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Research Article

Comparative Study of Analgesic and Haemodynamic Spectrum Of 0.5% Ropivacaine Vs 0.5% Levobupivacaine in Ultrasonography Guided Supraclavicular Brachial Plexus Block

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ABSTRACT
Background: Regional anesthesia via peripheral nerve blocks is widely used for providing effective intraoperative and postoperative analgesia in upper limb surgeries. The supraclavicular brachial plexus block offers reliable anesthesia for such procedures. Newer local anesthetics such as levobupivacaine and ropivacaine have been introduced to reduce cardiotoxicity concerns associated with bupivacaine while maintaining efficacy. This study aims to compare the analgesic efficacy and hemodynamic effects of 0.5% levobupivacaine versus 0.5% ropivacaine in ultrasound-guided supraclavicular brachial plexus blocks. **Methods:** A prospective, randomized, double-blind comparative study was conducted on 60 ASA grade I and II patients aged 20–60 years undergoing elective upper limb surgery. Patients were randomized into two groups: Group L received 0.5% levobupivacaine, and Group R received 0.5% ropivacaine via ultrasound-guided supraclavicular brachial plexus block. The onset and duration of sensory and motor blockade, time to first rescue analgesia, and intraoperative hemodynamic parameters (heart rate, blood pressure, oxygen saturation) were recorded and analyzed. **Results:** Group L (levobupivacaine) demonstrated significantly earlier onset of sensory (11.13 ± 1.00 min) and motor blockade (13.20 ± 1.12 min) compared to Group R (ropivacaine) with sensory onset of
13.60 ± 0.81 min and motor onset of 15.60 ± 0.81 min (p=0.0001). Duration of both sensory and motor blockade was longer in Group L. Time to first rescue analgesia was also significantly prolonged in Group L (11.80 ± 0.40 hours) versus Group R (10.20 ± 0.55 hours) (p=0.0001). Hemodynamic parameters remained stable and comparable between groups throughout the study with no significant adverse events. **Conclusions:** 0.5% levobupivacaine provides faster onset, longer duration of sensory and motor blockade, and prolonged postoperative analgesia compared to 0.5% ropivacaine in ultrasound-guided supraclavicular brachial plexus block, without significant hemodynamic compromise. Levobupivacaine is thus an effective and safe option for upper limb regional anesthesia.

Keywords: Ultrasonography, Supraclavicular brachial plexus block, Levobupivacaine, Ropivacaine, Analgesia.

INTRODUCTION

Regional anaesthesia, especially peripheral nerve block, is commonly used to provide both intraoperative and post-operative analgesia following limb surgery**.** It results in decrease adverse effects compared to systemically used opioids and improves patient outcome and satisfaction. Brachial plexus block is among the most commonly performed peripheral neural blocks for upper extremity surgeries in clinical practice.

A lot of advancement in regional anaesthesia techniques in terms of local anaesthetic drugs, newer adjuvant drugs and use of ultrasound for safe and successful conduction of block has been made. It helps in reduced hospital stay, less financial burden, leads to avoidance of undesirable effects of anaesthetic drugs and the stress of laryngoscopy and tracheal intubation which is always beneficial for patients with various cardio-respiratory co-morbidities. By blocking signal traffic to the

dorsal horn, local anaesthetics used for regional nerve blocks provide post-operative pain relief in many surgical procedures. The recognition of acute life threatening cardio toxicity of bupivacaine led to search for local anaesthetic agents. Levobupivacaine and ropivacaine are both newer long-acting local anaesthetic drugs increasing the spectrum of local anaesthetic that were developed following reports of bupivacaine-related severe toxicity. Ropivacaine is a pure S-enantiomer which is a new long-acting amide local anaesthetic, with a high pKa and relatively low-lipid solubility. Since its clinical introduction in 1996, increased CNS and cardiovascular safety compared with bupivacaine.[1] made it the focus of intense interest. Levobupivacaine because of less toxicity and comparable efficacy as of bupivacaine was developed for local anaesthetic use. During the last few years due to minimized cost differences between bupivacaine and ropivacaine pharmaco-economical speculations became a much lesser concern when choosing a local anaesthetic drug. The quality and duration of peripheral nerve block can be improved with the use of higher concentrations of levobupivacaine, (0.5-0.75%) Levobupivacaine administered via a peripheral nerve block continuous catheter provides excellent post-operative analgesia and decreases the post-operative systemic opioids requirements.[2] Hence the current study intends to compare 0.5% ropivacaine and 0.5% levobupivacaine in ultrasonography guided supraclavicular brachial plexus block.

METHODS

Study Design and Sampling Size

The present study was prospective, randomized, double blind comparative study including 60 patients with ASA grade I, II of either sex, between the ages 20 years to 60 years scheduled for upper limb surgeries who were willing to take part in study.

Exclusion criteria were patients Age <20 years and > 60 years, Patients belonging to ASA physical status III, IV, V, Obese patients with BMI >30kg/m2 ,Posted for emergency surgeries, Females who are pregnant or lactating, Subject not willing to participate in the study, Patients with mouth opening less than 2 fingers, Subject has any other condition or factor which, in the Investigator's opinion, might increase the risk to the subject, Patients not willing to take part in the study, Patients with allergy to amide group of drugs.After institutional ethics committee approval and university approval for thesis synopsis study was initiated informed written consent was obtained from all patients. ASA physical status I-II patients were recruited and randomly assigned into one of two groups, **Group (R)** patients receiving ultrasonography guided supraclavicular block with 0.5% ropivacaine. **Group (L)** patients receiving ultrasonography guided supraclavicular block with 0.5% levobupivacaine. This study was carried out at Department of Anaesthesiology from January 2019 for 18 months. All patients posted for elective upper extremity surgeries under anaesthesia were screened for inclusion in the study. All these patients were evaluated at least one day prior to posting for surgery in the pre-anaesthetic check-up OPD (PAC-OPD). Patients were classified for ASA status after a thorough history, general and systematic review, and required investigations. The study procedure was explained to the patients in their Vernacular language and informed written consent regarding the same was obtained.

Preoperative Room

Patients were assigned into Group R or Group L by selection from sealed opaque envelope technique.

Intra-Op Room

Inside the operating room, multiparameter monitor with facilities of Electrocardiography (ECG), plethysmography (SPO2), non-invasive blood pressure (NIBP) monitoring were connected to the patient as per the standard ASA monitoring protocol. WHO surgical safety checklist was completed and operating side was identified. Under all aseptic precautions appropriate sized intravenous line was secured for administering Intravenous fluids and drugs as required. Patients received supplemental oxygen through a nasal cannula 3 l/min.

Ultrasound Guided Technique

Preparation of Equipment

The ultrasound linear transducer (of "8-14 MHZ) was placed inside a sterile sheath and gel was applied generously between the transducer and inside of the sheath covering, which is smoothed over the transducer surface to avoid any wrinkle or trapped air that may impede full contact.

Using the Equipment and Time Zero Noted and Started

Patient was placed in a supine position, with the patient's head facing away from the side to be blocked. This position may prove more ergonomic, especially during an in-plane approach from the lateral side, in which the needle enters the skin at the posterolateral aspect of the neck. A slight elevation of the head of the bed was done to make the patient more comfortable and allows for better drainage and less prominence of the neck veins. With the patient lying supine and the head turned 45° to the contralateral side, the ultrasound probe was placed in the coronal oblique plane in the supraclavicular fossa to visualize the subclavian artery and brachial plexus in the transverse sectional view (i.e., at approximately 90°;)

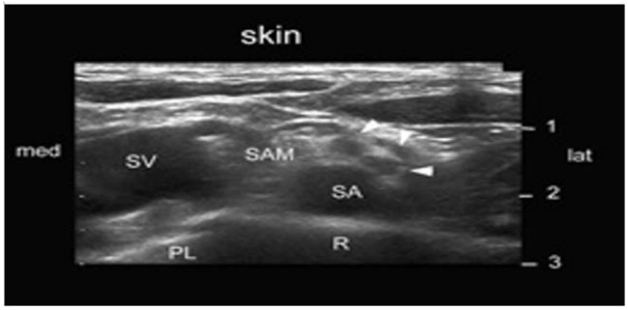

Figure 1: Transverse Sonogram In The Supraclavicular Region Showing The Brachial Plexus As A Group Of Hypoechoic Nodules (N With Arrows) Lateral To The Subclavian Artery (SA) And Cephalad To The First Rib (R). SAM = Scalenus Anterior Muscle; SV = Subclavian Vein; PL = Pleura; Med = Medial; Lat = Lateral. The Numbers 1–3 Denote Depth In Centimetres.[3]

The brachial plexus, a cluster of hypoechoic nodules, was often found lateral to the round pulsating hypoechoic subclavian artery lying on top of the hyperechoic first rib (Fig. 1). To lower the shoulder and provide more room for the block, the patient was instructed to reach for the ipsilateral knee. The objective was to locate the anterior and middle scalene muscles, as well as the brachial plexus elements that run between them. Colour Doppler was used to identify vascular structures and avoid them. The machine's imaging capability was optimized by selecting the appropriate depth of field (within 2–3 cm), focus range, and gain. A 5 cm 22 G short bevel needle was then inserted in-plane toward the brachial plexus, typically in a lateral-to- medial direction, after a local anaesthetic infiltration of the skin. The needle was advanced in the same plane as the ultrasound beam along the transducer's long axis. As the needle passes through the prevertebral fascia, a "pop" can often be appreciated. After careful aspiration to rule out intravascular needle placement, a test dose with the drug was given slowly with intermittent aspiration. The pattern of local anaesthetic spread around the target nerves was observed in real time during the injection. To reduce the risk of intrafascicular injection, it is important to ensure that there is no strong resistance to injection. Injection of several millilitres of local anaesthetic often displaces the brachial plexus away from the needle. Additional advancement of the needle 1–2 mm toward the brachial plexus may be beneficial to ensure the proper spread of the local anaesthetic. The needle shaft and tip was visualized in real time as the needle is advanced toward the target nerves.

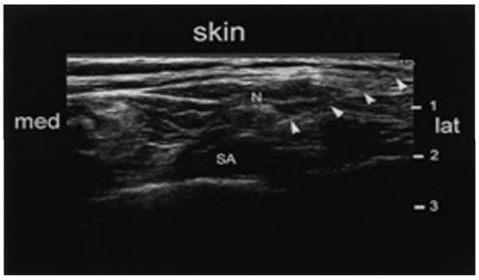

Figure 2: A transverse sonogram of a needle in contact with the brachial plexus (N) in the supraclavicular location (arrows). The needle shaft and tip are represented by the linear hyperechoic density.

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The numbers 1–3 denote depth in centimeters. SA = subclavian artery; med = medial; lat = lateral.[3]

Ultrasonography guided Brachial plexus block was performed through supraclavicular approach using in-plane or out-of-plane technique with 20 millilitres (ml) of either 0.5% Ropivacaine or Levobupivacaine. Heart rate, blood pressure, and oxygen saturation were recorded before the procedure and at 5, 10, 15, 30, 45, 60, 75, 90, 105 and 120 min. The onset of sensory block was measured every 2 minutes using an atraumatic pinprick test in areas innervated by the radial, ulnar, and median nerves, and the results were compared to the same stimulus on the contralateral hand until sensory block was complete.

Sensory Blockade Was Graded As: [4]

Grade 0(no block)	Normal sensitivity
Grade 1 (onset)	reduced sensitivity compared with same territory in contralateral upper limb
grade 2 (partial),	Analgesia or loss of sharp sensation of pinprick;
grade 3 (complete)	Anesthesia or loss of sensation to touch.

Complete Onset Of Sensory Block. I.E. Sensory Peak Effect Time

Is defined as the time from injection of drug to complete loss of sensation along all the nerve distributions.

Motor Block Was Evaluated By Four-Point Scale:[4]

Grade 0	No block
Grade 1 (onset),	decreased movement with loss of strength;
Grade 2(partial):	decreased movement with inability to perform movement against resistance;
Grade 3(complete),	Paralysis. (complete loss of movement)

Motor block was evaluated till complete onset of motor block.

Complete Onset of Motor Block I.E. Motor Peak Effect Time

Is from the injection of drug to absence of any voluntary movement at the level of arm and forearm.

Patients were observed for any systemic side effects such as bradycardia, hypotension, arrhythmias, any symptoms or signs suggestive of systemic toxicity of the local anaesthetic drug. Intraoperative data was recorded at every 15- to 30-min interval. Tourniquet inflation, deflation time, and duration of surgery was noted.

At the end of the operation, **quality of anaesthesia** was graded by the anaesthesiologist as:

Excellent (4)	No complaint from the patient
Good (3)	Minor complaint but with no need for supplemental analgesics
Moderate (2)	Complaint that required supplemental analgesics, and
Unsuccessful (1)	Patient required general anesthesia.

In case of patient not having adequate anaesthesia as defined, then general anaesthesia was given.

RESULT

Table 1: Distribution of Patients and ASA Grading in Two Groups.

ASA grading	Group L	Group R	χ2-value
Grade I	23(76.7%)	21(70%)	0.34 p=0.55, NS
Grade II	7(23.3%)	9(30%)	
Total	30(100%)	30(100%)	

This table compares the American Society of Anesthesiologists (ASA) physical status classification between two groups, Group L and Group R, each comprising 30 patients. The ASA grading is divided into Grade I (healthy patients) and Grade II (patients with mild systemic disease). In Group L, 76.7% (23

patients) were classified as ASA Grade I, while 23.3% (7 patients) were Grade II. Similarly, Group R had 70% (21 patients) in Grade I and 30% (9 patients) in Grade II. Statistical analysis using the chi-square test yielded a χ^2 value of 0.34 with a p-value of 0.55, indicating no significant difference in ASA grading distribution between the two groups. This suggests comparable baseline health status of patients in both groups for the study.

Table 2: Demographic

	GROUP L	GROUP R	χ2-value
AGE (Mean ±SD)	45.76±10.52	43.43±11.28	1.01 p=0.79, NS
BMI (Mean ±SD)	23.74±2.21	24.19±1.77	0.61 p=0.43, NS

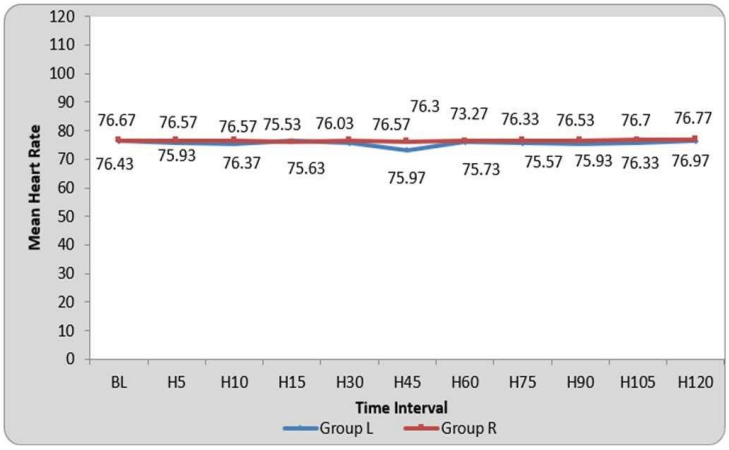
Table 2 presents a comparison of age and body mass index (BMI) between Group L and Group
R. The mean age in Group L was 45.76 years with a standard deviation (SD) of 10.52, while Group R had a mean age of 43.43 years (SD ± 11.28). The difference between the groups was statistically nonsignificant (t = 1.01, p = 0.79), indicating similar age distribution. Regarding BMI, Group L had a mean BMI of 23.74 (SD ± 2.21) and Group R had a mean BMI of 24.19 (SD ± 1.77), with a t value of 0.61 and p = 0.43, also nonsignificant. These results demonstrate that the two groups were well matched in terms of basic demographic variables, minimizing confounding effects related to age and BMI.

Table 3: Sex Distribution

Gender	Group L	Group R	χ2-value
Male	14(46.67%)	20(66.67%)	2.44 p=0.11,NS
Female	16(53.33%)	10(33.33%)	
Total	30(100%)	30(100%)	

This table illustrates the gender distribution in both study groups. Group L consisted of 14 males (46.67%) and 16 females (53.33%), whereas Group R had 20 males (66.67%) and 10 females (33.33%). The chi-square test showed a χ^2 value of 2.44 with a p-value of 0.11, which is not statistically significant. Therefore, although there appears to be a higher proportion of males in Group R compared to Group L, this difference is not significant statistically. The gender distribution between the groups is considered comparable, ensuring balanced representation of sexes across the groups.

Haemodynamic Monitoring



Graph 1: Comparison of Heart Rate (Per Minute) At Various Time Intervals

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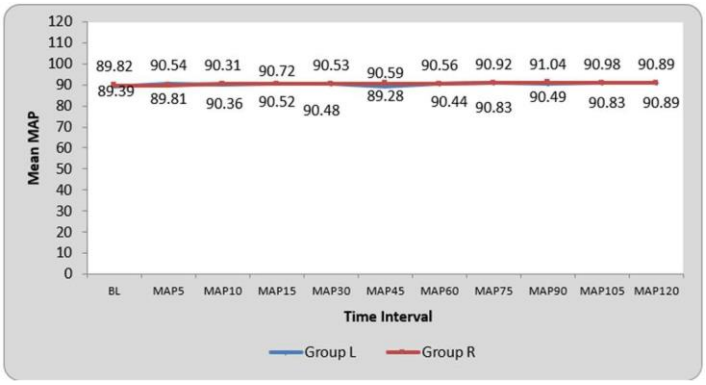
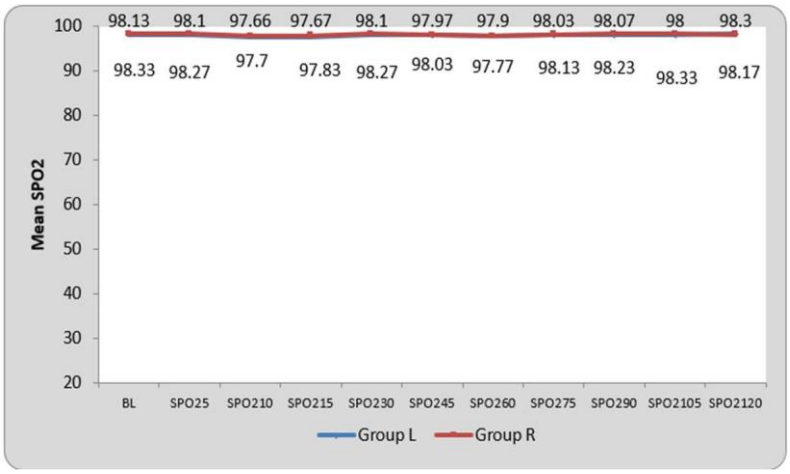
The mean heart rate at 0min (Baseline) in Group L was 76.43±5.68 min and in Group R was 76.67±6.75 min. p value was 0.885 which was statistically found not significant



Graph 2: Comparison of Mean Arterial Pressure (Mmhg) at Various Time Intervals

As shown in Graph 2: The mean of mean arterial blood pressure at 0 min (Baseline) in Group L was 89.39 ± 7.81mm/Hg and in Group R was89.82±5.23 mm/Hg. p value 0.801 which was statistically found not significant.

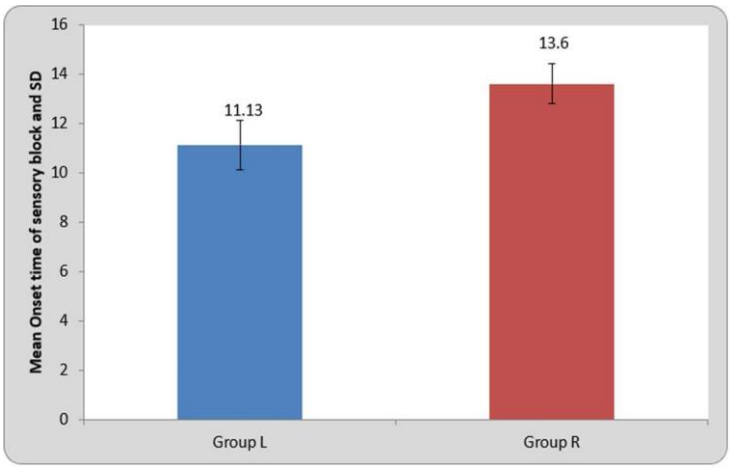


Graph 3: Comparison of SPO2 at Various Time Interval

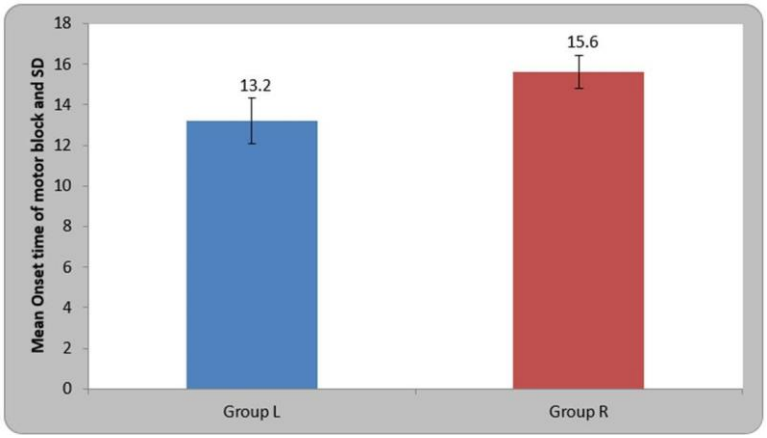
The mean SP02 at 0 min (Baseline) in Group L was 98.13 ± 0.57 min and in Group R was 98.33± 0.66 min. p value was 0.215 which was statistically found not significant

Table 4: Comparison of Onset Time (Mean) of Complete Sensory Blockade and Complete Motor Blockade.

	Group L		Group R		t-value	p-value
	Mean	SD	Mean	SD		
Onset time of sensory block(min)	11.13	1.00	13.60	0.81	10.42	0.0001,S
Onset time of motor block(min)	13.20	1.12	15.60	0.81	9.46	0.0001,S



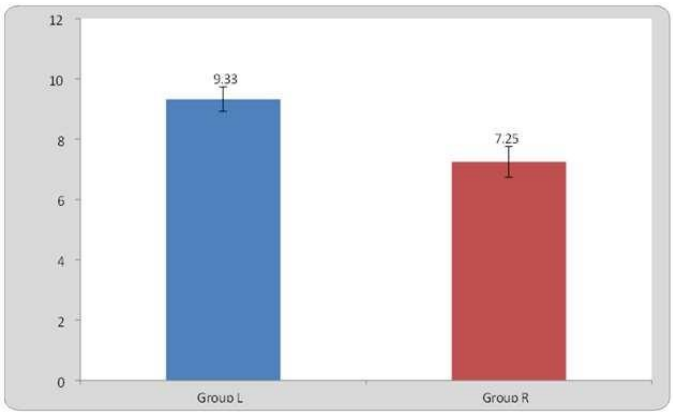
Graph 4: Comparison of Onset Time (Mean) of Complete Sensory Blockade



Graph 5: Comparison of Mean Onset Time of Complete Motor Blockade

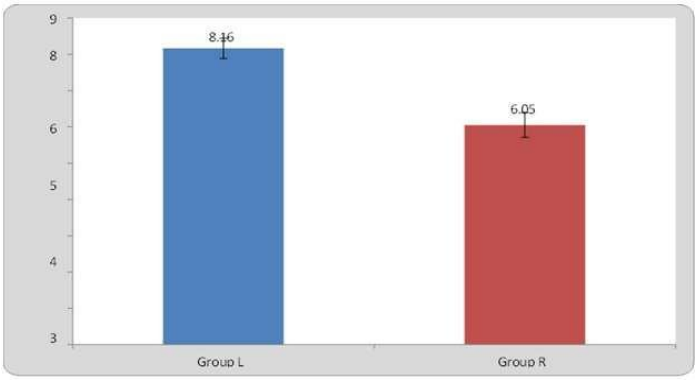
Table 5: Comparison of Duration of Sensory Block and Motor Block in Two Groups.

	Group L		Group R		t-value	p-value
	Mean	SD	Mean	SD		
Duration of sensory block(Hrs)	9.33	0.40	7.25	0.51	17.33	0.0001,S
Duration of motor block	8.16	0.28	6.05	0.34	26.00	0.0001,S



Graph 6: Comparison of Duration of Sensory Block in Two Groups.

Duration Sensory blockade was prolonged in group L as compared with Group R. The p value was < 0.005 which is statistically significant

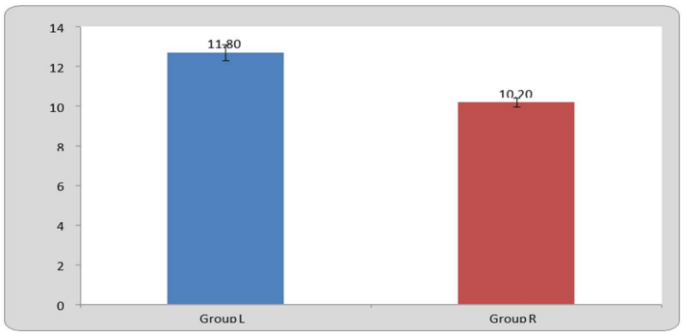


Graph 7: Comparison of Duration of Motor Block in Two Groups.

Duration of motor blockade was prolonged in group L as compared with Group R.Duration of motor blockade was prolonged in group L as compared with Group R. The p value was < 0.005 which is statistically significant.

Table 6: Comparison of Requirement of First (Rescue) Analgesia in Two Groups

	Group L		Group R		t- value	p-value
	Mean	SD	Mean	SD		
Requirement of first analgesia(Hrs)	11.80	0.40	10.20	0.55	12.79	0.0001, S



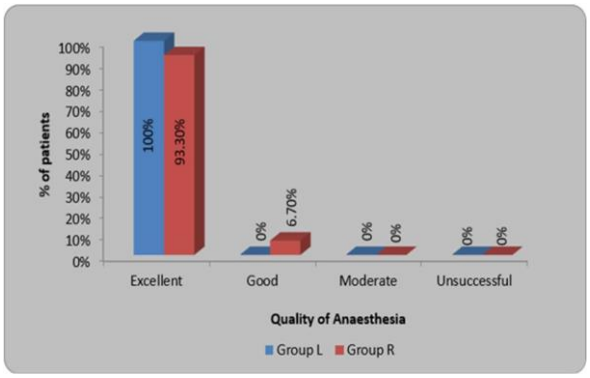
Graph 8: Comparison of Requirement of First (Rescue) Analgesia in Two Groups

As shown in table and graph mean time for first rescue analgesia was 11.80±0.40 in group L and 10.20 ±0.22 in group R, the p value was 0.0001 which is significant.

Table 7: Distribution of Patients in Two Groups According to Quality of Analgesia

Quality of analgesia	Group L	Group R	χ2-value
Excellent	30(100%)	28(93.3%)	2.06 p=0.15,NS
Good	0(0%)	2(6.7%)	
Moderate	0(0%)	0(0%)	

Unsuccessful	0(0%)	0(0%)	
Total	30(100%)	30(100%)	



Graph 9: Distribution of Patients in Two Groups According to Quality of Anaesthesia.

As shown in Table and Graph: In group L among 30 patients 100% i.e. all 30 patients had excellent quality of anaesthesia.In group R, among 30 patients 28 (93.30%) had excellent quality of anaesthesia, 2(6.70%) patient had good quality of anaesthesia.

DISCUSSION

Peripheral nerve blocks are cost effective anaesthia technique. The advantage of peripheral nerve blocks over general anaesthesia is avoidance of airway instrumentation, polypharmacy, decreased incidence of nausea and vomiting, early mobilisation and better quality of post-operative analgesia. Brachial plexus block is an easy as well as relatively safe procedure for upper limb surgeries. There are various approaches like supraclavicular, interscalene, infraclavicular and axillary used for blocking the brachial plexus. Supraclavicular approach to brachial plexus block is associated with rapid onset and reliable anaesthesia Honnannavar K et al. [5]. Among a peripheral block brachial plexus block is commonly used in both inpatient and out-patient settings for upper extremity surgery and in post-operative rehabilitation. It is the narrowest part of the plexus and so the block achieved is rapid and denser. It is often described as "spinal anaesthesia for upper extremity" because of its ubiquitous application for upper extremity surgery. Brown DL et al. [6] In our study mean onset time of complete sensory blockade in levobupivacaine group (L) was 11.13±1.00 min when compared to Ropivacaine Group (R) 13.6±0.81min. Onset time of Sensory blockade was earlier in Group L when compared with Group R. The p value was < 0.005 which is statistically significant our results with respect to the onset of the block are the same as the study of Shantanu B. Kulkarni et al who found significant earlier onset of sensory blockade in levobupivacaine (8.60±1.522 min) group compared to ropivacaine group (9.533±1.655 min).[7] In study conducted by Amit P Chauhan the onset of sensory block was found to be 90.33+ 35.43 sec in group L (Levobupivacaine) which is significantly earlier than group R which was 192.33 +65.21 sec in group R(Ropivacaine) with p value <0.05.[8] Prerana P Mankad et al in their study noted No statistically significant difference in the onset of sensory block in both the groups in comparative study of 0.5% ropivacaine and 0.5% levobupivacaine in supraclavicular brachial plexus block.[4]

In a study of Comparison of 0.5% ropivacaine and 0.5% levobupivacaine for infraclavicular brachial plexus block conducted by R Mageswaran , Y C Choy, The mean onset time (SD) for sensory block with ropivacaine was 13.5 +/- 2.9 minutes compared to levobupivacaine at 11.1
+/- 2.6 minutes (p = 0.003) which is the result similar to our study. [9] In our study the mean onset time of complete motor blockade was 13.2 ± 1.12 min in Group L(Levobupivacaine) when compared to Group R (Ropivacaine)in which mean onset time of complete motor blockade was 15.6 ± 0.81 min. Onset time of motor blockade was earlier in Group L when compared with Group R. The p value was < 0.005 which is statistically significant.Similar result the statistically significant mean onset of motor blockade was observed earlier in group of patients who received levobupivacaine (i.e. 13.133+/-2.012) compared to patients who

received ropivacaine 14.60+/-2.252) was observed in study conducted by Shantanu B. Kulkarni.[7] In another study the onset time for motor block was 19.0 ± 2.7 minutes in Group I i.e. Ropivacaine group compared to 17.1 ± 2.6 minutes (p=0.013) in Group II Levobupivacaine group Patients in their study of Comparison of 0.5% Ropivacaine and 0.5% Levobupivacaine for Infraclavicular Brachial Plexus Block.[9] One group of authors Amit P. Chauhan et al. [8] Found similar results to our study i.e. Onset time of motor block was 265.67 117.9 sec. in Group L while it is 283. + 122.73 sec in Group R with the p value 0.05. concluding earlier onset of motor block in levobupivacaine group.

Duration of Sensory Block

In group L duration of sensory blockade was 9.33±0.40 hrs, when compared to Group R 7.25±0.51hrs. Duration Sensory blockade was prolonged in group L as compared with Group R. The p value was < 0.005 which is statistically significant. Shantanu B Kulkarni et al in their study found the duration of sensory block was 12.116+/-0.715 in levobupivacaine group and 11.266+/-0.751 in ropivacaine group which is similar result as of our study[7].

In the research done by Prerana Mankad, ropivacaine (8.67 ± 1.093 h) showed significantly shorter duration of sensory block when compared with levobupivacaine (10.93 ± 1.363 h; P < 0.001). which are supportive results to our study[4].

Duration of Motor Block

In group L duration of motor blockade was 8.16±0.28 hrs, when compared to Group R 6.05±0.34hrs. Duration of motor blockade was prolonged in group L as compared with Group R. The p value was < 0.005 which is statistically significant The result similar to our study was observed by Amit P Chauhan et al. total duration of motor block was 331 + 93.13 min. in Group L while it is and 310+ 99.83 min in Group R (p .05) i.e. duration of motor block was more in group levobupivacaine compared to ropivacaine[8].

Dr. W. S. Barsagade et al. in Comparative study of levobupivacaine, ropivacaine and bupivacaine for brachial plexus block by supraclavicular approach found that duration of motor blockade was 14.97 hrs in group B,18.87 hrs in group L and 13.77 hrs in group R, the difference being statistically significant (p<0.05). In pair comparison, between group L & group B and Group L& Group R, the duration of motor blockade was statistically significant (p-value <0.001). But the difference was non-significant between Group B and Group R. [10]

Time of Requirement of First Analgesia Postoperatively

As shown in table and graph mean time for first rescue analgesia was 11.80±0.40 in group L and 10.20±0.22 in group R, the p value was 0.0001 which is significant i.e. duration of analgesia is significantly longer for levobupivacaine compared to ropivacaine.

Similar result was found by Prerana Mankad Duration of sensory and motor block was significantly short for ropivacaine than levobupivacaine (P < 0.05). Levobupivacaine has significantly longer duration of analgesia (12.56 ± 1.30 h) as compared to ropivacaine (9.93 ± 1.7 h; P < 0.05). Levobupivacaine, is a long-acting local anaesthetic agent, having better profile in terms of duration of analgesia, along with a considered disadvantage of delayed wearing off of motor blockade, offers an alternative to ropivacaine for brachial plexus block in upper limb surgeries[4]

Quality of Anaesthesia

In group L among 30 patients 100% i. e all 30 patients had excellent quality of anaesthesia. In Group R, among 30 patients 28 (93.30%) had excellent quality of anaesthesia, 2(6.70%) patient had good quality of anaesthesia. In similar studies for quality of anaesthesia by Kathuria et al found At the end of the operation, quality of anaesthesia was graded as: Excellent (4): No complaint from the patient, Good (3): Minor complaint with no need for supplemental analgesics, Moderate (2): Complaint that required supplemental analgesics, and Unsuccessful (1): Patient required general anaesthesia[11].

CONCLUSION

Through this study we have compared the effect of 0.5% Levobupivacaine and 0.5% Ropivacaine in USG guided supraclavicular brachial plexus block. The conclusions drawn are

- 0.5% Levobupivacaine has early onset of action under USG guided supraclavicular brachial plexus block.
- 0.5% Levobupivacaine has longer duration of action under USG guided supraclavicular brachial plexus block.

- 0.5%Levobupivacaine has longer duration of analgesia under USG guided supraclavicular brachial plexus block.
- 0.5% Ropivacaine has late onset of action under USG guided supraclavicular brachial plexus block.
- 0.5% Ropivacaine has shorter duration of action under USG guided supraclavicular brachial plexus block.
- 0.5% Ropivacaine has shorter duration of analgesia under USG guided supraclavicular brachial plexus block.
- 0.5% Levobupivacaine has early onset of action, longer duration of action and longer duration of analgesia as compared to 0.5% Ropivacaine in USG guided supraclavicular brachial plexus block. Requirement of first rescue analgesia was earlier in group Ropivacaine as compared to group Levobupivacaine. No significant hemodynamic changes were observed in both groups.

REFERENCES

1. Hansen TG. Ropivacaine: A pharmacological review [Internet]. Vol. 4, Expert Review of Neurotherapeutics. Expert Rev Neurother; 2004 [cited 2021 Jan 15]. p. 781–91. Available from: https://pubmed.ncbi.nlm.nih.gov /15853505/
2. Bajwa SJ, Kaur J. Clinical profile of levobupivacaine in regional anesthesia: A systematic review. J Anaesthesiol Clin Pharmacol [Internet]. 2013 Oct 31;29(4):530.
3. Chan VWS, Perlas A, Rawson R, Odukoya O. Ultrasound-Guided Supraclavicular Brachial Plexus Block. Anesth Analg [Internet]. 2003 Nov [cited 2021 Feb 15];97(5):1514–7.
4. Mankad PP, Makwana JC, Shah BJ. A comparative study of 0.5% ropivacaine and 0.5% levobupivacaine in supraclavicular brachial plexus block. Int J Med Sci Public Heal Online. 2016;
5. Honnannavar K, Mudakanagoudar M. Comparison between conventional and ultrasound- guided supraclavicular brachial plexus block in upper limb surgeries. Anesth Essays Res [Internet]. 2017 [cited 2021 Feb 25];11(2):467.
6. Brown DL. Brachial plexus anesthesia: An analysis of options. In: Yale Journal of Biology and Medicine [Internet]. Yale Journal of Biology and Medicine; 1993 [cited 2021 Feb 25]. p. 415–31. Available from: /pmc/articles/PMC2588885/?report=abstract
7. Kulkarni SB, Pimpare M, Govardhane BT. Comparison of levobupivacaine with ropivacaine for supraclavicular brachial plexus block. Int J Res Med Sci Kulkarni SB al Int J Res Med Sci [Internet]. 2016 Dec 18 [cited 2021 Feb 5];4(9):3789–96. Available from: www.msjonline.org
8. Amit P Chauhan, Jaimin Pandya* AJ. Comparison of block characteristics and postoperative analgesia of 0.5% Levobupivacaine with 0.5% Ropivacaine in ultrasound guided supraclavicular block for orthopedic forearm surgery - a prospective, comparative, randomized, clinical study e). Indian J Clin Anaesth [Internet]. 2020 [cited 2021 Feb 5];7(3):399–404.
9. Mageswaran R, Choy YC. Comparison of 0.5% Ropivacaine and 0.5% Levobupivacaine for Infraclavicular Brachial Plexus Block. Vol. 65, Med J Malaysia. 2010.
10. Barsagade WS, Tirpude NG, Banore N. Comparative study of levobupivacaine, ropivacaine and bupivacaine for brachial plexus block by supraclavicular approach [Internet]. Vol. 1, Research Chronicle in Health Sciences. 2015 [cited 2021 Feb 23]. Available from: www.reschrone.com
11. Kuthiala G, Chaudhary G. Ropivacaine: A review of its pharmacology and clinical use. Indian J Anaesth | [Internet]. [cited 2021 Jan 15];55. Available from: http://www.ijaweb.org