	18.00 ± 3.21	0.334

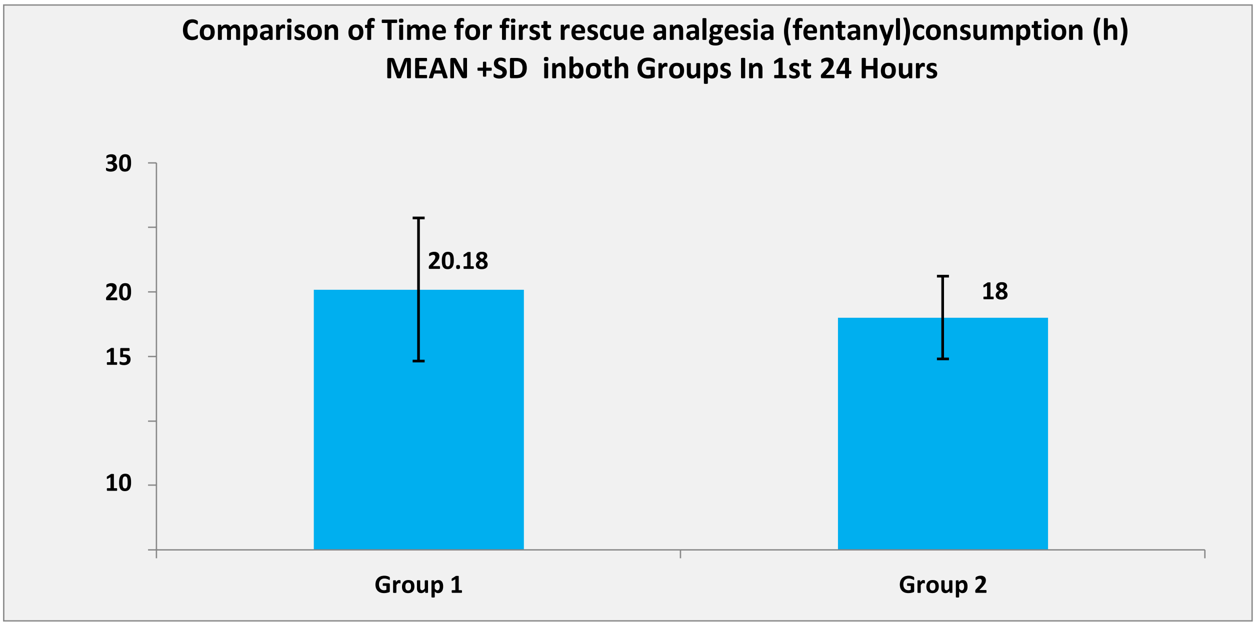
Journal of Cardiovascular Disease Research

ISSN:0975 -3583,0976-2833 VOL14, ISSUE 09, 2023

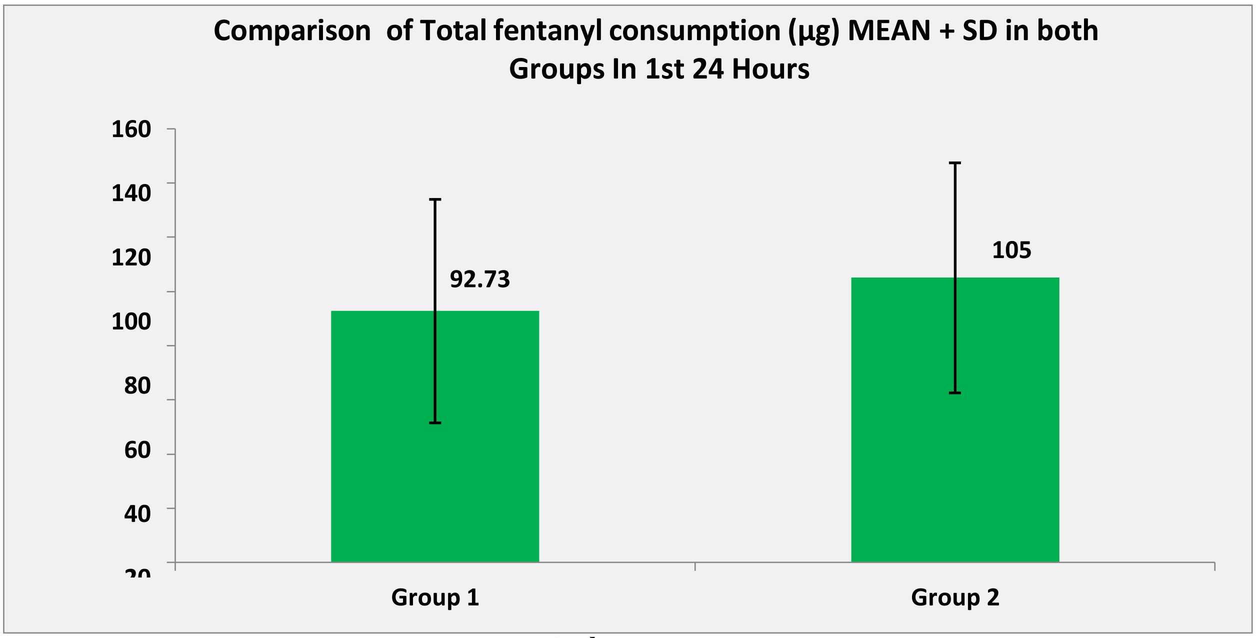
Total fentanyl consumption (µg) MEAN + SD	**92.73 ± 41.25**	**105.00 ± 42.43**	**0.535**

Time taken for first rescue analgesia (duration of block) was in Group I (20.18 ± 5.55h) as compared to Group II (18.00 ± 3.21h). Out of 30 patients, in Group I (20 patients) and in Group II (21 patients) did not require any rescue analgesia in 24h. Total mean rescue analgesia (fentanyl) consumption in postoperative 24h was (92.73 ± 41.25µg) in GROUP I as compared to GROUP II (105.00 ± 42.43µg).

Graph 2A: Comparison of time for first rescue analgesia consumption in both groups in first 24 hours



Graph 2B: Comparison of total rescue analgesia (fentanyl) consumption in both groups in first 24 hours

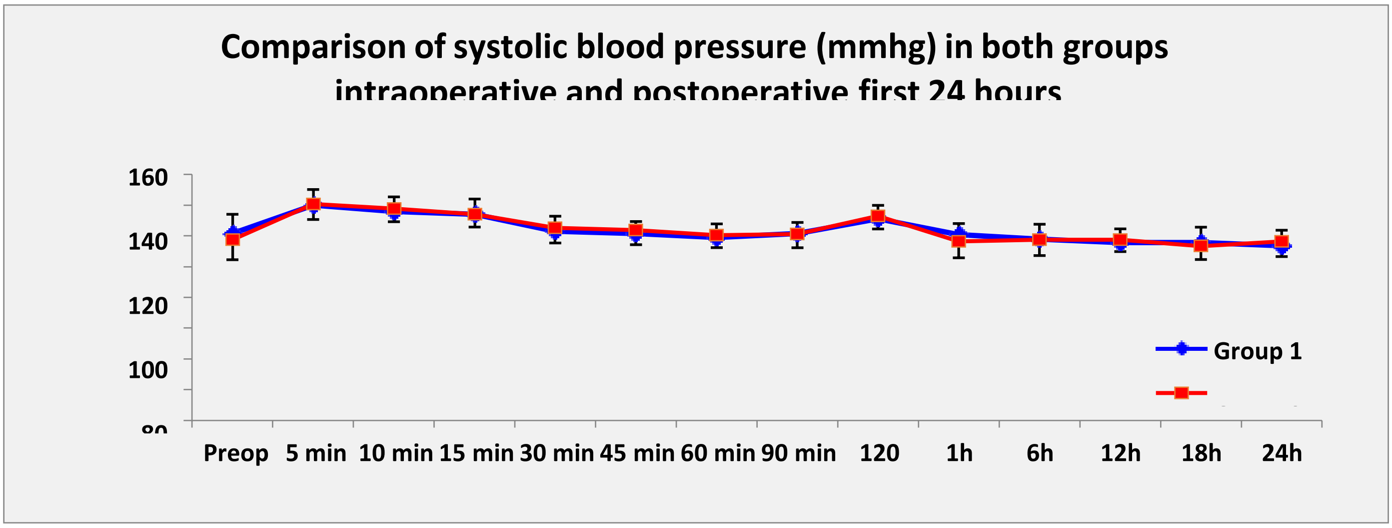


24 hours

PR	Group 1	Group 2	p value
	Mean ± SD	Mean ± SD	
Preoperative	76.63 ± 11.04	71.63 ± 8.24	0.052
Intraoperative 5 min	95.93 ± 8.96	95.30 ± 7.91	0.773
10 min	91.77 ± 7.45	90.40 ± 7.28	0.475
15 min	86.93 ± 6.59	87.77 ± 3.45	0.542
30 min	82.27 ± 6.97	84.80 ± 5.46	0.122
45 min	79.90 ± 6.82	82.13 ± 6.83	0.210
60 min	80.4 ± 5.01	81.37 ± 6.44	0.519
90 min	81.20 ± 7.6	80.73 ± 7.97	0.817
120 min	82.0 ± 6.18	79.33 ± 4.06	0.054
Postoperative 1h	78.03 ± 6.96	77.90 ± 4.25	0.929
6h	79.57 ± 8.67	77.90 ± 4.61	0.358
12h	78.37 ± 7.69	76.93 ± 5.11	0.399
18h	75.77 ± 5.83	75.8 ± 5.28	0.982
24h	73.80 ± 7.15	73.3 ± 6.18	0.773

Group I vs Group II mean pulse rates were 76.63 ± 11.04 vs 71.63 ± 8.24 pre-operatively and intra operatively 95.93 ± 8.96 vs 95.30 ± 7.91 at 5 min, 91.77 ± 7.45 vs 90.40 ± 7.28 at 10 min, 86.93 ± 6.59 vs87.77 ± 3.45 at 15 min, 82.27 ± 6.97 vs 84.80 ± 5.46 at 30 min, 79.90 ± 6.82 vs 82.13 ± 6.83 at 45 min, 80.4 ± 5.01 vs 81.37 ± 6.44 at 60 min and 81.20 ± 7.6 vs 80.73 ± 7.97 at 90 min, 82.0 ± 6.18 vs 79.33 ± 4.06 at 120 min. In postoperative period mean pulse rate (per minute) were 78.03 ± 6.96 vs 77.90 ± 4.25 at 1h, 79.57 ± 8.67 vs 77.90 ± 4.61 at 6h, 78.37 ± 7.69 vs 76.93 ± 5.11 at 12h, 75.77 ± 5.83 vs 75.8 ± 5.28 at 18h and 73.80 ± 7.15 vs 73.3 ± 6.18 at 24 h.

Graph 3: Comparison of systolic blood pressure in both groups intraoperative and postoperative first 24 hours

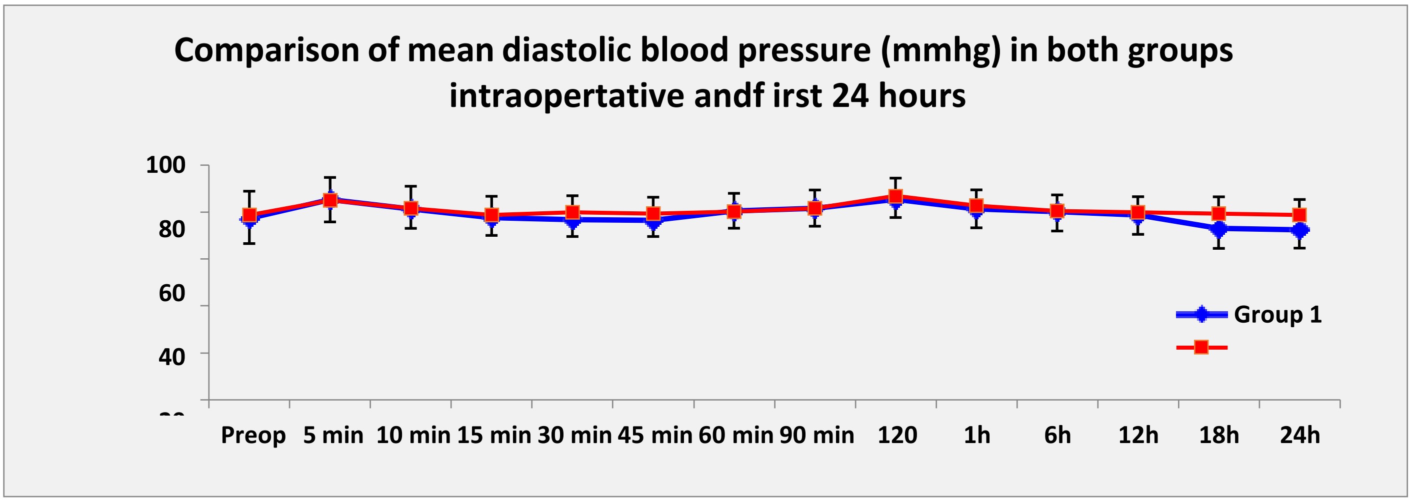


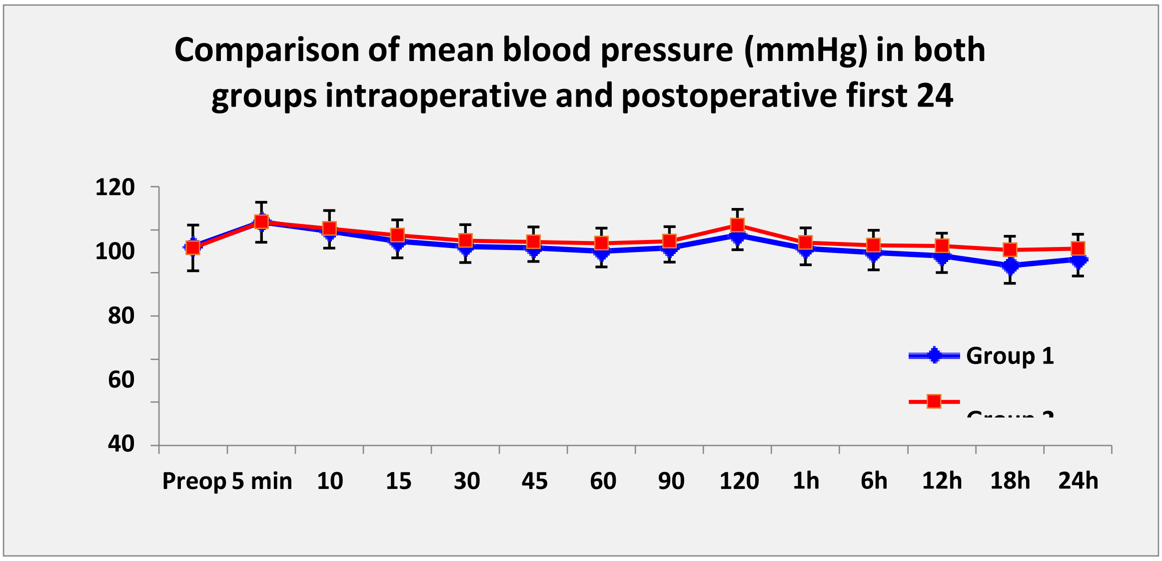
Group I vs Group II mean systolic blood pressure were 121.40 ± 12.56 vs 117.33 ± 12.88 preoperatively and intra operatively 140.00 ± 10.1 vs140.73 ± 10.10 at 5 min, 135.8 ± 9.53vs

ISSN:0975 -3583,0976-2833 VOL14, ISSUE 09, 2023

137.87 ± 8.74at 10 min, 133.93 ± 9.94vs 134.20 ± 8.51 at 15 min, 122.87 ± 9.89 vs125.13 ± 9.81 at 30 min, 121.53 ± 7.71 vs 123.6 ± 9.43 at 45 min, 119.07 ± 8.66 vs 120.47 ± 8.20 at 60 min, 121.53 ± 7.18vs 121.00 ± 8.77 at 90 min and 131.00 ± 8.77 vs 132.80 ± 8.35 at 120 min. In postoperative period mean systolic blood pressure (mmHg) 120.67 ± 7.26 vs 116.40 ± 10.69 at 1h, 117.87 ± 9.64 vs 117.67 ± 10.51 at 6h, 115.73 ± 8.74 vs 117.47 ± 7.74 at 12h, 115.6 ± 10.01 vs 113.33 ± 8.73 at 18h, 113.6 ± 9.98 vs 116.33 ± 9.81 at 24 min.

Graph 4: Comparison of diastolic blood pressure in both groups intraoperative and postoperative first 24 hours





The graph showed comparison of perioperative mean blood pressure were 92.11 ± 11.16 vs 91.6 ± 10.55 preoperatively and intraoperatively 103.6 ± 9.42 vs 103.578 ± 9.16 at 5 min, 99.44 ± 7.99 vs 100.444 ± 8.47 at 10 min, 94.51 ± 7.59 vs 97.31 ± 7.27 at 15 min, 92.16 ± 7.38 vs 95.09 ± 7.23 at 30 min, 91.58 ± 6.30 vs 94.22 ± 7.06 at 45 min, 90.09 ± 7.37 vs 93.67 ± 7.06 at 60 min, 91.58 ± 6.61 vs 94.78 ± 6.66 at 90 min, 97.31 ± 6.62 vs 102.22 ± 7.22 at 120 min. In postoperative mean blood pressure (mmHg) were 91.20 ± 7.45 vs 93.96 ± 6.91 at 1h, 89.38 ± 8.00 vs 92.82 ± 6.95 at 6h, 87.82 ± 7.70 vs 92.40 ± 5.99 at 12h, 83.38 ± 8.28 vs 90.67 ± 6.26 at 18h, 86.18 ± 7.65 vs 91.36 ± 6.52 at 24h.

ISSN:0975 -3583,0976-2833 VOL14, ISSUE 09, 2023

4. DISCUSSION

Ultrasound guided TPVB and SAPB both provides excellent postoperative analgesia in breast surgery and considered safe than other methods. TPVB is easier to learn and perform and is comparable with thoracic epidural, in terms of success rate and analgesic efficacy. TPVB can be performed safely in fully anaesthetized patients.

Groups I and II had similar age distribution and mean age of female patients were also comparable in both of our Groups. Both Groups had similar ASA status grade, BMI and mean duration of surgery. Median VAS at rest was almost similar (p value >0.05) at all times except at 24 h. At 24 h Group I showed significantly lower VAS scores (p value <0.05) at rest than Group II. This shows that both the Groups had good pain control at all the time points and similar analgesic effect in both the Groups except at 24 h. Median VAS score on movement (abduction of ipsilateral arm) was also similar in both groups upto 12h but significantly lower VAS seen at 18h and 24h in Group I (p value <0.05). The lower VAS scores seen may be due to difference in mechanism of action of two blocks. Fady Samy Saad et al concludes that in thoracotomy TPVB and SAPB were provided comparable pain reduction in up to 9 h postoperatively but after 12 h, TPVB provided lower pain intensity. Intraoperative fentanyl consumption and postoperative morphine consumption was reduced in with TPVB and SAPB.[7]

Mean time for first rescue analgesia (fentanyl) consumption was longer in Group I than Group II (20.18h vs 18h). Total fentanyl consumption (Mean ±SD) was less in Group I (92.73 ± 41.25) than Group II (105.00 ± 42.43). More duration of first rescue analgesia consumption and less fentanyl consumption in Group I (i.e. TPVB) was due to longer duration of analgesia in TPVB group. Kapil Gupta et al 11 compared the post MRM analgesic profile of Thoracic Paravertebral block (TPVB) and Serratus anterior plane block (SAPB). The duration of analgesia was significantly longer in the TPVB Group compared to SAPB Group 5.5 h (4-8 h) vs 4h (3-6 h), (p<0.001). The post operative 24 h morphine consumption was significantly lower in the TPVB Group compared to SAPB Group, 6.5 ± 1.5 mg versus 9.7 ± 2.1 (p<0.001) respectively. Result of this study was almost similar to our study, the difference in time for first rescue analgesia consumption (5.5h in TPVB and 4h in SAPB VS 20.18h and 18h in our study) was due to total of 30 ml 0.25% bupivacaine with 10 ml at each level of T3 T4 T5 used in our study than single level at T4, 20 ml 0.5% bupivacaine used in that study. Hetta DF et al[8] reported that the duration of analgesia of SAPB was significantly shorter compared to TPVB (median [range], 6 h [5–7 h] for SAPB vs 11 h [9–13 h] for TPVB). Result of this study was more similar to our study (20.18h in TPVB and 18h in SAPB). The difference may be due to level used T2 T4 T6 VS T3 T4 T5 in our study.

SAPB targets the lateral cutaneous branches of the inter-costal nerves as they traverse between the fascial planes and provide extensive anesthesia of the anterolateral chestwall.[9] Although TPVB targets the spinal nerves directly, the spread of local anesthetic is not predictable, it may spread either laterally to block the intercostal nerves or medially into the epidural space through the intervertebralforamina.[10] A single level TPVB can block one to four dermatomes only. Therefore, a single-level injection of TPVB may not be enough to produce sufficient analgesia after extensive breast cancer surgeries. SAPB has been used effectively for breast cancer surgery as well as video-assisted trans-thoracic surgery.[11,12] A recent meta-analysis[13] has shown that SAPB reduced postoperative pain scores, decreased opioid consumption in the first24 hours after surgery, and prolonged time to first analgesia request as well as reduced the incidence of PONV and pruritus as compared with non-block care in breast and thoracic surgery patients. The block appeared safe with no study reporting any block-related complications.[13] The preoperative administration of SAPB also improved

ISSN:0975 -3583,0976-2833 VOL14, ISSUE 09, 2023

the quality of recovery and patient satisfaction following breast cancersurgery.[14] Abdulla et al.14reportedthat deep SAPB is more advantageous from a surgical point of view than superficial SAPB. Also, this avoids the possibility of transitory palsy of the long thoracic nerve leading to a winged scapula that can be mistaken with a surgical lesion of this nerve.
The TPVB and SAP block are based on a good anatomical knowledge and with Ultrasound guidance we decrease the block performance time and reduces the number of attempts to reach the target tissue, increases the accuracy, reduces the incidence of accidental vascular puncture. It also allowed local anesthetic dose reduction as one can also visualize the spread of local anesthetic in the fascial plane. It is important to highlight that with TPVB sensory, motor as well as sympathetic blockade done but with SAPB only sensory and motor blockade done. SAPB is technically easier and safer than TPVB because we are closer to neuraxis in TPVB.

5. CONCLUSION

The results obtained in our study indicate TPVB provides effective postoperative analgesia for patients undergoing modified radical mastectomy. TPVB offer significant advantages in terms of postoperative pain, postoperative fentanyl consumption and patient satisfaction. Although both the blocks provide good postoperative pain control with minimal nausea and vomiting rate, TPVB has superior analgesic profile and longer duration of analgesia.

6. REFERENCES

1. Youlden DR, Cramb SM, Yip CH, Baade PD. Incidence and mortality of female breast cancer in the Asia-Pacific region. Cancer biology & medicine. 2014 Jun;11(2):101.
2. Afonso AM, Newman MI, Seeley N, Hutchins J, Smith KL, Mena G, Selber JC, Saint-Cyr MH, Gadsden JC. Multimodal analgesia in breast surgical procedures: technical and pharmacological considerations for liposomal bupivacaine use. Plastic and reconstructive surgery Global open. 2017 Sep;5(9).
3. Etta OE, Udeme N. Thoracic epidural for modified radical mastectomy in a high-risk patient. Malawi Medical Journal. 2017 May 3;29(1):61-2.
4. Tighe SQ, Greene MD, Rajadurai N. Paravertebral block. Continuing Education in Anaesthesia, Critical Care & Pain. 2010 Oct 1;10(5):133-7.
5. Blanco R. The ‘pecs block’: a novel technique for providing analgesia after breast surgery. Anaesthesia. 2011 Sep;66(9):847-8.
6. Blanco R, Parras T, McDonnell JG, Prats- Galino A. Serratus plane block: a novel ultrasound- guided thoracic wall nerve block. Anaesthesia. 2013 Nov;68(11):1107-13.
7. Saad FS, El Baradie SY, Aliem MA, Ali MM, Kotb TA. Ultrasound-guided serratus anterior plane block versus thoracic paravertebral block for perioperative analgesia in thoracotomy. Saudi journal of anaesthesia. 2018 Oct;12(4):565.
8. Hetta DF, Rezk KM. Pectoralis-serratus interfascial plane block vs thoracic paravertebral block for unilateral radical mastectomy with axillary evacuation. Journal of Clinical Anesthesia. 2016 Nov 1;34:91-7.
9. Mayes J, Davison E, Panahi P, Patten D, Eljelani F, Womack J, Varma M. An anatomical evaluation of the serratus anterior plane block. Anaesthesia. 2016 Sep;71(9):1064-9.
10. Cowie B, McGlade D, Ivanusic J, Barrington MJ. Ultrasound-guided thoracic paravertebral blockade: a cadaveric study. Anesthesia & Analgesia. 2010 Jun 1;110(6):1735-9.

11. Mazzinari G, Rovira L, Casasempere A, Ortega J, Cort L, Esparza-Minana JM, Belaouchi M. Interfascial block at the serratus muscle plane versus conventional analgesia in breast surgery: a randomized controlled trial. Regional Anesthesia & Pain Medicine. 2019 Jan 1;44(1):52-8.
12. Kim DH, Oh YJ, Lee JG, Ha D, Chang YJ, Kwak HJ. Efficacy of ultrasound-guided serratus plane block on postoperative quality of recovery and analgesia after video-assisted thoracic surgery: a randomized, triple-blind, placebo-controlled study. Anesthesia & Analgesia. 2018 Apr 1;126(4):1353-61.
13. Chong M, Berbenetz N, Kumar K, Lin C. The serratus plane block for postoperative analgesia in breast and thoracic surgery: a systematic review and meta-analysis. Regional Anesthesia & Pain Medicine. 2019 Dec 1;44(12):1066-74.
14. Yao Y, Li J, Hu H, Xu T, Chen Y. Ultrasound-guided serratus plane block enhances pain relief and quality of recovery after breast cancer surgery: a randomised controlled trial. European Journal of Anaesthesiology| EJA. 2019 Jun 1;36(6):436-41.
15. Abdallah FW, Cil T, MacLean D, Madjdpour C, Escallon J, Semple J, Brull R. Too deep or not too deep?: a propensity-matched comparison of the analgesic effects of a superficial versus deep serratus fascial plane block for ambulatory breast cancer surgery. Regional Anesthesia & Pain Medicine. 2018 Jul 1;43(5):480-7.