European Journal of Molecular & Clinical Medicine

ISSN 2515-8260 Volume 09, Issue 03, 2022

ORIGINAL RESEARCH

COMPARISON OF EFFICACY OF 0.5% LEVOBUPIVACAINE AND 0.5% ROPIVACAINE IN ULTRASOUND GUIDED BRACHIAL PLEXUS BLOCK BY SUPRACLAVICULAR APPROACH IN UPPERLIMB ELECTIVE PROCEDURES: A COMPARATIVE, CLINICAL STUDY

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ABSTRACT
Introduction: Supraclavicular block is preferred for its rapid onset, reliability and a safetechnique for surgeries involving the upper limb. Several local anaethetics have beenusedandproveneffectivewithvariousefficacies.
Aims: To study and compare the efficacy of 0.5% Ropivacaine with 0.5% Levobupivacaine in supraclavicular brachial plexus block in patients undergoing elective upper limb surgeries.
Materials and methods: Inourprospectiveclinicalstudy,wecomparedLevobupivacaineandRopivacaineforprovidingsupraclavicularblockin60patients. We demonstrated that a volume of 30 ml of Levobupivacaine and Ropivacinewas sufficient to provide a satisfactory and a successfulsupraclavicular block withthehelpofultrasound-guidedtechniquekeepinginmindthetoxicdoses.
Results:There were no observable changes in both the groups on comparing the vitalswhichincluded heart rate, systolic blood pressure, diastolic blood pressure andoxygensaturation. Sensory block onset and duration in Ropivacaine group was statisticallysignificant.Motor block onset of both were comparable and did notshowanystatisticalsignificance.. The mean duration of motor blockade were foundtobesignificantstatistically. The duration of analgesia werefoundtobe statistically significant. Levobupivacaine providingalonger durationofanalgesia. There were no significant changes in baseline parameters, heart rate, bloodpressuresandsaturationinboththegroups.
Conclusion: Levobupivacaine would be a better option to choose insupraclavicular brachial plexus blockwhere prolonged postoperativeanalgesia isrequired.
Keywords: Ropivacaine, Levobupivacaine, SupraclavicularBrachialPlexusBlock, ElectiveUpper LimbSurgeries.

INTRODUCTION:

According to the International association for the study of pain - Pain is defined as "An unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage"[1]. Peripheral nerve blocks are often considered to be the best anaesthetic choice for procedures limited to the extremities with relatively rare complications when good technique and reasonable precautions are employed. They are becoming a well-accepted component of comprehensive anaesthetic care, also expanding outside the operating theatre for postoperative pain relief and control of chronic pain. The use of regional anaesthesia techniques has increased over the past decade, while

patients who previously received a regional block often prefer regional anaesthesia for subsequent surgery.

The trend towards regional anaesthesia began in the late 18th century when William Halsted and Richard Hall experimented with cocaine as a local anaesthetic for upper and lower limb procedures. Regional anaesthesia of the upper limb can be achieved by blocking the brachial plexus at varying stages along the course of the trunks, divisions, cords and terminal branches. The four most common techniques usedintheclinicalsettingaretheinterscaleneblock,supraclavicularblock,infraclavicular block and axillary block. Each approach has its own unique set ofadvantages and indications for use. The supraclavicular block is most effective foranaesthesiaofthemid-humerusandbelow[2.]

MATERIAL AND METHODS

This study was a hospital based randomized comparative study about efficacy of Ropivacaine and Levobupivacaine over the patients fulfilling the predetermined inclusion and exclusion criteria. Study included patients admitted at Gandhi Hospital for upper limb surgeriesafterthepredetermined inclusion criteria were fulfilled. Such cases were enrolled throughout the study periodof12months (October2017toOctober2018).A sample size of 60 was taken and patients posted for upper limb surgeriesfrom Departmentsoforthopedics andPlasticsurgeryandwerecategorized intoeitherofthetwogroups(R& L)usingcomputergeneratedrandomization.

Sample size has been calculated using Open Epi version 3.0 and consideringthe percent of exposed with the outcome as 41% as obtained from the data collectedfromthemedicalrecordsectiondepartmentoftheinstitute.

Inclusion criteria: Patient with age between 18-60 years, either of Gender, to ASA grade I and II and Who have been electively posted for upper limb procedures.

Exclusion criteria: Patientswithknownhypersensitivitytolocalanaesthetics,Infectionatthesiteofblock,withsignificantbleeding/coagulationabnormalitiesorpatientonanticoagulantstherapy,severe systemicdisorder (respiratory, cardiac, hepatic, renaldiseases neurological, psychiatric, neurovascular disorders and contra lateraldiaphragmaticparalysis)**,** morbidobesity,peripheralneuropathy, Pregnantandlactating women.

The final study protocol, including the final version of the subject informationand consent forms, was approved in writing by the ethics committee of the institutebeforetheenrolmentofanysubjectintothestudy.The study was performed in accordance to the guidelines of good clinicalpractice.Onlysubject number wasusedin the sourcedocuments toidentifysubjects.Patients to be included in the study were provided with detailed informationabout this study. A patient was enrolled in this study after careful application ofinclusion and exclusion criteria and after the written informed consent wasobtainedfromthepatientandattendant.

A study proforma as appended to the thesis was used for the collection ofpatientrelatedinformationwhichincludedGeneraldata, Pre-operativeevaluation, Investigations, Pre-medications, Onset of sensory and motor blockade, Intra operative monitoring and Duration of analgesia and motor blockade.

Patients postedforupper limbsurgeriesfrom DepartmentofOrthopaedicsand Plastic Surgery were categorized into either of the two groups (R & L of 30each)usingcomputergeneratedrandomization.Generaldataandpreoperativeevaluation will be done for all the patients and premedication will be given to all thepatients.

A standard routine pre anaesthetic evaluation was made on the day beforesurgery.-Baselinevitalparameters(heartrate,oxygensaturation,non-invasiveblood pressure) were documented. The procedure to be performed was explained indetailandinformedwrittenconsentwasobtainedfromeachpatientbeforetheprocedure.Patientswerepremedicatedonthenightbeforesurgerywith Tab.Alprazolam0.25mgandTab.Ranitidine150mg.

On the day of procedure, Intravenous access was secured and all patientswerepre-medicatedwithInj.Ondansetron0.1mg/kgI.VandInj.Midazolam0.05mg/kgIV.

Procedure was done with patients being randomly allocated intotwo groupsbydrawing lots labelledGroupRandGroupL,and documentingtheirhospitalnumber on the lot assigned. The lots were retrospectively used to find out the grouptowhichthepatientwasallocatedto.

Group R - will receive 30 ml of 0.5% Ropivacaine
GroupL–willreceive30mlof0.5%Levobupuivacaine.

Drugs will be prepared by an Anaesthesiologist not involved in the study. Thesyringe with patient's name will be given to another Anaesthesiologist who is givingtheblock.Baseline heart rate, Noninvasive blood pressure and oxygen saturation aremonitored and recorded in the preoperative holding area. In the operating room afterproperpositioning,withultrasoundguidanceblockwillbeperformed.Patient is placed in the supine position with face turn towards thecontralateral shoulder.Both the sensory and motor blockade were obtained within 20 minutes, it isconsideredasasuccessfulblock.Block was considered to have failed if sensory anaesthesia was not achievedin 30 min, general anaesthesia will be given subsequently to these patientsandwillbeexcludedfromthestudy.Any complications such as pneumothorax, haematoma, tinnitus, circumoralnumbness,dizzinessandseizureswereobserved.Surgery wasallowedtobeginaftersuccessfulblock wasconfirmedandestablished.
Painwasassessedusingvisualanalogueescale:
Gradedfrom0to 10 which willbe explained to the patient preoperatively.
0-Representsnopain
10-Representsworst painpossible

Adverse effects: Patients will be monitored for any signs of cardiovascular orcentralnervoussystemtoxicity(changesinBP,heartrate,rhythm,signsorsymptomsofCNSstimulation).
Patients will also be looked for any hypersensitivity reaction for the drug andevidenceofpneumothorax.

STATISTICALANALYSIS

Results werestatisticallyanalyzedusingUn-pairedt testandFisher exacttest and Chi-square test. A 'p' value of <0.05 was considered as significant andcalculated by Graphpad software. All the values are mentioned as Mean +/- standarddeviation.

RESULTS

There were no clinical or statistically significant differences in thedemographicprofileofpatientsandthetwogroupswerecomparable.

	GroupR	**GroupL**	**P-value**
Age in mean	36.43	35.47	0.788
SD	14.862	12.792	
Males	23(76.7%)	20(66.7%)	**>0.05**
Females	7(23.3%)	10(33.3%)	
ASA-1	16(53.3%)	24(80%)	
ASA-11	14(46.6%)	6(20%)	

ThemeanageingroupRwas36.43yearsandingroupLwas35.47years. Thetwogroupsdidnotdiffersignificantly withrespecttotheirage.IngroupRtherewere23males(76.7%)and7females(23.3%).GroupLhad 20(71.7%)malesand10females(33.3%).Thegroupswerecomparablewithrespecttogender.

In group R there were 16 ASA I cases (53.4%) and 14 ASA II cases (46.6 %).In group L there were 24 ASA 1 cases (80.0%) and 6 ASA II cases (20.0%). Therewas nostatisticallysignificantdifferencebetweenthetwogroups.

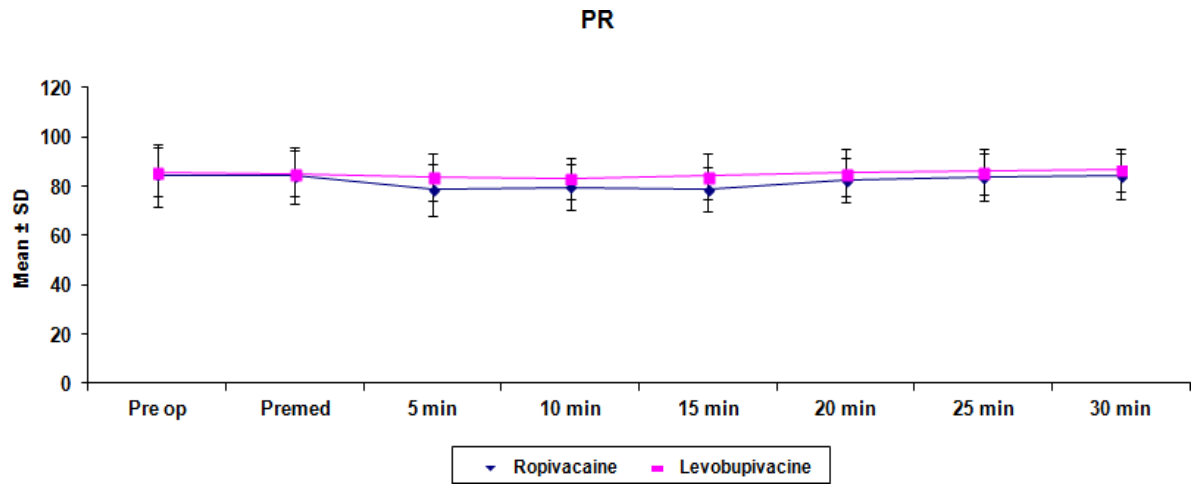
Table-2: Comparison of sensory and motor block variables in groups

Onset of sensory blockade	**Mean**	**Standarddeviation**	**pvalue**
GroupR	5.22	1.280	0.0002
GroupL	6.88	1.944	
Onset of motorblockade			
GroupR	7.90	1.689	0.0763
GroupL	8.94	2.666	
Onset of peaksensoryonset			
GroupR	14.93	2.149	0.1936
GroupL	15.71	2.436	
Peakmotoronset			
GroupR	18.82	3.019	0.8880
GroupL	18.93	3.005	
Duration ofsensoryblockade			
GroupR	8.64	1.315	0.0014
GroupL	10.29	2.351	
Duration ofmotorblockade			
GroupR	8.323	1.2398	0.0010
GroupL	9.837	2.0351	
Duration ofanalgesia			
GroupR	8.33	1.130	0.0001
GroupL	10.23	2.092	

Sensory onset is much earlier in Ropivacaine which wasstatisticallysignificant. Bothgroups were comparable with respect to onset of motor blockade and were notstatisticallysignificant.Levobupivacainegroup had statistically significantlongerdurationofsensoryblockade.

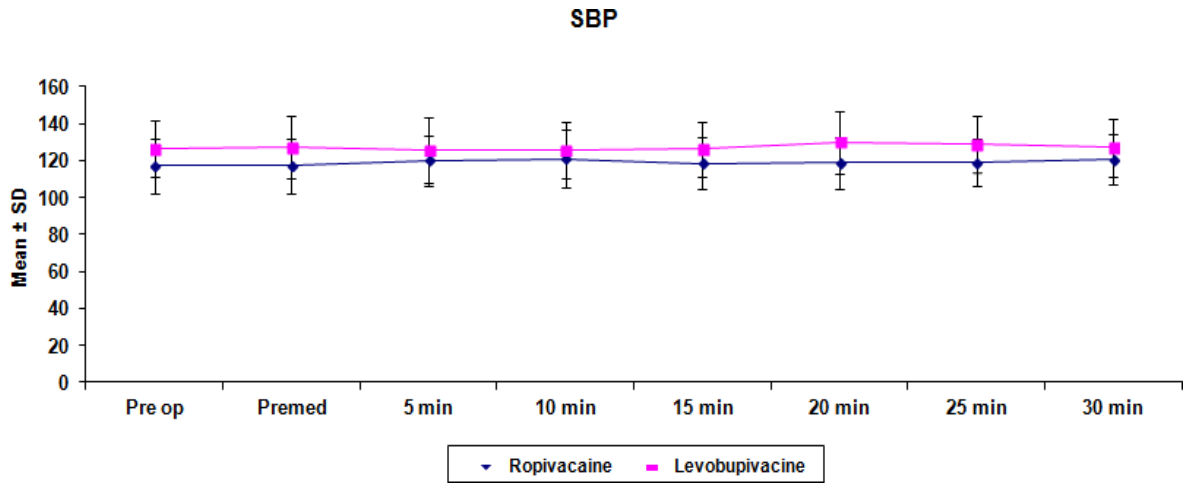
Duration of motor blockade was found to be longer in Levo-bupivacine groupanditwasstatisticallysignificant.Duration of analgesia was found to be longer in Levobupivacaine groupand it was found to be highly significant statistically.

Figure-1:Changesinheartrate in comparison in groups



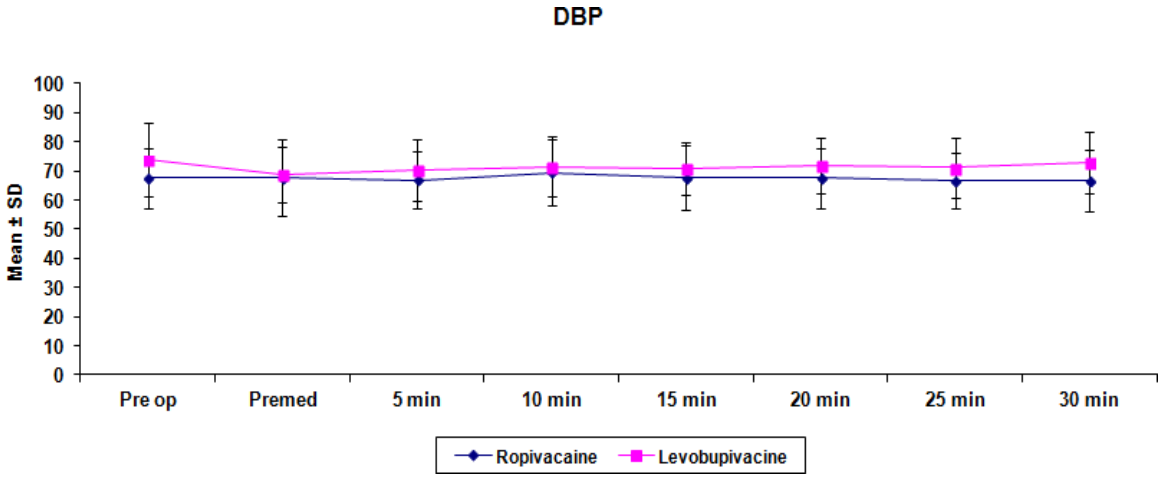
Both groups were comparablewith respect to changes in heart rate and statistically significant change was foundonlyat15minsafteradministrationoftheblock.

Figure-2: Changesinsystolicblood pressure



At 15 mins, it was 118.70 in group R and 126.47 in group Lwith a pvalue of 0.040 which was also significant statistically. At 20 mins it was 118.87 ingroupRand 130.20 ingroupLwithap valueof 0.006whichwasstatistically significant. At 25 mins it was 119.23 in group R and 129.10 in group L with a p valueof 0.009 which was significant statistically. At 30mins, the mean values were foundto be 120.70 in group R and 127.10 in Group L with a p value of 0.096 which was notsignificantstatistically.

Figure-3:Changesindiastolicbloodpressure



At25 mins, it was 66.83 in group Rand 71.17 in group L with a p value of 0.100 which was not significant statistically. At30 mins, it was 66.70 in group R and 72.83 in group L with a p value of 0.027 whichwassignificantstatistically.
Therewasnostatisticalsignificantdifferenceinoxygensaturationlevelsbetweenthetwostudygroups.

Table-3:Comparisonofadverseevents

Drug	Adverseevents	Percentage
GroupR	2	3.3%
GroupL	0	0%

On observing for any adverse events, two patients in Group R had an episode ofvomiting.Ontotalitcontributedto3.3%outofthetotalnumberofpatientsparticipatingingroupR.PatientsingroupLhadnoadverseevents.

DISCUSSION

Amongvarious types of brachialplexus block the supraclavicular approachhas been considered the most efficacious. It is often described as "spinal anaesthesiafor upper extremity" because of its ubiquitous application for upper extremity surgerycharacteristically associated with a rapid onset of anaesthesia, high success rate,complete and predictable anaesthesia for upper extremity. Bupivacaine is commonlyused local anaesthetic drug for brachial plexus block because of its long duration ofaction and a favorable ratio of sensory to motor neural block. However, its toxicity isa concerning issue especially when larger doses are used in peripheral nerve blocksorprolongedinfusionsforpostoperativeanalgesia.

Hence, the present study was on new drug with wider safety margin, anddesirablepharmacokineticpropertiesofBupivacaine. ThedecreasedtoxicityofLevobupivacaine is attributed to its S- enantiomer and faster protein-binding rate.Ropivacaine, a long acting pure S-enantiomer is considered to be less CardiotoxicprofilecomparedtoBupivacainewithsimilarpharmacodynamicproperties.Use of Ultrasound guidance for supraclavicular brachial plexus block alsoreduces amount of volume required and hence less risk of local anaesthetic systemictoxicity.

ThisistherationaleforourstudyoncomparisonofeffectivenessofRopivacaine and Levobupivacaine for ultrasound guided brachial plexus block bysupraclavicularapproach.After Approval from ethical committee of Gandhi Medical College, Telangana.Written informed consentobtained from all the 60 adult patients (30 for each group)who are mentally stable and / or attendant, participating in present studyundergoingelectivesurgeryforupper limbprocedures.

Previousstudieswereperformedwithhigherdosesoflocalanaestheticsranging from 30 to 40 ml [16,38].With the effective use of ultrasoundwe were able tocome down on the volume of local anaestheticand thereby bringing down the drugrelatedsideeffectswithoutcompromisingonthequalityoftheblock[5].Ourhypotheticalassumptionisthat0.5%Ropivacainewillproducelessintenseandshorterdurationofmotorblockadethan0.5%LevobupivacaineasRopivacaineislesspotentduetoitslesserlipidsolubilitycomparedto Levobupivacaine.

There was even distribution of age in both groups. The patients selected in thepresent study belonged to the age between 18-60yrs. A random allocation of the patientwas done in both groups. However, as is evident ofthe observation themean age was 36.43 ± 14.86 ingroup R (Ropivacaine) and35.47 ± 12.79 in group L(Levobupivacaine) didnot vary significantly. Therefore, clinically insignificant variationsinagesimplyhelpedustoalleviatetheseconfoundingfactors,likedistribution,metabolism,excretionandactionofdifferentdrugs.

In our study majority of patients were male with 76.7% and 66.7% in group Rand group L respectively. They belong to Orthopaedic and Plastic surgery groups inour institution in this study period. However, this male preponderance had no clinicalrelevanceontheresultsofthestudy.Based on the values derived from the descriptive and inferential statisticaldata, it was evident that the parameters of the subjects like, Age, Sex, Type ofsurgery and the ASA status are not significantly associated with the study group towhichtheybelongtoviz.RopivacaineandLevobupivacainegroups.This also indicates that the subjects are

well matched as far as these basicDemographic parameters are concerned and boththe groups, viz. Ropivacaine andLevobupivacainegroupsarecomparable.

KulkarniSetal[3]in2016conductedaprospectiverandomizeddoubleblindcomparative study of 60 patients with ASA I and II of either sex between the ages of18-60years.Theywereenrolledandrandomlydividedintotwogroups.Supraclavicular brachial plexus block was given for upper limb surgeries using0.5%Levobupivacaine(GroupL)and0.5%Ropivacaine(GroupR).The results of demographic variables like sex, age, ASA status are similar toourstudy.

In our study Ropivacaine had earlier onset of sensory block. The mean onsetof sensory block was (5.22±1.28 min)with Ropivacaine and(6.88±1.94 min.) inLevobupivacaine, with ap value of 0.0002which was statistically significant. TripathiDetal.[4]intheirstudyoncomparisonofRopivacaineandBupivacaine for supraclavicular brachial plexus block found that the mean onset timeof sensory block was (4.22 ± 1.52 min) with0.75%Ropivacaine and (13.83 ±3.49min)with0.5%Bupivacainerespectively,P<0.01whichwassignificantstatistically.This was almost similar to present study but the earlier onset for them may beduetousageofhigherconcentrationof0.75% Ropivacaine.Mangeswaran R et al[5] in their study on Comparison of 0.5% Ropivacaineand0.5%LevobupivacaineforInfra-clavicularbrachialplexusblockobservedthat themeanonset timeforsensory blockwithRopivacainewas(13.5± 2.9 min.)compared to Levobupivacaine at (11.1 ±2.6 min.) with p value 0.003, so, statisticallysignificant.ThefasteronsetwithRopivacaineinourstudymightbeduetouseofultrasoundguidancean dbysupraclavicularapproach.InastudydonebyJyothiDetal.[6]theonsetofsensoryblockwithLevobupivacainewa searliercomparedtoBupivacaine.

Thedifference betweenonset timeformotorblockwithRopivacaine andLevobupivacaine inourstudywasnotstatisticallysignificant.

Wefoundthatthemeanonsetofmotorblockadewas(7.90±1.68min).inRopivacineandwas(8.94±2.66min). in Levobupivacaine with p value of 0.763 which was statisticallyinsignificant.Mangeswaran R et al[5]in their study onComparison of 0.5% Ropivacaineand 0.5% Levobupivacaine forinfra-clavicular brachial plexus block observed thatthe onset time for motor block was (19.0 ± 2.7 min.) in Ropivacaine groupcomparedto (17.1 -± 2.6 min.) in Levobupivacaine group which is significant statistically. (p =0.013). The faster onset of motor block in our study might be due to supraclavicularapproachandultrasoundguidedblock.Mankand P et al.[7] found in their study the mean onset of motor blockade wassignificantlyfasterwithRopivacaine(9.50±2.403min)ascomparedtolevobupivacaine(12.33±2.537 min)withP< 0.05whichis statisticallysignificant.Inourstudy,RopivacainehadasimilaronsetofmotorblockadeasinthestudydonebyTripa thiDetal.[4]andBhatiaRetal[8].ButincomparisonwithShobabaGetal[9]afasteronsetofmotorblockadewasobtained. AsforLevobupivacaine onset of motor blockade was longer in comparison to the studydone by Jyothi D etal.[6] .however, the results of our study was almost similar to thestudydonebyPandyaCetal[10].

Kulkarni D et al[3]. in theirstudy observed significant earlier onset of sensoryblockade(8.60±1.52min.)withLevobupivacaine(p=0.027)andonsetofmotorblockade (13.13±2.01min) with Levobupivacaine.(p=0.01).In our study we observedearlier onsetofsensory in Ropivacaine group which was statistically significant.Though earlier motor onset also observed in Ropivacaine group in present study, itwasnotsignificantstatistically.

Inpresentstudy,thepeakonsetofsensoryblockadewasearlierintheRopivacainegroupwithmeanvalueof (14.93±2.14min),whencomparedtotheLevobupivacaine group with mean value of (15.71±2.43min). The p value obtainedwas 0.1936andthevalues werenotstatisticallysignificant.ThepeakonsetofsensoryblockadebyRopicainewasmidwaybetweenstudiesdo nebyTripathiDetal.[4]andBhatiaRetal[8].

ThepeakmotoronsettimeforgroupsR(Ropivacaine)andL(Levobupivacaine)were18.82±3.019and18. 93±3.005mins.Thepvaluewas0.8880andtheresultswerenotstatisticallysignificant.The peak onset of motor blockade was not different between Ropivacaine andLevobupivacaineinstudydonebyBhatiaRetal[8].TripathiDetal[4].intheirstudyobservedthatpeakmotoronsetd evelopedin 27.26±8.93min.withRopivacaineand23.43±3.89minwithLevobupivacaine respectively

andwasnotstatisticallysignificant.(P<0.05)Thedifferentialonsettimeforsensoryandmotorblockadecanbeexplainedbythemechanismofactionoflocalanaestheticsonthenervefibres.

The duration of sensory blockade in-group R (Ropivacaine) was 8.64 hoursand in-group L (Levobupivacaine) was 10.29 hours. The standard deviation values ofboth the groups were 1.315 and 2.351 for group R and L respectively. The p valuewas0.0014.So, Levobupivacainegrouphadstatisticallysignificantlongerdurationofsensoryblockade.Kulkarni S et al[3] in their study observed that duration of sensory block was(9.53±1.65 hrs) with Ropivacaine and (8.60±1.52hrs) with levobupivacaine and pvalue of 0.027 which is statistically significant. The mean duration of motor block forRopivacaine(14.6±2.25hrs)andLevobupivacaine(13.13±2.01hrs)withpvalueof 0.01whichisinsignificant.
MankandPetal[7].intheirstudyfoundthatthemeandurationofsensoryblockwas(10.93±1.96hrs)withLevobupivacaineand(8.67±1.09hrs)withRopivacaine, p value of < 0.001which is statistically significant. The mean durationofmotorblockwas
(10.87±1.13hrs)inLevobupivacainegroupand(7.13±1.25hrs)inRopivacainegroupwithapvalueof< 0.05whichissignificantstatistically.ThedurationofsensoryblockadewasmoreinLevobupivacainegroupthantheRopivacainegroup.However,inourstudythedurationofsensoryblockadewaslessforbothdrugs when compared with Tripathi Det al[4] and Pandya C et al[10].The differencemightbeattributedtotheamountofdrugused.

The Mean duration of motor blockade in-group R (Ropivacaine) was 8.323hours and in-group L (Levobupivacaine) was 9.837 hours. The standard deviationvalues of both the groups were 1.2398 and 2.0351. Duration of motor blockade wasfound to be longer in Levobupivacine group and it was statistically significant with a pvalueof0.0010.In our study, the duration of motor blockade was not different between the twogroups, which issimilartothefindingsofstudydonebyLisnattiOetal[11],Mangeswaran R et al[5]. In comparison to our study on Ropivacaine, TripathiD et al[4]in his study had a similar duration of motor blockade while in the study done byShobaba G et al[9] the motor duration was relatively shorter. As for Levobupivacainethe duration of motor blockadewas shorter on comparison with the study done byPandyaC[10].

Kulkarni D et al[3] in their prospective study on comparison of LevobupivacaineandRopivacaine observed that the prolongedduration of sensory 12.11±0.71hrsand motor blockade 11.31±1.02 hrs (p=0.0001) was observed in group of patientsreceivingLevobupivacainecomparedtoRopivacaine(11.26±0.75hrs)and(8.50±0.41hrs) respectively.

Similarlly, ourstudy findings showprolonged duration of sensory and motorblockwithLevobupivacaine.The duration ofanalgesia in GroupR (Ropivacaine) was8.33 hoursandgroup L(Levobupivacaine) had a mean value of 10.23 hours. Standard deviationvalues ofGroup R and L were 1.130 and 2.092. Duration of analgesia was found tobelongerinLevobupivacainegroupanditwasfoundtobehighly significantstatisticallywithpvalue0.0001.Kulkarni D et al[3]in their study found the time for first rescue analgesiarequiredpostoperativelywasmuchlongerinGroupL(13.2333+1.1651hr)ascomparedtoGroupR(10.8667+0.91852hr)andthedifferencewasstatisticallysignificant(P=0.0001).Whichissimilartopresentstudy.

ClineEetal[12]intheirstudyonAnalgesiaandeffectivenessofLevobupivacainecomparedwithropivacaineinpatientsundergoinganaxillarybrachialplexusblockobservedthatdurationofanalgesiawasprolongedwithLevobupivacainewith13.85hrs andwithRopivacainewas10.70hrs withapvalueof 0.013, whichisstatisticallysignificant.InourstudywithLevobupivacainethedurationofanalgesiawasalsoshorterin comparison with the study done by Cline E et al[12].This difference could beattributedtotrans-axillarytechniqueusedbyClineE etal.[12]In our study also when 0.5% Ropivacaine and 0.5% Levobupivacaine arecompared, we found Levobupivacaine produced longer duration of analgesia thanRopivacainegroupwhichishighlystatisticallysignificant(p<0.001).Thiswassimilartothestudydonebycline E etal [12] ,MankadP etal[7] andKulkarniSetal[3].

Inthepresentstudy, weobservedthatthemeanheartrateduringpremedication was84.47 in Group R and 85.23 in Group L, with a p value of 0.774, which was not statistically significant. At 15 mins, the mean heart rate was 78.93 in-group Rand84.13inGroupL,withapvalueof0.035, which wasstatisticallysignificant.
Inthe present study, the meansystolic blood pressure during premedicationin-group R was 117.27mm Hgand in Group Lwas 127.43mm Hg, which wasstatisticallysignificantwithapValueof0.016. Ourstudyobservedthatthoughsystolicbloodpressureduringpre-medicationwassignificant, the mean difference values between two groups were comparable and nomajorbloodpressurefluctuationsobservedinthestudygroups. The systolic blood pressure values between both the groups are significant at15min (p = 0.040), 20min (p = 0.006), 25min (p = 0.009)respectively aftertheadministrationoftheblock.
In our study, we found that during premedication the mean baseline diastolicblood pressure was 67.90 mm Hgin-group R and 69.77 mm Hg in-group Lwith a pvalueof0.532, whichwasnotstatisticallysignificant.There was no statistical significant difference in oxygen saturation levels betweenthe two study groups at any point of time. Kulkarni D et al[3]in their studyobserved intraoperative heart rate (HR), systolic blood pressure (SBP) and diastolicblood pressure (DBP) which were comparable in both the groups and found nostatisticallysignificantdifference(P>0.05).betweenLevobupivacaineand Ropivacaine.

Inthepresentstudy,weobservedthatinRopivacainegroupHRwasdecreasedby 6 beats/mincompared to baseline HR however it was statistically significant at15min. intervalwhen compared to the HR fluctuations in the Levobupivacaine groupandSBPshowedsignificantdifferenceat15min,20min,25mintimeintervals. However, the mean values were comparablebetween thegroups.

In our study, except for 2 episodes of vomiting in the Ropivacaine group therewerenomajoradverseevents.MankadPetal[7],KulkarniSetal[3.] showednosignificant intraoperative and postoperative complications with both the drugs whichweresimilar toourstudy.Fewstudieshadadverseoutcomeslike,bradycardia,Horner'ssyndromeand pneumothorax.[13] The incidence of adverse effect was probably low in our studydue to the decreased amount of localanaesthetics used and the use of ultrasoundforguidingthedepositionofthedrugatthecorrectanatomicallocation.Thisstudydemonstratedthatpatientsreceiving Levobupivacainehadacomparative late onset of sensory and motor blockade but the duration of action waslonger, and postoperative analgesic requirementswere delayed with lesser VASscores.WhiletheRopivacainegrouphadearlieronsetofsensoryandmotorblockade but the duration of action was shorter compared to group Levobupivacaine.Hence, Levobupivacainewould be a better option to choose in supraclavicularbrachialplexusblockswhereprolongedpost-opanalgesiaisrequired.

CONCLUSIONS

Wethusconcludefromthepresentstudythat0.5%Levobupivacaineoncomparison with 0.5% Ropivacaine in patients undergoing elective supraclavicularblockhaveSloweronsetofsensory block, Longer durationof sensoryand motorblockade, Longerdurationofanalgesia and Nomajorhemodynamicvariationsoradverse events.

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