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Anesthesiology

STUDY ON ADDITIVE EFFECT OF MORPHINE COMBINED WITH ROPIVACAINE FOR POST OP EPIDURAL ANALGESIA

Dr. Ganga Nagalakshmi* — MD, Assistant professor, Institute of anesthesia, Madurai medical college *Corresponding Author

Dr. Balaji. J — Postgraduate, Institute of anesthesia, Madurai medical college

ABSTRACT

AIM: To assess the analgesic and side effects of the epidural ropivacaine combined with morphine compared to ropivacine alone

METHODS & MATERIALS : 60 patients were selected and divided into two groups of 30each. Group R given with 0.2%Ropivacaine 12ml given Group m given with 0.2%Ropivacaine 12ml with 1mg morphine. primary- onset of analgesia (time of drug given to where the pain disapper), duration of analgesia (from blockade to patient ask for first rescue analgesia),motorbockade(bromage scale),side effects (hypotension, nausea, vomitting, pruritis) were observed in both groups.

RESULTS: There was no statistical significant result on the onset of sensory blockade in GROUP R AND M. There was statistically significant result on the duration of blockade is more with GROUP M ($p<0.001$) then group R. There was no motor blockade as bromage scale 0 in both M and R group ,side effects such as pruritis, nausea are noted with group M not with group R.

CONCLUSION: The combination of epidural 0.2% ropivacaine with 1 mg morphine has superior analgesic effects than0.2% ropivacaine for postoperative pain relief after abdominal hystrectomy.

KEYWORDS : Ropivacaine, Morphine, motor blockage, epidural anaesthesia, side effects

1.INTRODUCTION :

Epidural analgesia is considered an effective technique for providing pain relief after abdominal surgery. Ropivacaine has less toxicity on the cardiovascular[1,2] and central nervous systems[3]and less effect on motor function than bupivacaine when used in equivalent analgesic doses.[4] However, the doses of epidural ropivacaine needed to control postoperative pain also cause hypotension and motor block.[5,6] One strategy to provide effective postoperative analgesia and to reduce unwanted side effects is the use of a combination of local anesthetics with an opioid.[7]. Ropivacaine is a long-acting amide local anaesthetic agent and first produced as a pure enantiomer. It produces effects similar to other local anaesthetics via reversible inhibition of sodium ion influx in nerve fibres. Ropivacaine is less lipophilic than bupivacaine and is less likely to penetrate large myelinated motor fibres, resulting in a relatively reduced motor blockade. Thus, ropivacaine has a greater degree of motor sensory differentiation, which could be useful when motor blockade is undesirable. The reduced lipophilicity is also associated with decreased potential for central nervous system toxicity and cardiotoxicity. Ropivacaine was developed after bupivacaine was noted to be associated with cardiac arrest, particularly in pregnant women. Ropivacaine was found to have less cardiotoxicity than bupivacaine in animal models. Ropivacaine causes reversible inhibition of sodium ion influx, and thereby blocks impulse conduction in nerve fibres.This action is potentiated by dose-dependent inhibition of potassium channels. Ropivacaine is less lipophilic than bupivacaine and is less likely to penetrate large myelinated motor fibres; therefore, it has selective action on the pain-transmitting A β and C nerves rather than Aβ fibres, which are involved in motor function.Hence a study was planned to study the additive effect of morphine combined with ropivacine for post op epidural analgesia

2.AIM&OBJECTIVE:

To assess the analgesic and side effects of the epidural ropivacaine combined with morphine compared to ropivacine alone.

Primary outcome being onset of time and duration of action . secondary outcome being motor block, side effects

3.MATERIALS &METHODS

Sample size 60 patients
30 patients in each group M and R
Group R given with 0.2%Ropivacaine 12ml given
Group m given with 0.2%Ropivacaine 12ml with 1mg morphine
Randomized by alternative selection. Double blind study (patient and observer)
Prospective case control study.

INCLUSION CRITERIA

- ASA 1 & 2
- Age 40-55 yrs
- Abdominal hystrectomy surgery.

EXCLUSION CRITERIA

- Patient refusal
- Ischemic heart disease
- Coagulation abnormalities
- History of analgesic use
- Spinal deformities

METHODOLOGY

Patients undergoing abdominal hystrectomy were chosen for the study. spinal anaesthesia with 15 mg bupivacaine and 25 mics fentanyl was the primary anaesthesia. After the surgery patient was shifted to post op icu and at the first onset of pain by VAS score >4, one of the test drug was given in the epidural catheter

- Group R given with 0.2%Ropivacaine 12ml given
- Group m given with 0.2%Ropivacaine 12ml with 1mg morphine

PARAMETERS MONITORED

primary- onset of analgesia (time of drug given to where the pain disapper), duration of analgesia (from blockade to patient ask for first rescue analgesia), motorbockade(bromage scale),side effects (hypotension, nausea, vomitting, pruritis).

Secondary-age ,sex

Motor blockade of the legs was evaluated using the Bromage scale
0 = no motor block;
1 = inability to flex knees 30°;
2 = inability to flex knees and ankle;
3 = complete motor block.

Pain score using visual analogue scale (VAS) and patient asks for first rescue analgesia.

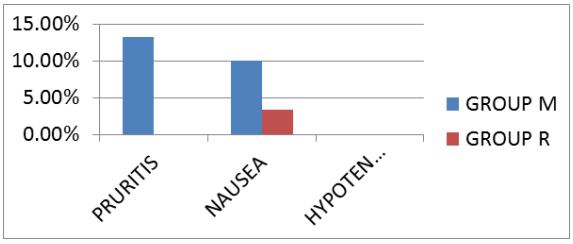
TABLE NO1: ONSET OF ANALGESIA

GROUP	MEAN(MIN)	SD	P VALUE
M	7.12	1.63	0.161
R	6.29	2.144	

TABLE NO 2 DURATION OF ANALAGESIA

GROUP	MEAN (HRS)	SD	P VALUE
M	16.36	1.449	<0.001
R	2.10	0.327	

FIGURE NO 1 : COMPARISION OF SIDEEFFECTS BETWEEN TWO GROUPS



4.RESULTS

- There was no statistical differences in age, height & body weight in the groups.
- There was no statistical significant result on the onset of sensory blockade in GROUP R AND M (P 0.161).
- There was statistically significant result on the duration of blockade is more with GROUP M ($p<0.001$) then group R.
- There was no motor blockade as bromage scale 0 in both M and R group
- side effects such as pruritis, nausea are noted with group M not with group R.

5.DISCUSSION & CONCLUSION

In this study, 1 mg of morphine is given in epidural show minimal analgesia is obtained with safe effective method of providing post - operative analgesia Incidence of side effects was minimal with use of 1 mg of morphine such as nausea vomiting hypotension pruritis ,where they have been shown to have a ceiling analgesic effect at doses >3.75 mg there is minimal additional analgesic benefit but increased incidence of adverse effects (particularly pruritis), as per the study done Morphine is a hydrophilic phenanthrene derivative.Its onset is slow compared to the lipophilic opioids (30 minutes epidural) it has a significantly longer duration of action (approximately 12-24 hours).Its terminal elimination half -life is approximately 170 minutes. morphine is slow to bind dorsal horn receptors in the spinal cord due to its poor lipid solubility and free opioid in the CSF may migrate supra-spinally resulting in delayed respiratory depression.Neuraxial morphine has been shown to be as effective as at improving the quality of analgesia and more effective providing postoperative pain relief. epidural morphine are associated with a higher incidence of nausea, vomiting, pruritus, urinary retention, sedation and delayed respiratory depression. The combination of epidural 0.2% ropivacaine with 1 mg morphine has superior analgesic effects than0.2% ropivacaine for postoperative pain relief after abdominal hystrectomy.

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