



Segmental Epidural Anaesthesia for inguinal Hernia Repair an alternate to sub arachnoid block.

KEYWORDS

Epidural anaesthesia; Segmental epidural anaesthesia; Hemodynamic stability; Excellent analgesia.

Dr. Inturi Ravi Mohan., M.D.,D.A

Dr. B Krishna Sing Naik

Professor, Department of Anesthesiology
Alluri sitarama Raju Academy Of Medical Sciences
Eluru- 534005, West Godavari, A.P. Corresponding
Author

Final year post graduate, Department of
Anesthesiology, Alluri sitarama Raju Academy Of
Medical Sciences, Eluru- 534005, West Godavari,
A.P.

ABSTRACT

Background: Inguinal hernia repair is one of the most commonly encountered surgical corrections in men worldwide.

Epidural anaesthesia is widely used for these surgeries. As inguinal hernia is usually seen in elderly age group, so as to avoid or reduce the complications which could occur in the conventional dosages this clinical study of segmental epidural anaesthesia was undertaken where the extent of block is limited to only few segments involved in the field of surgery.

AIMS AND OBJECTIVES: This study is undertaken to evaluate the advantages of segmental epidural anaesthesia for inguinal hernia repair. To reduce the conventional dosage of epidural anaesthesia to block only the segments involved in the field of surgery, hemodynamic effects and to minimise the complications, which could occur in conventional dosage.

METHOD : A clinical study was undertaken for anaesthetising 100 patients aged between 18-70 years posted for elective inguinal hernia repair, agreeing and co-operative for epidural anaesthesia.

RESULTS: In the present study, the mean onset of analgesia was 8.08 minutes. The quality of analgesia was excellent in 53 cases, good in 34 cases, fair in 10 cases and poor in 3 cases. The mean duration of analgesia was 167.42 minutes (120 min to 240 min). All patients were haemodynamically stable throughout the surgery. Shivering was seen in 5 cases and sweating in 9 cases.

INTERPRETATION AND CONCLUSION: Segmental epidural block with 5-6 ml of 0.5% Bupivacaine is found to be safe and fulfils the surgical requirement. Could be successfully employed for inguinal hernia repair with limited spread of analgesia involving only few segments. Fall in blood pressure and other complications were very minimal. This technique can be safely used in elderly patients.

INTRODUCTION

Inguinal hernia repair is one of the common procedure performed under spinal, epidural, general and inguinal field block. Epidural anaesthesia is suitable as a sole agent for lower abdominal surgeries and on lower limbs. But administration of conventional dosage of local epidural anaesthetics (15ml and above) for surgical anaesthesia frequently results in multiple hemodynamic changes for a simple inguinal hernia repair, which is confined to the level of the 12th thoracic and 1st lumbar dermatomes, an upper analgesic level of the 8th to the 10th thoracic dermatomes is satisfactory.

Methodology

A clinical study was undertaken for anaesthetising 100 patients aged between 18-70 years posted for elective inguinal hernia repair, agreeing and co-operative for epidural anaesthesia.

Selection of patients:

Inclusion criteria:

Patients undergoing inguinal hernia repair under age group 18-70 years and normal adults belonging to ASA Grade I and ASA Grade II.

Exclusion criteria:

Patients below 18 and above 70 years, ASA Grade III and ASA Grade IV, allergic to local anaesthetics, Presence of ischemic heart diseases, hypertension, symptomatic asthma, inability to climb a flight of stairs, uncontrolled diabetes, epilepsy, renal problems, bleeding disorders, patients on chronic drug medications such as MAO inhibitors, acute substance abuse, previous problem with anaesthesia, obesity, neurological deficit, infection at injection site and patients unwilling to comply with instructions.

Study was conducted on 100 patients of ASA I and II posted for elective inguinal hernia repair. Segmental epidural block was performed with inj. Bupivacaine 0.5% 5-6ml, Patients were observed for onset, duration and quality of analgesia. Level of analgesia preoperatively and post operatively, hemodynamic stability with heart rate, systolic and diastolic blood pressure.

Procedure:

Each patients selected for the study was positioned laterally (on affected side) on the operation theatre table. With all aseptic precautions the epidural space was identified at L1-L2 space, with 18G epidural needle 5ml of 0.5% Bupivacaine is injected very slowly only to block the segments (T12-L2) involved in the field of surgery. Later epidural catheter was inserted and secured and patient positioned back to supine position.

Level of analgesia was checked by needle prick. After conforming the adequacy and level of analgesia, the surgery was commenced. If the patient complained of pain during needle prick, then injected local anaesthetic (0.5% Bupivacaine) with an incremental dosage of 1ml at a time, till the complete onset of analgesia. Pulse Rate and Blood Pressure were recorded at an interval of 1 minute for first 5 minutes and then every 5 minutes till the end of the surgery. Oxygen saturation and ECG monitoring was done continuously.

Onset of analgesia, level of analgesia (pre & post operatively), duration of analgesia, total dosage of local anaesthetic used were recorded. Complications like bradycardia, hypotension, respiratory depression, shivering, nausea and vomiting, sweating and inadvertent dural puncture were recorded. Criteria for hypotension was taken as a fall in systolic Blood pressure more than 20% of patients basal reading and treated with vasopressors like Inj. Ephedrine 3-5 mg IV. Bradycardia as heart rate less than 60 and treated with Inj. Atropine 0.6 mg IV. If any inadvertent dural puncture occurred, those cases were excluded from the study and was given homologous epidural blood patch to prevent post dural puncture headache. After confirming the onset of analgesia patient was sedated with Inj. midazolam 1 mg IV. In the present study the following scale was adopted to grade quality of analgesia and relaxation.

1. Excellent: Patient comfortable, analgesia and surgical relaxation adequate, no supplementation required during surgery.

2. Good: Analgesia and relaxation adequate, minimal discom-

fort present during surgical procedure. Additional top-ups of local anaesthetic at an incremental dose of 1 ml are given.

3. Fair: Analgesia and relaxation adequate, discomfort present even after additional top-up of epidural local anaesthetic, this was alleviated by analgesic dose of Ing. Fentanyl 1 Mcg/kg IV.

4. Poor: Patients complaining of severe intolerable pain during surgery without relaxation. These cases were supplemented with general anesthesia

RESULTS: In the present study, the mean onset of analgesia was 8.08 minutes. All patients were haemodynamically stable throughout the surgery.

Table -1 QUALITY OF ANALGESIA:

	No.of cases
Excellent	53
Good	34
Fair	10
Poor	3
Cases excluded for study	2
Total	102

The quality of analgesia was excellent in 53 cases, good in 34 cases, fair in 10 cases and poor in 3 cases.

Table -2 DURATION OF ANALGESIA:

Time range in minute	No .of patients
120-130	12
131-140	11
141-150	11
151-160	13
161-170	12
171-180	15
181-190	4
191-200	9
201-210	7
211-220	0

The mean duration of analgesia was 167.42 minutes (120 min to 240 min)

Table -3 LEVEL OF ANALGESIA PRE- OPERATIVELY

LEVEL	No of Cases
T8	2
T9	16
T10	54
T11	22
T12	3

Table -4 LEVEL OF ANALGESIA POST- OPERATIVELY

LEVEL	No of Cases
T 7	2
T 8	33
T 9	43
T 10	17
T 11	1
T 12	1

Table -3 & Table -4 denote pre-operative and post-operative analgesia respectively.

CONCLUSION: Segmental epidural block with 5-6 ml of 0.5% Bupivacaine is found to be safe and fulfils the surgical requirement. Could be successfully employed for inguinal hernia repair with limited spread of analgesia involving only few segments. Fall in blood pressure and other complications were very minimal. This technique can be safely used in elderly patients

REFERENCES

1. Prithviraj. Textbook of regional anaesthesia. Vol (1). Elsevier(USA) Churchill Livingstone;2003.p.568.
2. Miller Ronald D. Local Anaesthetics in: Anesthesia. 6th ed. Vol. 1 Philadelphia: Churchill Livingstone; 2005.
3. Stoelting RK. Local Anaesthetics in: Pharmacology & Physiology. In: Anaesthetic Practice. 3rd ed. Philadelphia (New York): Lippincott Raven; 1999
4. Bromage PR. Epidural analgesia. Philadelphia: WB Saunders; 1979.p.118 .