ISSN: 0975-3583,0976-2833 VOL13, ISSUE08, 2022

COMPARATIVE STUDY OF THE EFFICACY OF LEVO-BUPIVACAINE AND ROPIVACAINE IN SPINAL ANAESTHESIA FOR LOWER SEGMENT CAESAREAN SECTION

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ABSTRACT

Introduction: Spinal anaesthesia, which is defined as 'the regional anaesthesia achieved by blocking nerves in the subarachnoid space' is a popular and most common technique worldwide which is avoiding the problem of a difficult airway, avoidance of multiple drugs required for general anaesthesia. Furthermore, it is relatively simple to perform, offers rapid onset of action, has minimal drug cost and relatively less side effects.

Aim: To study and compare the effect of 0.5% Levo-Bupivacaine with 0.75% Ropivacaine in spinal anaesthesia for LSCS.

Materials and methods: This study was conducted to compare the anaesthetic efficacy of intrathecal 0.5% Levobupivacaine and 0.75% Ropivacaine in lower segment caesarean section surgeries. 100 ASA grade I and Il in the age group of 18 - 40 years women were undergoing elective surgery under spinal anaesthesia. 100 patients were allocated into two groups of 50 patients each. The first group L received 1.8ml of 0.5% Levobupivacaine (5mg/ml), the second group R received 1.8ml of 0.75% Ropivacaine (7.5mg/ml) intrathecally. The onset of sensory and motor blocks, duration of sensory and motor blocks, hemodynamic parameters was recorded at 3 mins and then for every 5 mins interval in two groups.

Results: On comparison of data we found that the time for onset of sensory and motor block was significantly faster in the Levobupivacaine group. Patients who were given Ropivacaine had shorter duration of sensory block and earlier requirement of rescue analgesia post operatively. The duration of motor block was shorter in Ropivacaine group of patients i.e. they had earlier recovery of motor block and early ambulation compared to patients who received Levobupivacaine intrathecally. Incidence of Side effects like hypotension, bradycardia were more in Levobupivacaine group. Oxygen saturation was almost stable in both the groups. None of the patients in the study showed any allergic reactions to either of the drugs.

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Conclusion : We conclude that, the time for onset of sensory and motor block was faster in levobupivacaine and ropivacaine showed lesser variation in all the hemodynamic parameters. levobupivacaine is better suited for lower segment caesarean section in view of its faster onset and prolonged duration of motor and sensory block.

INTRODUCTION

Pregnancy is generally expected to end with a healthy and happy experience of a mother delivering a healthy infant. However, a variety of either maternal or foetal conditions can change the outcome in certain situations. A high degree of care for the mother and the foetus is essential if desired result is to be achieved. The obstetric patient for Caesarean section usually presents more challenges to the anaesthesiologist than other patients. Spinal anaesthesia is perhaps the most accepted approach to these challenges. It offers a fast, profound, definite and higher quality of sensory and motor blockade for Caesarean delivery. There has been an increasing trend in the Caesarean section rate in the last two decades not just in developed countries but also in developing countries. More than a century has passed and even to this day, it is one of the most popular techniques for both elective and emergency surgical procedures, particularly caesarean sections. Spinal anaesthesia, which is defined as 'the regional anaesthesia achieved by blocking nerves in the subarachnoid space' is a popular and most common technique worldwide.There are obvious advantages of regional anaesthesia, including avoiding the problem of a difficult airway, avoidance of multiple drugs required for general anaesthesia as well as allowing the parturient to be awake to witness the delivery of her baby thus enabling her to participate and enjoy the birthing experience. Furthermore, it is relatively simple to perform, offers rapid onset of action, has minimal drug cost and relatively less side effects. These have made spinal anaesthesia a popular technique for many surgical procedures. This trend has avoided the problem of difficult airway during anaesthesia and is also coupled with improvements in the development of safer local anaesthetics, such as Levo-Bupivacaine and Ropivacaine. The choice of local anaesthetics is determined by the duration of surgery and by the intensity of sensory and motor blockade required. [1,2]

Lignocaine was the first amide local anaesthetic and it replaced esters. Lignocaine does not have allergic sensitization, seen with esters. Lignocaine was an extensively used local anaesthetic for spinal anaesthesia, but now the use has fallen dramatically due to concerns regarding transient neurological symptoms over years. This prompted a search for alternatives. Bupivacaine is the first long acting amide local anaesthetic. Its advantage when compared to lignocaine is, its longer duration of action. It is due to increased lipid solubility and protein binding. But it has lower therapeutic index in cardiovascular toxicity. Concern about the cardiotoxicity of Bupivacaine has led to the development of Levo-

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Bupivacaine, a new long acting amide[4] with a reasonably stable hemodynamic profile.Ropivacaine is a new long acting local anesthetic drug belonging to the amino amide group. It is used as local anesthetic for infiltration, nerve block, epidural and of late for intrathecal anesthesia in adults and children over 12 years of age.The present study is undertaken to compare the incidence of cardiovascular instability after intrathecal administration of 10 mg of 0.5% Levo-Bupivacaine with 15 mg of 0.75% Ropivacaine

PATIENTS AND METHODS

The present study was conducted in the Department of Anaesthesiology, MediCiti Institute of Medical Sciences, Ghanpur village, Medchal Mandal, Ranga

Reddy District, Telangana state during the period of Dec 2014 – June 2016

Study design: A two group parallel study of patients undergoing surgery under spinal anaesthesia for elective caesarean section

Sample size: A total sample size of 100 cases

Inclusion Criteria: Aged between 19 to 30 years, weight not more than 70kg's, ASA class I & II and Uncomplicated pregnancy,

Exclusion Criteria: Patient with medical complications like Diabetes mellitus, cardiovascular diseases, severe anaemia, patient with obstetrical complications like Antepartum Haemorrhage, Pregnancy induced hypertension and Contraindications to spinal anaesthesia like deformities of spine, Neurological disorders, Skin infections

Methodology

The patients were randomly allocated into two groups of 50 each. Group L patients received 2 ml of 0.5% Levo-Bupivacaine (10 mg) 5mg/ml. Group R patients received 2 ml: of 0.75% Ropivacaine(15mg) 7.5mg/ml. The total volume of the injected solution was 2 ml in both the groups. In the operating room, equipment for emergency airway management and emergency drugs were kept ready. Patients were shifted to the operating room. The horizontal Position of the operating table was checked. Standard monitoring was used (NiBP, Pulse oximetry and ECG). Preoperative baseline mean arterial pressure, pulse rate and SP02 were recorded. Patients were secured with 18G intravenous cannula and preloaded with 10 ml/kg of Ringer lactate. All the patients were placed in Left lateral position, under full aseptic precautions the skin over the back was prepared with antiseptic solution (5 % povidone-iodine) and draped with sterile towel. Lumbar puncture was performed with a 23G Quincke Babcock spinal needle at L2-L3 or L3-L4 intervertebral space through midline approach. After confirming free flow of CSF, the drug was administered. The patients were placed in supine position immediately after injection and the

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time at which the drug administered was noted. A wedge with dimensions of 15 cm, 8 cm and 7 cm was placed under the right hip to prevent inferior vena caval compression.

The following parameters were observed as duration of Sensory Block, Motor block(assessed bilaterally using Modified Bromage scale), **Onset of Motor Block Duration of Motor Block** , **vital signs and side effects**:

RESULTS

This study includes 100 patients posted for elective LSCS, divided into two groups of 50 each. Group L 50 patients received 2 ml of 0.5% Levo-Bupivacaine and group R 50 patients received 2 ml of 0.75 % Ropivacaine. Statistical analysis was done by using SPSS version 20 (Statistical Package for Social Studies). The anaesthetic efficiency of the two drugs were compared and results tabulated as follows

Table -1: Demographic distribution in two groups

Parameters	**Group L**	**Group R**	
Age, N(%)			
19 – 25	19(38%)	19(38%)	Chi Sq = 2.5659 d.f=3 p=0.463
26 - 30	11(22%)	16(32%)	
31 - 35	13(26%)	12(24%)	
36-40	7(14%)	3(6%)	
Hight(cms) mean±SD	162± 9	160±7	0.16
Weight(kg) ±SD	60.9± 8.6	63.4± 9.2	0.28

Demographically there is no significance found with respect to age, height and weight as in these factors p value is > 0.05 .

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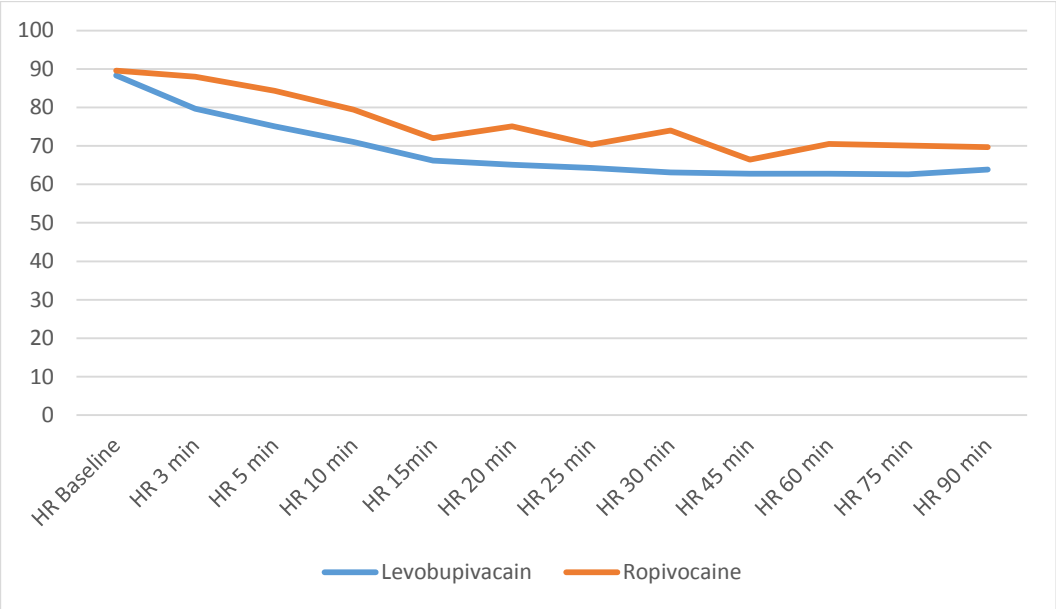
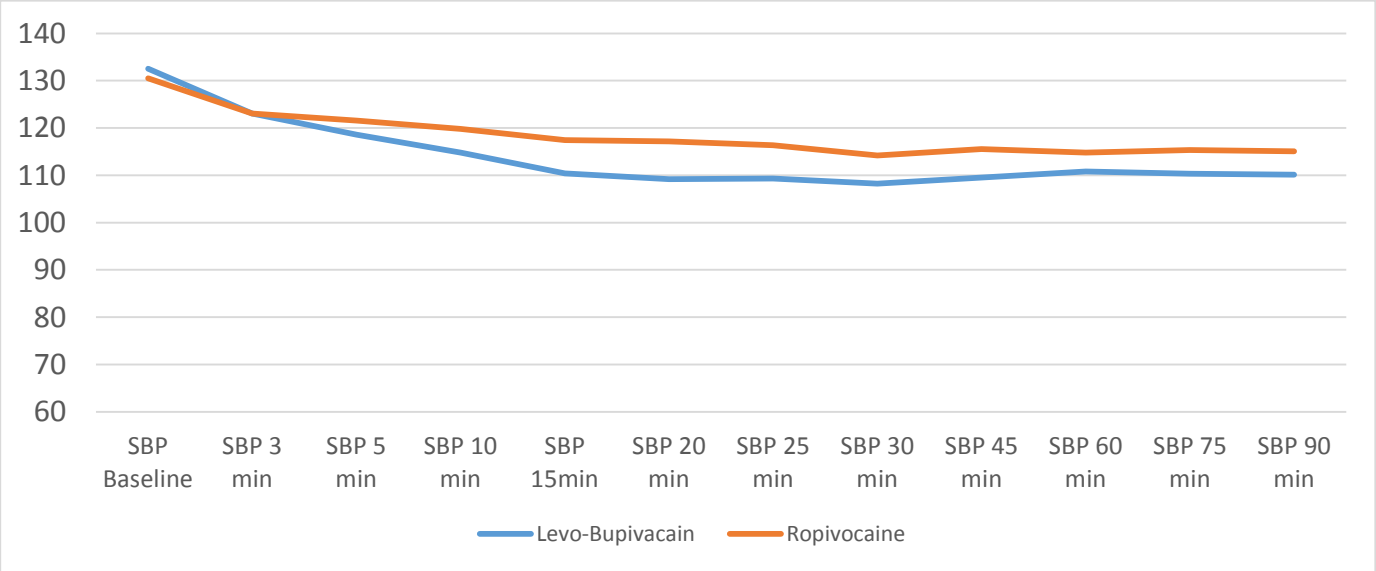
Figure-1: Heart rate changes in both groups



Changes in heart rate measured at baseline and at every 3min interval for first half an hour and 5 min interval after half an hour till the end of surgery. Later, after 30 min Heart Rate in beats / min were recorded every 15 min till 90 min .Baseline mean Heart rate in Levo-Bupivacaine group was 89.6 ± 12.66 beats / min and 88.32 ± 12.7 beats / min in Ropivacaine group Episodes of bradycardia were treated with Inj. Atropine 0.6 mg / IV or Inj .Glycopyrrolate 0.2 mg / IV

Figure -2 : Systolic blood pressure changes in both groups



Systolic Blood Pressure measurements in mm Hg at baseline, 3min, 5min then every 5min till 30min . Later SBP was recorded every 15 min till 90 min .The baseline SBP in B group was (132.16 ± 1213) mm

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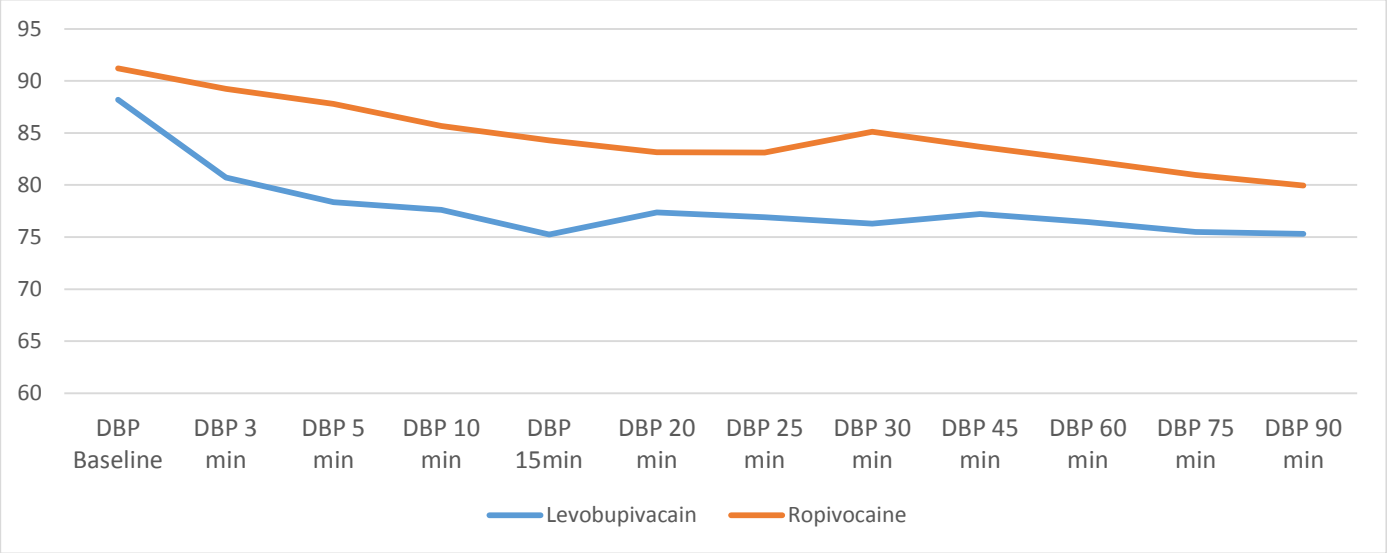
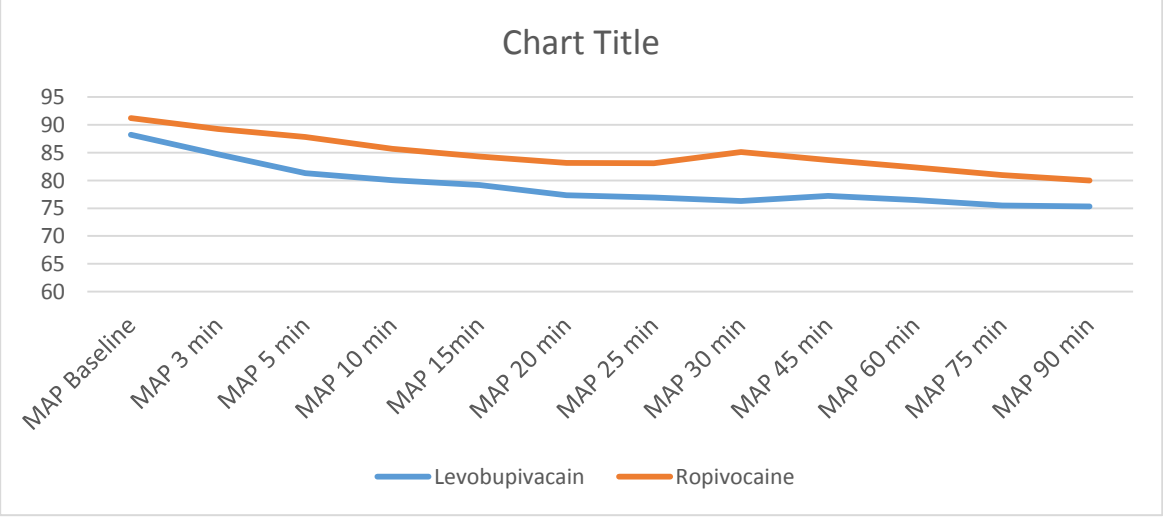
Hg and (130.52 ± 13.29) mm Hg , both of them are statistically comparable as p value is > 005.After first 10 mins, the values of SBP became statistically significant (p value < 0.05) The fall in SBP was more in Levo-Bupivacaine group compared to Ropivacaine group

Table-3 : Diastolic blood pressure changes in both groups



Diastolic Blood Pressure changes at baseline, 3min, 5min and every 5 min till 30 min. Later, after 30 mins DBP was recorded every 15 min till 90 min Baseline mean value of diastolic blood pressure was 81.02 mm Hg with a SD of 9.47 in B group and 79.84 mm Hg and SD of 7.70 in L group. After initial 15 mins , the p value became statistically significant (p < 0.05) when the observations were comparable between both the groups .

Figure-4: Mean arterial pressure changes in both groups



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MAP values in mm Hg at baseline 3mins, 5mins then every 5mins till first 30 min Later , after 30 min MAP was recorded every 15 mins till 90 mins . The baseline mean value for L group was 8890 ± 12.2 mm Hg and 9120 ± 1226 mm Hg for R group respectively . A line graph was plotted to compare the MAP values between L and B groups . Levo-Bupivacaine is represented in blue colour and Ropivacaine in Red

Table -2: Level of sensory block

	Levobupivacaine		Ropivacaine		
Parameter	MEAN	SD	MEAN	SD	P value
SLT 3 min	10.04	1.03	10.22	1.09	0.40
SLT 5 min	8.08	1.14	8.40	1.07	0.15
SLT 10 min	7.40	1.36	7.60	0.90	0.39
SLT 30 min	7.36	1.31	7.60	0.90	0.29
SLT 60 min	7.36	1.31	7.64	0.96	0.23
SLT 90 min	7.52	1.03	7.84	0.89	0.10

The Level of sensory blockade was observed at different time intervals of 3, 5,10,30 and 60 minutes. When compared between the two groups there was no statistical significance (value > 0.05) However , the peak value of sensory block in a few cases of Levo-Bupivacaine group was found to be T 4 compared to T 6 in Ropivacaine group

Table-3: Time of onset of sensory and motor blockade in both groups

	Levo-Bupivacaine		Ropivacane		t TEST	
Parameter	MEAN	SD	MEAN	SD	t statistics	p value
OSL	4.38	1.93	4.24	1.34	0.43	0.67
OMB	6.28	2.28	6.24	1.64	0.10	0.92

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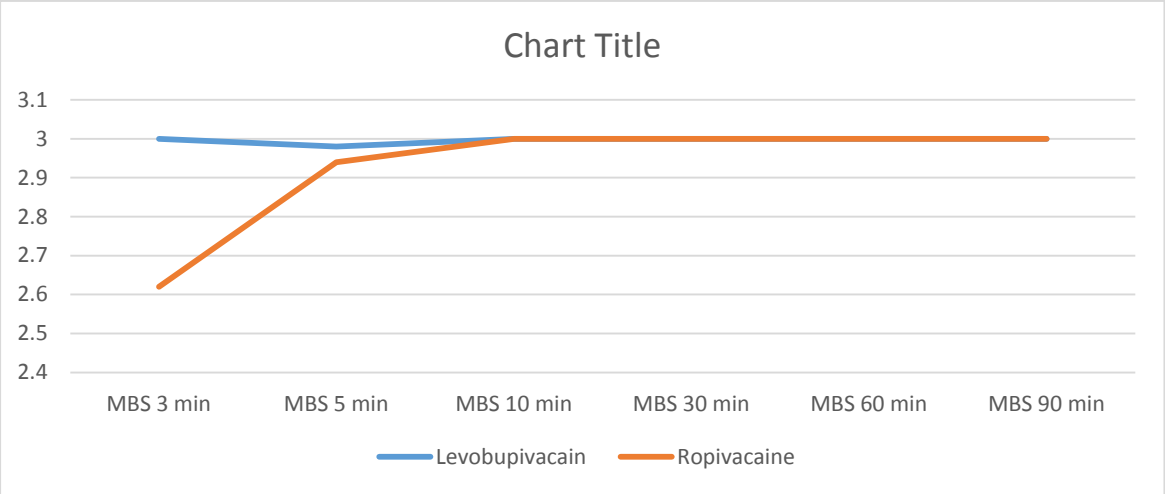
This table shows onset of sensory level and onset of motor block in Levo-Bupivacaine and Ropivacaine groups. OSL — Onset of sensory level ; OMB — Onset of motor block The time taken for onset of sensory level and for onset of motor blockade was compared in both groups and it was found statistically not significant , p value > 0.05

Figure-5:Comparision of modified bromage scale in both groups



There is faster progression of motor block in Levo-Bupivacaine group compared to Ropivacaine group. But , this difference does not last for more than initial ten minutes after which grade 3 motor block is achieved in both the groups. This can be seen by a steeper graphical curve in R group when compared with a smoother curve of L group

Table-4:Time taken for complete recovery of sensory and motor block

	Levo-Bupivacaine		Ropivacane		t TEST	
Parameter	MEAN	SD	MEAN	SD	t statistics	p value
CSR	176.5	46.03	164.6	32.26	-0.53	0.014
CMR	132.60	49.17	120.5	30.84	1.30	0.019

Parameter MEAN SD MEAN

CSR - Complete Sensory Recovery , CMR — Complete Motor Recovery

The mean time taken for complete sensory recovery in Levo-Bupivacaine group is 176.5 mins and in Ropivacaine group is 164.6 mins. For complete sensory recovery p value is < 0.05 statistically significant longer duration in Levo-Bupivacaine group. The mean time taken for complete motor recovery in Levo-

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Bupivacaine group is 132.60 mins and in Ropivacaine group is 120.5 mins. For complete motor recovery p value is < 0.05 , statistically significant which means earlier recovery in Ropivacaine Group.

Table -5 : Frequency of side effects in both groups .

PARAMETER	LEVO-BUPIVACAINE	ROPIVACAINE
HYPOTENSION	8	2
BRADYCARDIA	3	3
NAUSEA/VOMITING	5	1
SHIVERING	1	0

In Levo-Bupivacaine group 3 patients had bradycardia and 3 patients in Ropivacaine group 8 patients had hypotension in L group whereas 2 patients in R group. Total number of patients suffering from side effects is more in Levo-Bupivacaine group , compared to Ropivacaine group.

DISCUSSION

This study was done on 100 patients, divided into two groups of 50 each. The L and R groups, i.e. Levo-Bupivacaine and Ropivacaine groups, each patient received 2 ml of drug intrathecally for lower segment caesarean section surgeries. They were observed for changes in Heart rate, Systolic blood pressure (SBP), Diastolic Blood Pressure (DBP), Mean Arterial Pressure (MAP), time for onset of sensory and motor block and duration of sensory and motor block were noted after calculated time intervals. Spinal anaesthesia remains a popular choice of regional technique for a wide range of surgical procedures for its rapid onset of action, ease of administration, and is comparatively a safer option. Bupivacaine remains the most widely used and cost effective, long acting local anaesthetic used in spinal anaesthesia. But it comes with its own disadvantages like hypotension, bradycardia, cardiotoxicity and neurotoxicity. Levo-Bupivacaine and Ropivacaine emerged as a safer alternative to Bupivacaine. Both these drug not only have a competent clinical efficiency but also have lesser side effects like hemodynamic instability and are less cardiotoxic than its racemic counterpart Bupivacaine.

Chang et al[3] found the mean convulsive dose after intravenous injection of Levo-Bupivacaine in conscious sheep to be 103mg, which was higher than the convulsive dose of Bupivacaine which was found to be only 85 mg. **Kopaz, Allen et al**[4] showed that accidental intravenous injection of Bupivacaine during attempted epidural anesthesia in pregnant women caused cardiac arrest. The same event of Levo-Bupivacaine caused only transient agitation and the patient recovered fully.

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These studies suggest that Levo-Bupivacaine and Ropivacaine have a potentially greater margin of safety than the racemic Bupivacaine. The unbound fraction of Levo-Bupivacaine was significantly lower than that of unbound Bupivacaine because of its increased protein binding affinity, the early clinical presentation of toxicity in Levo-Bupivacaine mostly consisted of central nervous system symptoms like drowsiness, disorientation, slurred speech which may complicate with tonic-clonic seizures in some cases. These symptoms are generally self-limiting or respond to anticonvulsive treatment. The susceptibility for seizure activity after intoxication with Levo-Bupivacaine is 1.5 to 2.5 times less than that after racemic Bupivacaine, in anaesthetized patients. Sudden cardiovascular collapse may occur which can be easily treated with moderate doses of sympathomimetic.

Parpaglioni et al[5] in their study found that potency ratio between spinal Levo-Bupivacaine and spinal Ropivacaine was 1.34. This is comparable to the dose of Levo-Bupivacaine and Ropivacaine 2ml each given in our study which is 10 mg and 15 mg respectively.

Gautier et al[6] in their study "Comparison of the effects of intrathecal Ropivacaine, Levo-Bupivacaine, and Bupivacaine for Caesarean section" also described a similar potency ratio of 1.5 (3:2). **Lee YY et al[7]**. in their study found that in intrathecal anesthesia, Ropivacaine is less potent than Levo-Bupivacaine. This finding is also consistent with our study where we use 1.5 time more Ropivacaine to achieve a comparable motor and sensory block.

Present study shows no difference between Levo-Bupivacaine and Ropivacaine for the time of onset of sensory block. **Mehta et al[8]** conducted a study found no significant difference in the onset of sensory block which is comparable to our study. This is consistent with the finding in studies conducted by **Casatie et al[9]**. According to him the time of onset of sensory block was 8 min in Levo-Bupivacaine group and maximum sensory level was T6 which was achieved in 20 min. The time of onset of sensory block was 10 min in Ropivacaine group and maximum level of sensory block was T6.

Gautier et al[6] in their study "Comparison of the effects of intrathecal Ropivacaine, Levo-Bupivacaine, and Bupivacaine for Caesarean section" showed a statistically significant delay in the onset of sensory block in both the groups probably due to the addition of Sufentanyl. However, the onset of block was faster in Levo-Bupivacaine group which can be comparable to our present study. A study conducted by **Coppejans HC et al[10]** found no significant difference in the onset of sensory block which is comparable to our study. Our study shows no difference between Levo-Bupivacaine and Ropivacaine for the time of onset for sensory block**. Mehta et al [8]** conducted a study on Levo-Bupivacaine and Ropivacaine for Spinal Anaesthesia showed similar results.

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Table-5: Comparison of sensory and motor block compared to other studies

Time of onset of sensory block		
Study	L group	R group
Mehta et al[8]	4.38±1.53 min	5.45±1.00 min
Gautier et al[6]	7.30 ± 3.6 min	10.21± 4.3 min
Present study	4.24 ± 1.34 min	5.40 ± 1.6 min
Time for onset of motor block		
Gautier et al[6]	4.10±0.88 min	2.36±0.61 min
Celleno et al[11]	3.90±1.71 min	3.0 ±1.32 min
Present study	6.24±1.64	6.28±2.28
Duration Of Sensory Block		
Casati et al[9]	4.60±1.41 min	4.46±1.07min
Mantovalou et al[12]	10.21±4.3min	7.30±3.6min
Present study	4.38±1.93min	4.24±1.34min
Duration of sensory block		
Mehta et al[8]	189.40 min	175.76 min
Mnatouvalou et al[12]	157 min	127 min
Present study	172 min	164 min
Duration of motor block		
Camorcia et al[13]	142 min	121 min
Gunaydin et al15	135 min	100 min
Present study	139 min	125 min

This is consistent with the findings in a study conducted by **Gautier et al**[9] in which the time of onset of motor block was marginally faster in Bupivacaine group followed by Levo-Bupivacaine group. They compared the effects of intrathecal isobaric Ropivacaine Levo-Bupivacaine and Bupivacaine for caesarean section in 90 parturient combined spinal epidural technique was used local anaesthetic drug was combined with sufentanil 2.5 microgram . Another study conducted by **Coppejans HC et al** [10] also supports this finding.

The time for onset of motor block is comparable with both the studies. **Celleno et al**[11] also confirms no clinical significance in onset of motor block in Levo-Bupivacaine. **Camorcia et al** [13] did a study to assess the intrathecal ED50 for motor block with Levo-Bupivacaine, Ropivacaine and racemic

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Bupivacaine for spinal anaesthesia, there was no significant difference in the onset of both sensory and motor block which is comparable to our study. **Mantouvalou et al[18]** found that the onset of motor block was significantly faster in the Levo-Bupivacaine group compared to Ropivacaine group ($P < 0.05$). Ropivacaine presented a shorter duration of both motor and sensory block when compared to Levo-Bupivacaine ($P < 0.05$). This is consistent with the findings in our study

This is consistent with the findings in studies conducted by **Casati et al[11] and Mantouvalou et al [18]** in which the duration of sensory block showed no difference. The mean duration of sensory block was longer with Levo-Bupivacaine compared with Ropivacaine group in our study, which may be attributed to the greater intrinsic vasoconstrictor property of Levo-Bupivacaine, though the intergroup difference is not very significant between both the groups. Local anaesthetic infiltration along the incision line is used frequently to provide post-operative analgesia. Post-incisional wound infiltration with 0.125% Levo-Bupivacaine provides more effective and longer duration of analgesia and early mobilization in inguinal hernia surgery. Wound infiltration with Levo-Bupivacaine provides good post-operative analgesia following caesarean section or lumbar disc surgery. In the study by **Mantouvatou et.al [12]** the findings were consistent with our present study with the duration of sensory block in Levo-Bupivacaine (157 mins) lasting longer than Ropivacaine (127 mins) group of patients Studies by **Casati et al** [9] showed longer duration of sensory block and longer surgical analgesia in Levo–Bupivacaine supporting our study. A study conducted by **Mehta et al** [8] found that the mean duration of sensory block in Bupivacaine and Levo-Bupivacaine was 175 .76 mins and 189.4 mins respectively, Levo-Bupivacaine having a longer duration of sensory block which is comparable with our study.

Lee YY et al [7] found that the time of onset of non-stimulated surgical pain was longer in Levo-Bupivacaine, shows longer duration of analgesia

The mean duration of motor block in the present study was found to be higher in Levo-Bupivacaine group compared to Ropivacaine group patients, who showed early recovery from motor block. The regression of motor block was significantly more rapid in Ropivacaine group. A study **by Casati et al[9]** showed similar results. **Camorcia et al[13]** conducted a study, where mean time for motor regression is 100 mins for Ropivacaine and 135 mins for Levo-Bupivacaine . They concluded that motor block lasted longer in Levo-Bupivacaine group of patients. **Eleno Moizo et al [16]** studied a group of patients undergoing Inguinal hernia surgery, and found that the mean time for complete motor regression in patients of Ropivacaine group (105 mins) was earlier than patients who were given Levo-Bupivacaine (113 mins) intrathecally , which was similar to the results of our study. **Gautier et al** [9] conducted a study which showed faster motor regression in Ropivacaine group (121mins) and slower motor regression in Levo-Bupivacaine patients (142 mins) which is comparable with the results of our study **. Camorcia M,**

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Capogna G, Berritta C[17] conducted a study where the time to complete regression of motor blockade was less in Ropivacaine. The difference is statistically significant. These findings are similar to our present study.

In the study conducted by **Mantouvalou et al** [12]: A Comparison of spinal isobaric Levo-Bupivacaine and Ropivacaine for lower abdominal and lower limb surgery concluded that there was no difference in the duration of motor block between Ropivacaine and Levo-Bupivacaine. In a study conducted by **Mehta et al** [17] found that the duration of motor block was more in Levo-Bupivacaine group compared to Ropivacaine group and the difference was statistically significant. The height of sensory block for Levo-Bupivacaine group was observed as T 6 + T4 whereas in Ropivacaine group a few patients had a block of T 4 but it was statistically not significant. Studies by **Gunaydin et al**[15], showed that the level of block in both groups has no significant difference similar to our study. **Casati at al** [16] showed a higher level of sensory block in Levo-Bupivacaine group similar to our study.

Hemodynamic variables like Heart Rate (HR), Systolic Blood Pressure (SBP) , Diastolic Blood pressure (DBP) , Mean Arterial Pressure (MAP) were measured at timed intervals and the observations were noted. Ropivacaine group showed more stable hemodynamic compared to Levo-Bupivacaine group in our study. Episodes of hypotension and bradycardia were less compared to Levo-Bupivacaine, they were easily reversible with Ephedrine and Atropine. Lesser incidence of hemodynamic compromise could be due to the inherent vasoconstrictor properties of Levo-Bupivacaine , after its absorption into systemic circulation .

The most common adverse drug reactions reported are hypotension followed by nausea, vomiting, headache and dizziness . The cardiac toxicity, neurological injury after peripheral nerve block and unwanted CNS effects, are lower than Bupivacaine. Allergic type reactions are rare and range in severity from urticaria to anaphylactoid -like reaction. Levo-Bupivacaine and Ropivacaine have a safety margin of 1.3 , which means toxic effects are not seen until the concentration rises by 30%. There are three case reports of successful resuscitation after inadvertent intravenous injection. The presentations were severe hypotension and bradycardia after a drug error; loss of consciousness, convulsions, hypotension and changes in QRS pattern of ECG after presumed intravenous injection during lumbar plexus block and loss of consciousness and convulsions after (a) spinal (b) sciatic nerve and (c) continuous lumbar plexus blocks. In all cases, resuscitation was successful with supportive measures, with or without pressor drugs and intravenous lipid emulsion. Recently studies have been carried out comparing the beneficial effects of vasopressor drugs and lipid therapy in local aesthetic systemic toxicity (LAST). Epinephrine should be used in small doses (10-100 pg) in adults. Lipid emulsion therapy should be considered at the first signs of LAST, after airway management. Successful

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resuscitation has been reported with intralipid emulsions following use of Levo-Bupivacaine. Levo-Bupivacaine is a long-acting local anaesthetic with a clinical profile similar to Bupivacaine. In an individual patient, the clinical anaesthetic effect from the drug is indistinguishable from that of Bupivacaine. The better safety profile of Levo-Bupivacaine confers an advantage over its racemic parent, Bupivacaine.

Clinical studies by Mehta et al[8], Lee et al[7] Camorcia et al[13] and Mantovulu et al [12]and have shown that the clinical efficacy of Levo-Bupivacaine and Ropivacaine is not inferior than Bupivacaine, with added benefits of lesser side effects and a superior safety profile. The better safety profile of Levo-Bupivacaine confers an advantage over its racemic parent, Bupivacaine. Clinical evidence supporting our results, equal efficacy envisaged with better safety profile proves the superior qualities of Levo-Bupivacaine. It is only a matter of time when it will become the drug of choice for regional anaesthesia.

CONCLUSION

From the present study, we conclude that, the time for onset of sensory and motor block was faster in Levobupivacaine group and the difference is statistically significant. The duration of sensory block and time for first requirement of postoperative analgesia was longer in patients who received Levobupivacaine. Patients who were given Ropivacaine had shorter duration of sensory block and earlier requirement of rescue analgesia post operatively . In Ropivacaine group the duration of motor block was shorter hence they had an early recovery.

The Ropivacaine group showed lesser variation in all the hemodynamic parameters SBP, DBP, MAP and HR when compared with the Levobupivacaine group. Patients who were given Ropivacaine showed more stable vitals. Patients on Ropivacaine showed fewer episodes of hypotension and bradycardia and easily reverted to baseline vitals. Levobupivacaine is better suited for lower segment caesarean section in view of its faster onset and prolonged duration of motor and sensory block

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