Section: Anaesthesiology

Original Research Article

ANAESTHETIC EFFICACY OF 0.75% ROPIVACAINE WITH 0.5% LEVOBUPIVACAINE IN SUPRACLAVICULAR BLOCK WITH FENTANYL AS ADJUVANT

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ABSTRACT

Background: The aim is to compare the anaesthetic efficacy of 0.75% ropivacaine with 0.5% levobupivacaine in supraclavicular block with fentanyl as adjuvant.

Materials and Methods: This is a randomized controlled interventional trial conducted at Kamineni Academy of Medical Sciences L.B Nagar Hyderabad between 2023-2025. Hundred patients between 18-60 years age of either sex, ASAI and ASAII undergoing upper limb surgeries were included in this study after approval of Institutional-ethical committee and obtaining informed consent.

Results: Majority of the levobupivacaine group patients belonged to the 41-60 years age group (n=29, 58%) with a mean age of 40.54 years. In the ropivacaine group patients, majority belonged to 21-40 years age group as caudal group (n=27, 54%) with a mean age of 37.34 years. Majority of the levobupivacaine group patients belonged to the 2.51-5.00 mins onset of sensory block group (n=38, 76%) with a mean onset of sensory block time of 2.98 minutes. In the ropivacaine group patients, majority belonged to 2.51-5.00 mins onset of sensory block group (n=31, 62%) with a mean onset of sensory block time of 5.30 minutes. Majority of the levobupivacaine group patients belonged to the 4.01-8.00 mins onset of motor block group (n=48, 96%) with a mean onset of motor block time of 5.86 minutes. In the ropivacaine group patients, majority belonged to 8.01-12.00 mins onset of motor block group (n=26, 52%) with a mean onset of motor block time of 9.11 minutes. Most of the levobupivacaine group patients had mean heart rates ranging from 84.38 bpm to 74.28 bpm with an overall mean heart rate of 77.76 bpm. Similarly the ropivacaine group patients had mean heart rates ranging from 84.86 bpm to 76.30 bpm with an overall mean heart rate of 78.76 bpm.

Conclusion: From this study it is concluded that in ultrasound guided supraclavicular block with fentanyl as adjuvant, levobupivacaine had faster onset of sensory and motor block compared to ropivacaine. The duration of sensory and motor blockade was also longer with levobupivacaine when compared to ropivacaine, both the groups having minimal adverse effects. Being done under ultrasound guidance, the risk of complications are minimal.

Keywords: Supraclavicular block, Levobupivacaine, Ropivacaine, Fentanyl, Heart rate. Onset of Motor block.

INTRODUCTION

Brachial plexus block is a commonly used approach for upper limb surgeries as an alternative to general anaesthesia. Also it can be combined with general anaesthesia to achieve ideal operating conditions by producing muscular relaxation, maintaining stable haemodynamic status along with intra- operative and post-operative analgesia. Brachial plexus provides a large part of sensory and motor innervation to upper limb, hence, blocking it is an effective method of providing anaesthesia from shoulder to finger tips.[1]

Regional anaesthesia technique avoids many untoward complications of general anaesthesia such as airway trauma, exposing the patient to multiple drugs, and increased recovery time. In addition it also avoids uncomfortable side effects such as nausea, vomiting, hangover and sore throat after general anaesthesia. It has also been shown to be an attractive option, due to its effectiveness in terms of cost, along with benefit of postoperative analgesia.[2]

After the introduction of long acting local anaesthetics (LA) with better safety profile, using peripheral nerve block as a single mode of anaesthesia has increased from the past. Despite its long acting properties, the potential cardio and neuro-toxicity of racemic bupivacaine raised a concern. To reduce the risk, non-racemic long acting Local Anaesthetics such as ropivacaine and levobupivacaine were introduced, which are associated with lesser side effects.[3]

Drugs such as opioids, hyaluronidase, midazolam, dexmedetomidine, dexamethasone are used as an adjuvants to improve the duration of action and analgesic properties of local anaesthetics. Fentanyl as an adjuvant is known to prolong the action of local anaesthetics and it also has some local anaestheticproperty.[4]

Both levobupivacaine and ropivacaine, are long acting with lesser side effects. We wanted to study the duration of analgesia and motor blockade of both using fentanyl as adjuvant.

Aim of the Study

To compare the anaesthetic efficacy of 0.75% ropivacaine with 0.5% levobupivacaine in supraclavicular block with fentanyl as adjuvant.

Objectives of the Study

1. To determine the time of onset, and duration of sensory blockade.
2. To determine the time of onset, and duration of motor blockade.

MATERIALS AND METHODS

This is a randomized controlled interventional trial conducted at Kamineni Academy of Medical Sciences L.B Nagar Hyderabad between 2023-2025. Hundred patients between 18-60 years age of either sex, ASAI and ASAII undergoing upper limb surgeries were included in this study after approval of Institutional-ethical committee and obtaining informed consent.

Inclusion Criteria

- 18 – 60 years of either sex
- Patient undergoing upper limb surgeries.
- ASA physical status I and II

Exclusion Criteria

- Patient not willing for block
- Any bleeding disorder and patient on anticoagulants.
- Neurological and musculoskeletal disease.
- Local infection at the injection site.
- Allergy to local anaesthetic
- significant history of drug/alcohol abuse

Sample Size: 100 patients divided into 2 groups
Group A- 50 patients
Group B -50 patients
Sponsorship (Yes/ No) If Yes details No

Conflict of Interest: Nil

All 100 patients satisfying the inclusion criteria were investigated for-Pre-operative biochemical (Renal Function Test &Liver Function Test, RBS)-Haematological (Haemoglobin %, Total Count, Differential Count, Platelet count)
-Chest X-ray &
-12 lead ECG.

Patients were randomly allocated into two groups, Group A and Group B, using odd- even technique

GROUP A: 25 ml of 0.5% levobupivacaine and 50 mcg of fentanyl

GROUP B: 25ml of 0.75% ropivacaine and 50 mcg of fentanyl

Standard monitors- Pulse oximetry for oxygen saturation (SpO2), Non- invasive blood pressure monitoring (NIBP), Electrocardiogram (ECG) were attached and baseline pulse rate, blood pressure, oxygen saturation were recorded.

An intravenous line was placed before procedure with 18G cannula and crystalloid infusion started. Oxygen at the rate of 5 l/min administered through face mask. Vital parameters were recorded throughout the procedure at time intervals specified as below. Before the commencement of the procedure, patients were instructed on the method of sensory and motor assessments.

Materials Required

- Insulated stimulator needle
- Ultrasonography with linear transducer
- Sterile sleeve
- Two 20 ml syringes with Local anaesthetic
- Two stainless steel bowls one each for poviodone iodine and spirit
- Sterile gauze pieces, one sterile centre hole towel

TECHNIQUE -

Landmark and positioning: Performed with the patient in the supine, semi-sitting, or slight lateral position, with the patient's head turned away from the side to be blocked. When possible, asking the patient to reach for the ipsilateral knee will depress the clavicle slightly and allow better access to the structures of the anterolateral neck.

GOAL: The goal of this block is to place the needle within the plexus sheath posterior to the subclavian artery and inject local anesthetic to surround the trunks and divisions of the plexus.

Block Evaluation Sensory and motor assessment was performed immediately after injection of drug.

Sensory blockade assessment:

- Sensory characteristics of the block were assessed using response to pinprick to 23-gauge hypodermic needle.
- Patients were pinpricked at every minute to assess for sensory blockade.
- To test the radial nerve, the dorsal surface of the thumb was used.

- Palmar surfaces of the index finger for median nerve
- Little finger for ulnar nerve.

Motor blockade assessment:

- Thumb abduction was evaluated for the radial nerve
- Thumb adduction for the ulnar nerve
- Thumb opposition for the median nerve
- Flexion of elbow for the musculocutaneous nerve

Onset of sensory blockade: onset of sensory block was defined as the time taken from the injection of study drug, till the time the patient did not feel the pin prick.

Duration of sensory blockade: The duration of the sensory block was defined as the time interval between the complete sensory block and the return of normal sensation.

Onset of motor blockade: The onset time of motor block was defined as the time between the completion of the local anesthetic injection and complete paralysis.

Duration of motor blockade: The duration of motor block was defined as the time interval between the complete paralysis and till the patient was able to move thumb in all directions.

Patients were administered supplementary oxygen through a face mask during the surgical procedure.

Heart rate and blood pressures were recorded before the procedure, and immediately after the supraclavicular block, then at 2 minutes interval for 10 minutes, later at 5 minutes interval until 30 minutes and then after every 10 minutes till completion of the surgery, the last reading was taken 10 minutes after the procedure. Postoperative Blood pressure and Heart rate was measured once in every two hrs until 24hrs.

Arrhythmias other than sinus arrhythmias if any were noted in terms of any significant changes in the RR interval. The time of onset and duration of heart rate variability if any was recorded. Arrhythmias were treated by appropriate measures.

Bradycardia defined as the pulse rate less than 60 beats/min, or if hemodynamically unstable was treated with Inj. Atropine 0.6mg IV.

Side effects such as nausea, vomiting, shivering and pruritus were checked and recorded.

Nausea and vomiting if any was treated with Inj. Ondansetron 4 mg IV.

Shivering was treated with Inj. Tramadol 25mg IV in incremental doses.

Pruritus was treated with Inj. Chlorpheniramine 25mg IV.

The duration of surgery in each case was noted. When the patients begin to experience discomfort or pain, it was considered that analgesic action of the drugs is terminated and rescue analgesic injection paracetamol 1g i.v was given.

Respiratory depression-If the respiratory rate <8 and Spo2 < 90%, patient was managed by providing assisted ventilation with bag and mask. If the desaturation continued, patient was intubated and ventilated.

Statistical Analysis: Descriptive statistics was done for all data and suitable statistical tests of comparison were done. Continuous variables were analysed with the unpaired t test and categorical variables were analysed with the Chi-Square Test and Fisher Exact Test. Statistical significance was taken as $P < 0.05$. The data was analysed using EpiInfo software (7.1.0.6 version; Centre for disease control, USA) and Microsoft Excel 2010.

RESULTS

In this study, after obtaining permission from institutional ethical committee and on obtaining informed consent from 100 selected subjects, data collected was internally compared, tabulated, analysed and interpreted by using descriptive and inferential statistics based on the formulated objectives of the study.

Table 1: Study groups

Study Groups	Intervention	Number	%
Levobupivacaine Group	Supraclavicular block with 25 ml of 0.5% levobupivacaine + 50 mcg of fentanyl	50	50.00
Ropivacaine Group	Supraclavicular block with 25ml of 0.75% ropivacaine + 50 mcg of fentanyl	50	50.00
Total		100	100.00

Table 2: Age

Age	Levobupivacaine Group	%	Ropivacaine Group	%
≤ 20 years	3	6	4	8
21-40 years	18	36	27	54
41-60 years	29	58	19	38
> 60 years	0	0	0	0
Total	50	100.00	50	100.00

Age Distribution		Levobupivacaine Group	Ropivacaine Group
Mean		40.54	37.34
SD		11.31	11.59
	P value		0.165

Majority of the levobupivacaine group patients belonged to the 41-60 years age group (n=29, 58%) with a mean age of 40.54 years. In the ropivacaine group patients, majority belonged to 21-40 years age

group as caudal group (n=27, 54%) with a mean age of 37.34 years. The association between the intervention groups and age distribution is considered to be not statistically significant since p> 0.05 as per 2 tail unpaired t test.

Table 3: Gender

Gender	Levobupivacaine Group	Ropivacaine Group
Male	36	37
Female	14	13
Total	50	50

Table 4: Height

Height	Levobupivacaine Group	%	Ropivacaine Group	%
≤ 150 cms	1	2	2	4
151-160 cms	11	22	11	22
161-170 cms	20	40	16	32
>170 cms	18	36	21	42
Total	50	100.00	50	100.00

Height Distribution (cms)	Levobupivacaine Group	Ropivacaine Group
Mean	166.86	167.52
SD	8.54	9.30
P value Unpaired t Test		0.712

Majority of the levobupivacaine group patients belonged to the 161-170 cms height group (n=20, 40%) with a mean height of 166.86 cms. In the ropivacaine group patients, majority belonged to > 170 cms height group (n=21, 42%) with a mean height of 167.52 cms. The association between the intervention groups and height distribution is considered to be not statistically significant since p > 0.05 as per 2 tail unpaired t test.

Table 5: Weight

Weight	Levobupivacaine Group	%	Ropivacaine Group	%
≤ 50 kgs	3	6	2	4
51-70 kgs	24	48	26	52
71-90 kgs	22	44	20	40
> 90 kgs	1	2	2	4
Total	50	100.00	50	100.00

Distribution (kgs)	Levobupivacaine Group	Ropivacaine Group
Mean	70.56	69.88
SD	10.75	11.40
P value		0.759

Majority of the levobupivacaine group patients belonged to the 51-70 kgs weight group (n=24, 48%) with a mean weight of 70.56 kgs. In the ropivacaine group patients, majority belonged to 51-70 kgs weight group (n=26, 52%) with a mean weight of 69.88 kgs. The association between the intervention groups and weight distribution is considered to be not statistically significant since p > 0.05 as per 2 tail unpaired t test.

Table 6: Onset of sensory block

Onset of Sensory Block	Levobupivacaine Group	%	Ropivacaine Group	%
≤ 2.50 mins	12	24	0	0
2.51-5.00 mins	38	76	31	62
5.01-7.50 mins	0	0.00	14	28
7.51-10.00 mins	0	0.00	5	10
Total	50	100.00	50	100.00

Onset of Sensory Block Distribution (mins)	Levobupivacaine Group	Ropivacaine Group
Mean	2.98	5.30
SD	0.67	1.63
P value		0.001**

Majority of the levobupivacaine group patients belonged to the 2.51-5.00 mins onset of sensory block group (n=38, 76%) with a mean onset of sensory block time of 2.98 minutes. In the ropivacaine group patients, majority belonged to 2.51-5.00 mins onset of sensory block group (n=31, 62%) with a mean onset of sensory block time of 5.30 minutes. The association between the intervention groups and onset of sensory block distribution is considered to be statistically significant since p < 0.05 as per 2 tail unpaired t test. Hence Levobupivacaine Group (Group A) had faster onset of sensory blockade compared to Ropivacaine Group (Group B).

Table 7: Onset of Motor block

Onset of Motor Block	Levobupivacaine Group	%	Ropivacaine Group	%
≤ 4.00 mins	2	4	1	2
4.01-8.00 mins	48	96	18	36
8.01-12.00 mins	0	0.00	26	52
12.01-16.00 mins	0	0.00	5	10
Total	50	100.00	50	100.00

Onset of Motor Block Distribution (mins)	Levobupivacaine Group	Ropivacaine Group
Mean	5.86	9.11
SD	1.10	2.17
P value Unpaired t Test		0.001**

Majority of the levobupivacaine group patients belonged to the 4.01-8.00 mins onset of motor block group (n=48, 96%) with a mean onset of motor block time of 5.86 minutes. In the ropivacaine group patients, majority belonged to 8.01-12.00 mins onset of motor block group (n=26, 52%) with a mean onset of motor block time of 9.11 minutes. The association between the intervention groups and onset of motor block distribution is considered to be statistically significant since $p < 0.05$ as per 2 tail unpaired t test. Levobupivacaine Group (Group A) had faster onset of motor blocked compared to Ropivacaine Group (Group B).

Table 8: Heart Rate

Heart Rate Distribution (beats/min)	Levobupivacaine Group		Ropivacaine Group		P value Unpaired t Test
	Mean	SD	Mean	SD	
5 mins	84.38	15.17	84.86	14.38	0.871
15 mins	83.00	14.07	83.68	13.83	0.808
30 mins	78.90	13.55	80.52	13.08	0.544
1 hr	76.76	12.78	78.70	11.66	0.429
1 hr 30 mins	77.40	12.67	77.46	11.87	0.980
2 hrs	76.96	12.12	77.60	11.72	0.789
2 hrs 30 mins	74.88	11.48	78.40	11.32	0.126
3 hrs	74.28	11.75	76.98	10.65	0.231
3 hrs 30 mins	75.86	11.75	76.64	10.81	0.730
4 hrs	75.84	10.45	76.30	10.07	0.823
6 hrs	75.34	9.61	77.16	10.81	0.376
8 hrs	77.68	11.61	78.00	12.25	0.893
12 hrs	78.64	11.01	78.12	11.04	0.814
24 hrs	78.72	11.87	78.24	11.00	0.834

Most of the levobupivacaine group patients had mean heart rates ranging from 84.38 bpm to 74.28 bpm with an overall mean heart rate of 77.76 bpm. Similarly the ropivacaine group patients had mean heart rates ranging from 84.86 bpm to 76.30 bpm with an overall mean heart rate of 78.76 bpm. The association between the intervention groups and heart rate is considered to be not statistically significant since $p > 0.05$ as per 2 tail unpaired t test.

Table 9: Systolic Blood Pressure

Systolic Blood Pressure (mm/Hg)	Levobupivacaine Group		Ropivacaine Group		P value Unpaired t Test
	Mean	SD	Mean	SD	
5 mins	132.32	18.97	127.90	18.68	0.243
15 mins	129.88	18.61	127.76	19.08	0.575
30 mins	124.94	15.30	125.56	18.58	0.855
1 hr	123.68	16.17	122.70	16.68	0.766
1 hr 30 mins	121.94	16.24	121.66	16.63	0.932
2 hrs	121.20	15.14	121.60	16.50	0.899
2 hrs 30 mins	120.68	15.32	121.42	17.04	0.819
3 hrs	119.76	15.56	121.44	16.21	0.598
3 hrs 30 mins	119.28	14.48	121.36	16.70	0.507
4 hrs	120.58	14.52	117.88	21.16	0.459
6 hrs	115.92	23.27	121.32	15.21	0.173
8 hrs	121.24	14.47	121.52	14.82	0.920
12 hrs	121.28	13.83	120.56	15.45	0.806
24 hrs	122.82	14.15	119.58	18.20	0.323

Most of the levobupivacaine group patients had mean SBP ranging from 132.32 mm Hg to 115.92 mm Hg with an overall mean SBP of 122.53 mm Hg.Similarly the ropivacaine group patients had mean SBP ranging from 127.90 mm Hg to117.88 mm Hg with an overall mean SBP of 122.30 mm Hg. The association between the intervention groups and SBP is considered to be not statistically significant since $p > 0.05$ as per 2 tail unpaired t test.

Table 10: Diastolic Blood Pressure

Diastolic Blood Pressure (mm/Hg)	Levobupivacaine Group		Ropivacaine Group		P value Unpaired Test
	Mean	SD	Mean	SD	
5 mins	85.26	11.06	82.36	10.62	0.184
15 mins	83.76	11.82	82.26	11.21	0.516
30 mins	80.56	12.22	79.08	9.84	0.506
1 hr	77.48	10.77	75.90	10.19	0.453
1 hr 30 mins	77.06	12.17	75.88	10.49	0.604
2 hrs	75.24	11.53	76.56	10.96	0.558
2 hrs 30 mins	75.36	11.22	76.48	11.04	0.616
3 hrs	75.68	11.59	76.82	11.04	0.615
3 hrs 30 mins	74.98	12.21	76.42	11.10	0.538
4 hrs	74.30	11.12	75.74	10.69	0.510
6 hrs	73.54	12.14	76.66	10.55	0.173
8 hrs	73.34	11.59	77.04	11.03	0.105
12 hrs	73.52	11.64	76.34	11.00	0.216
24 hrs	76.54	12.09	75.28	9.73	0.567

Most of the levobupivacaine group patients had mean DBP ranging from 85.26 mm Hg to 73.34 mm Hg with an overall mean DBP of 76.90 mm Hg. Similarly the ropivacaine group patients had mean DBP ranging from 82.36 mm Hg to 75.28 mm Hg with an overall mean DBP of 77.34 mm Hg. The association between the intervention groups and DBP is considered to be not statistically significant since $p > 0.05$ as per 2 tail unpaired t test

Table 11: Duration of Surgery

Duration of Surgery	Levobupivacaine Group	%	Ropivacaine Group	%
≤ 1.00 hr	2	4	5	10
1.01-2.00 hrs	26	52	25	50
2.01-3.00 hrs	20	40	17	34
3.01-4.00 hrs	2	4	3	6
Total	50	100.00	50	100.00

Duration of Surgery Distribution (Hrs)	Levobupivacaine Group	Ropivacaine Group
Mean	2.05	2.00
SD	0.60	0.68
P value		0.702

Majority of the levobupivacaine group patients belonged to the 1.01-2.00 hours duration of surgery group (n=26, 52%) with a mean duration of surgery of 2.05 hours. In the ropivacaine group patients, majority belonged to 1.01-2.00 hours duration of surgery group (n=25, 50%) with a mean duration of surgery of 2.00 hours. The association between the intervention groups and duration of surgery distribution is considered to be not statistically significant since $p > 0.05$ as per 2 tail unpaired t test.

Table 12: Duration of sensory blockade

Duration of sensory blockade	Levobupivacaine Group	%	Ropivacaine Group	%
≤ 8.00 hr	0	0	8	16
8.01-10.00 hrs	0	0	38	76
10.01-12.00 hrs	17	34	4	8
12.01-14.00 hrs	33	66	0	0.00
Total	50	100.00	50	100.00

Duration of sensory blockade Distribution (Hrs)	Levobupivacaine Group	Ropivacaine Group
Mean	12.33	8.80
SD	0.85	0.72
P value		0.001**

Majority of the levobupivacaine group patients belonged to the 12.01-14.00 hours duration of sensory blockade group (n=33, 66%) with a mean duration of sensory blockade of 12.33 hours. In the ropivacaine group patients, majority belonged to 8.01-10.00 hours duration of sensory blockade group (n=38, 76%) with a mean duration of sensory blockade of 8.80 hours. The association between the intervention groups and duration of sensory blockade distribution is considered to be statistically significant since $p < 0.05$ as per 2 tail unpaired t test. Hence Levobupivacaine Group (Group A) had longer duration of sensory blockade compared to Ropivacaine Group (Group B).

Table 13: Duration of motor blockade

Duration of Motor Blockade	Levobupivacaine Group	%	Ropivacaine Group	%
≤ 8.00 hr	0	0	35	70
8.01-10.00 hrs	11	22	15	30
10.01-12.00hrs	35	70	0	0.00

12.01-14.00hrs	4		8	0	0.00
Total	50		100.00	50	100.00
Duration of Motor Blockade Distribution (Hrs)		**Levobupivacaine Group**		**Ropivacaine Group**	
Mean		10.78		7.57	
SD		0.85		0.85	
P value				0.001**	

Majority of the levobupivacaine group patients belonged to the 10.01-12.00 hours duration of motor blockade group (n=35, 70%) with a mean duration of motor blockade time of 10.78 hours. In the ropivacaine group patients, majority belonged to ≤ 8.00 hours duration of motor blockade group (n=35, 70%) with a mean duration of motor blockade time of 7.57 hours. The association between the intervention groups and duration of motor blockade distribution is considered to be statistically significant since $p < 0.05$ as per 2 tail unpaired t test. Hence duration motor blockade of Levobupivacaine Group (Group A) was longer compared Ropivacaine Group (Group B).

Table 14: Complications

Complications	Levobupivacaine Group	%	Ropivacaine Group	%
Nil	49	98	49	98
Nausea/Vomiting	1	2	0	0.00
Bradycardia	0	0.00	1	2
Total	50	100.00	50	100.00
P value			0.408	

Majority of the levobupivacaine group patients had no complications (n=49, 98%) followed by nausea/vomiting (n=1, 2%). In the ropivacaine group patients, majority had no complications (n=49, 98%) followed by bradycardia (n=1, 2%). The association between the intervention groups and complications status is considered to be not statistically significant since $p > 0.05$ as per chi square test.

DISCUSSION

Peripheral nerve blocks provide ideal operating conditions and better hemodynamic stability compared to general anaesthesia. Introduction of local anaesthetics with better safety profile and longer duration of action helps in providing better anaesthetic care even in high risk patients.

In this study, demographic data such as age, sex, height, weight, as well as ASA grading, heart rate, systolic and diastolic blood pressure, duration of surgery were equally distributed among two groups, statistically not significant and hence were comparable.

In this study the primary objective was to compare the onset of sensory block between the two groups. The onset of sensory block in group A(levobupivacaine) was 2.32 minutes faster than group B (ropivacaine). The sensory block onset time of levobupivacaine group was 1.80 times quicker than that of sensory block in Ropivacaine group. The difference in onset time is statistically significant (p value of 0.001**). This result correlates with the studies done by KULKARNI B et al,[5] KHUSHBOO MALAV et al,[6] and MAGESWARANR et al.[7] However some studies had reported no statistically significant changes HANNA M et al,[8] and PIANGATELLI C et al.[9] Even some studies had faster onset with Ropivacaine such as PRERANA P MANKAD et al,[10] ANUJA A RATHORE et al,[11] and GONZÁLEZ-SUÁREZ et al.[12]

The onset of motor block in group A was 3.25 minutes faster than group B. This onset of motor block in group A is 1.55 times quicker onset of motor block in group B.[13] The onset of motor block is statistically significant (p value of 0.001**). In a similar study conducted by KULKARNI Ret al,[14] and PIANGATELLI C et al,[9] they concluded that onset of motor blockade was faster with levobupivacaine group compared to ropivacaine group.

The second objective was to compare duration of sensory blockade between the two groups. The duration of sensory block between patients in group A compared to group B was 3.53 hours longer. Which means 1.41 times prolonged duration of sensory block time in group A compared to group B. The duration of sensory block is statistically significant(p=0.001**).The duration of motor blockade time between patients in group A compared to group B was 3.21 hours longer.This means the duration of motor block is 1.44 times prolonged in group A compared to group B and it is statistically significant (p=0.001**).KULKARNI B et al,[5] Prerana P Mankad et al,[10] Anuja A Rathore et al,[11] Khushboo Malav et al,[6] and González-Suárez et al,[12] have also proved that levobupivacaine produced longer duration of analgesia and motor block whereas Hanna M et al,[8] and Mageswaran R et al,[7] had no significant difference between the groups.

However Raghunath P et al,[13] concluded that the duration of action was longer in 0.5% ropivacaine than 0.25% levobupivacaine. Some studies comparing Ropivacaine with bupivacaine proved longer duration and faster onset of sensory and motor block with Bupivacaine than Ropivacaine though few studies had contradicting results.

Only one patient in in Ropivacaine group had bradycardia and another patient in Levobupivacaine group had vomiting. All the other patients didn't

report any complaints. This was in concordance with many other studies reviewed here.

Hemodynamic parameters were similar and comparable in both the groups, maintained during intraoperative and postoperative period similar to many trials conducted. Use of ultrasonography reduced the failure rate and dose of drugs. Ultrasound guided technique was useful in precisely locating the plexus.

CONCLUSION

From this study it is concluded that in ultrasound guided supraclavicular block with fentanyl as adjuvant, levobupivacaine had faster onset of sensory and motor block compared to ropivacaine. The duration of sensory and motor blockade was also longer with levobupivacaine when compared to ropivacaine, both the groups having minimal adverse effects. Being done under ultrasound guidance, the risks of complications are minimal.

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