COMPARISION STUDY OF INTRATHECAL INJ.ROPIVACAINE (0.75%) ISOBARIC 1.5 cc V/s INJ.ROPIVACAINE (0.75%) ISOBARIC 2.5 cc FOR LOWER LIMB SURGERY FOR VERY HIGH RISK GROUP OF PATIENTS.

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ABSTRACT

INTRODUCTION: The spinal anesthesia is associated with heamodynamic instability and its consequences in very high risk ASA grade 3 and 4 patients posted for ORIF in fracture neck femur and intertrochanteric fracture. Isobaric ropivacaine has better heamodynamic stability compare to hyperbaric bupivacaine in spinal anesthesia. Regional anesthesia in form of lumbar and sacral plexus block has its own limitations

OBJECTIVE: optimal dose of isobaric ropivacaine spinal anesthesia for patient safety

METHOD: In our comparative observational study 25 patients of ASA grade 3 and ASA grade 4 taken in each group of age above 55 years. In group A Inj. ropivacaine 1.5 cc of 0.75% isobaric, and in Group-B Inj. ropivacaine 2.5 cc of 0.75% isobaric given L3-L4 interspace Intrathecal with spinal needle no 25 along with epidural catheter insertion. All hemodynamic parameter recorded like pulse, systolic blood pressure, diastolic blood pressure at 5, 10, 15 min interval.

RESULTS: With using unpaired t test and p value indicate, there is no advantage of very low dose of ropivacaine intrathecally for hemodynamic stability in very high risk group of patients. Study indicate there are no advantages of using very low dose of intrathecall ropivacaine in high-risk group A patients Vs group B patients.

CONCLUSION: there is no advantage of very low dose of ropivacaine intrathecally for hemodynamic stability in very high group of patients

KEY WORDS: isobaric ropivacaine, spinal anesthesia, hemodynamic stability

INTRODUCTION:

Regional anesthesia is more better than general anesthesia in many ways, so now days spinal anesthesia is preferred for lower limb surgeries in intrathecall, epidural & combined forms, but hemodynamic instability remains major issues of spinal anesthesia in very high risk group patients- ASA GRADE III& IV.

For intrathecall anesthesia, local anesthetics injection bupivacaine with glucose (hyperbaric) is used commonly in various doses at 0.5% concentration solution according to desired duration and level of spinal segments blocking needed. Now, new LA ropivacaine is available for intrathecall anesthesia in isobaric forms available at 0.75% concentration solution which is comparative intermediate acting and low cardio toxic than bupivacaine making less hemodynamic unstable to high risk geriatric age group.

In high risk group hip surgeries, if lumbar & sacral plexus block recommended which required high dose of local anesthetics & technically low dose of procedures with no chance of failures, intrathecall isobaric ropivacaine can block lumbar & sacral nerve roots without much complication, adequate effects in low dose. We want to find optimal dose of intrathecall ropivacaine in very high risk age group patients posted for IT , PFM , DHS , AMP , bipolar etc.

MATERIALS AND METHODS

In our we want to compare two different low doses of intrathecall isobaric inj. ropivacaine in high risk group of patients posted for close reduction internal fixation for intertrochanteric fracture of femur for perioperative hemodynamic stability. In our comparative observational study, we have taken total 50 patients randomly (25 patients in each group) posted for above procedure at orthopedic operation theatre at C.U.Shah medical college, Surendranagar. Inclusion criteria for patient was ASA grade 3 and grade 4 for anesthesia, age > 55 yrs. Exclusion criteria is ASA grade 1 and grade 2 for anesthesia , age <55 yrs , abnormal coagulopathy and other contraindication for spinal anesthesia. All routine Ix with special Ix when needed. In both group combined spinal+epidural anesthesia was given, spinal anesthesia given in L3-L4 interspace with spinal needle no 25. Epidural catheter no 20 was fixed at same level keeping catheter 2-3 cm inside epidural space with all aseptic precautions. All patients were given pre medication with Inj glycopyrolate 0.2 mg i.v. and inj ondansetron 4 mg i.v. and inj midazolam 1 mg i.v. slowly. Pre loading done with crystalloids solutions 6 ml/kg according to need of patient either ringers lactate or normal saline, continuous oxygen 2-3 lit/minute given by face mask in intra operative period. In group A – Inj ropivacaine (isobaric)

0.75% 1.5 cc (11.25 mg) given intrathecally. In group B- Inj ropivacaine (isobaric) 0.75% 2.5 cc (19.50) given intrathecally. Epidural catheter was kept reserved for prolongation of anesthesia or unsatisfied effect of spinal anesthesia and post operative pain management. After giving intrathecal spinal anesthesia and getting adequate sensory and motor block, patient shifted to fracture table for ORIF , continue SPO2, NIBP, ECG monitoring done. Intraoperative fluid was given 4 ml/kg in crytalloids. For study purpose hemodynamic parameter taken at 5 min, 10 min, 15 min for stastics.

OBSERVATION AND RESULTS

Statistical tools: Data were entered and analyzed with the Graph Pad.com. Statistical tests used for comparison is Student's t-test. Results are presented as mean (SD) and number (%) of cases as appropriate. The level of significance was set at $P < 0.05$, and 95% confidence intervals were calculated for the main outcome measures.

Table 1: showing the mean & standard deviation values of pulse, systolic blood pressure & diastolic blood pressure in group A & group B at 5, 10, and 15 minutes.
(Group A- ropivacaine 1.5 cc intrathecally & Group B-2.5 cc intrathecally)

Parameters(mean & SD)	5 minute	10 minute	15 minute
Pulse	A-81.38±20.55 B-82.34±20.3	A-82.76±20.32 B-82.23±19.39	A-81.65±28.02 B-77.07±18.39
T value	0.2803	0.75	0.096
P value	0.7816	0.45	0.92
Systolic BP	A-132.72±15.93 B-141.56±19.4	A-165.08±19.34 B-131.16±11.34	A112.64±28.28 B 125.4±12.15
T value	1.16	0.75	0.9064
P value	0.25	0.45	0.369
Diastolic BP	A-86.24±14.58 B-86.44±11.80	A-79.40±13.48 B-81.52±9.17	A74.32±14.81 B79.04±9.33
T value	0.05	0.65	1.36
P value	0.95	0.51	0.17

DISCUSSION

Reactions to ropivacaine are characteristic of those associated with other amide-type local Anesthetics. A major cause of adverse reactions to this group of drugs may be associated with excessive plasma levels, which may be due to over dosage, rapid absorption, unintentional intravascular injection or slow metabolic degradation. They may be difficult to distinguish from the physiological effects of the nerve block or events caused by needle puncture. Acidosis, hyperkalaemia or

hypoxia in patients may increase the likelihood and severity of Toxic reactions. Systemic overdose or intravascular injection may affect the CNS and/or the cardiovascular system. Subarachnoid injection may result in depression of the CNS, respiratory arrest and
Cardiovascular arrest. According to med safe data there are 10% chances of hypotension & nausea, Incidence > 1% - bradycardia, hypertension, tachycardia and vomiting. Incidence < 1%
Serious but less common reactions severe hypotension, arrhythmias and cardiac arrest.
In our study there was not found any mortality in intra operative period in very high risk group patient. In group A, only 2 patients have found unsatisfactory effect of anesthesia, they were managed accordingly & were excluded from study. In our study there are not such events. So according to table 1mean value& SD of pulse in group A at 5 minutes, 10 minutes,15 minutes is 81.38±20.55, 82.76±20.32, & 81.65±28.02 respectively. mean value& SD of pulse in group B at 5 minutes, 10 minutes,15 minutes is 82.34±20.73, 82.23±19.39,77.07±18.39 respectively. Value of p test is >0.05 not significant. Values of systolic blood pressure & diastolic blood pressure in group A & group B at 5, 10, and 15 minutes from table 1 are showing that the difference between them are not significant. There are not any indicating results in this study that low dose ropivacaine 1.5 cc intrathecall is beneficial than 2.5 cc intrathecall in very high risk group patients- ASA grade III& IV patients.

CONCLUSION AND SUMMARY

Present study shows that the difference between hemodynamic changes after 1.5cc & 2.5cc ropivacaine intrathecall administration is statistically insignificant. There is no advantage of very low dose 1.5cc of ropivacaine over 2.5 cc ropivacaine intrathecall for hemodynamic stability in very high risk group of patients.

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