

To Study The Effect of Intrathecal Dexmedetomidine As An Adjuvant To Isobaric Ropivacaine 0.75% In Lower Abdominal Surgeries

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Abstract--- *Background and aim: This study will be conducted to study the efficacy of intrathecal dexmedetomidine as an adjuvant to 0.75% isobaric ropivacaine in various lower abdomen surgeries. Objective is to evaluate the initiation and the duration of the sensory block and motor block along with various hemodynamic parameters and postop analgesia. Methodology in this study is sixty patients will be divided into two groups of 30each. The group R will be receiving three ml of isobaric ropivacaine 0.75% and 0.1 ml of NS via intrathecal route and group RD will be receiving three ml of isobaric ropivacaine 0.75% and dexmedetomidine 10mcg intrathecally in lower abdominal surgeries. Results: it is anticipated that the onset of block and duration of the sensory block and motor block, prolongs the postoperative analgesia and also will maintain the haemodynamic stability. It will also show that side effects will be less with addition of dexmedetomidine as an adjuvant. Conclusion: dexmedetomidine added as an adjuvant to isobaric ropivacaine intrathecally is superior to ropivacaine alone.*

Keywords--- *Ropivacaine, Dexmedetomidine, Intrathecal.*

I BACKGROUND/RATIONALE:

Spinal anesthesia is a preferred form of neuraxial anesthesia where conduction of nerve roots is blocked by injecting a small volume of local anesthetic solution into the subarachnoid space.usually amide and ester linked local anesthetics such as lignocaine, bupivacaine, tetracaine have been commonly used for spinal anesthesia (1-5). But these drugs carry undesirable effects like cardio toxicity and central nervous system toxicity. Ropivacaine, a new amide local anesthetic has low potential to cause cns and cardiovascular toxicity and is widely used as an alternative to bupivacaine. Ropivacaine has high pKa and low lipid solubility which blocks the pain fibers to a greater degree than motor fibers leading to decreased postoperative motor blockade and thus early ambulation of the patients, but the shorter duration of sensory and motor block can itself be a drawback if the surgery prolongs or the quality of

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motor blockade is poor, hence to overcome these drawbacks adjuvants are commonly added to ropivacaine (6-11). Alpha-2 adrenergic agonists have both analgesic and sedative properties. dexmedetomidine used in combination with spinal ropivacaine in small doses produces a shorter and faster onset of motor block and also prolongs the duration of the sensory block and motor block with preservation of hemodynamic stability and minimal side effects(12-19). This study will be conducted to mainly evaluate and compare the efficacy of dexmedetomidine when added to spinal ropivacaine in terms of onset and duration of sensory block and motor block maintaining the haemodynamic stability and postop analgesia in surgical procedures of lower abdomen.

II OBJECTIVES:

- Onset and duration of sensory and motor block.
- Regression of sensory block.
- Hemodynamic variability
- Postoperative analgesia
- Side effects, if any

III METHODS: THE STUDY WILL BE CONDUCTED AT DMIMS (DU),SAWANGI (M), WARDHA.

a)study design:

Study period : 3 years

Study area: Department of Anaesthesiology JNMC & DMIMS.

Research design :Cross sectional Study

Study population : Adult patients, 18 – 50 years of age

Participants: b)Inclusion criteria:

ASA I – II who will undergo lower abdominal surgeries

Both males and females

Age group 18yrs- 50yr

Setting: The patients in this study will be allocated into two groups. One group of 30 patients will be receiving 3ml of Isobaric Ropivacaine 0.75% and 0.1 ml of NS will be designated as group R. The second group of 30 patients will be receiving 3ml of Isobaric Ropivacaine 0.75% with 10mcg Dexmedetomidine, this group will be designated as group RD. Standard monitoring will be done with ECG, pulse oximeter and automatic sphygmomanometer. The baseline parameters SBP, DBP, HR, RR and SpO₂ will be recorded prior onset of case. Peripheral venous cannula will be secured with 18 Gauge and all patients will be preloaded with 10ml/kg ringer lactate. Under aseptic precautions 1% lignocaine hydrochloride is infiltrated locally. Sub arachnoid block will be given with 25 G Quinke's needle by midline approach in left lateral position at the L3-4 interspace after confirming free flow of CSF the drug will be given over approximately 10-15 seconds and patient will be given supine position immediately. The following parameters will be recorded.

- Onset of sensory block and motor block
- Two segment regression time of sensory block
- Assessment of postoperative pain by VAS
- Adverse effects if any.

The sensory blockade will be tested using pin prick method with blunt tipped needle at every 2 mins until surgical anaesthesia achieved at the dermatome level T10.

Quality of motor blockade will be assessed by modified Bromage scale.

Hemodynamic parameters shall be monitored every 2 min for the first 10 min, every 5 min for the next half an hour and every 15 minutes thereafter till the end of surgery.

Statistical methods: this will be done by using:

- chi-square test and
- student's unpaired t test.

Sample size:

Start	Enter	Results	Examples
Sample size (Group 2/Group 1)			
		1	
	Group 1	Group 2	Difference*
Mean	4.8	5.76	-0.96
Standard deviation	1.2	1.44	
Variance	1.44	2.0736	
Sample size of Group 1	30		
Sample size of Group 2	30		
Total sample size	60		
*Difference between the means			
Results from OpenEpi, Version 3, open source calculator--SSMean Print from the browser with ctrl-P or select text to copy and paste to other programs.			
Sample Size For Comparing Two Means			

IV EXPECTED OUTCOMES/RESULTS:

It is anticipated that intrathecal dexmedetomidine when added as an adjuvant to isobaric ropivacaine is better and preferred compared to isobaric ropivacaine alone.

V DISCUSSION:

Choice of anaesthesia for lower abdominal surgeries are local, regional, general anaesthesia but subarachnoid block is preferred choice of anaesthesia because of its superior blockade, rapid onset, less failure rates, low risk of infection compared to catheter in situ, but has the disadvantages of shorter duration of block and lack of postoperative analgesia. ropivacaine is the first single enantiomer specific compound and it has less risk of neuro and cardio toxicity and it causes reversal of motor function rapidly. A number of studies in different aspects of anaesthesia and related conditions were reviewed (20-75).

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