

## Upper Thoracic Epidural vs General Anaesthesia for MRM surgeries

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### Abstract

**Background:** Most preferred technique for Breast Cancer surgeries is general anaesthesia. Recently Thoracic Epidural anaesthesia has been used for these surgeries and has a advantage over General Anaesthesia.

**Objective:** We compared the two techniques for MRM surgeries.

**Material and Methods:** Sixty ASA I – II patients undergoing MRM surgery were randomly chosen in two study groups. In Thoracic Epidural (T) group epidural catheter was inserted at T1-T2 level and 10ml of 0.25% of Bupivacaine was given along with 6ml of 2% lignocaine. In GA group (G) routine general anaesthesia was administered with propofol, vecuronium, Fentanyl, with maintained on isoflurane, oxygen and nitrous.

We compared adequacy of anaesthesia, surgical condition, post anaesthetic recovery, post anaesthetic analgesia and patient satisfaction.

**Results:** Intraoperative Haemodynamic was comparable in two groups. Incidence of post operative nausea vomiting was less in epidural group (13.3%) in group T and ( 36.6%) in group G. Aldrete recovery score was better in 1<sup>st</sup>hr in group T patients versus patients in group G. Patients satisfaction was a slightly higher in group G. Surgeons were satisfied with both methods.

**Conclusion:** From our study we concluded that plain Thoracic Epidural for MRM surgeries provide adequate operating condition, less side effects better pain management and satisfaction.

**Keywords:** Anaesthesia, MRM surgeries, Aldrete recovery score.

### 1.Introduction

Breast carcinoma incidence has seen a rising trend these days. Modified Radical Mastectomy (MRM), are done under general anaesthesia. However, practitioners are showing more interest towards regional anaesthesia for MRM surgeries these days.

The reason for the changing preference is better intraoperative stability and less postoperative complications. Types of regional anaesthesia for breast surgeries been practiced are thoracic paravertebral blocks, intercostal blocks, cervical epidural anaesthesia, thoracic epidural anaesthesia.

Hence we compared thoracic epidural anaesthesia (TEA) and general anaesthesia (GA) for MRM surgeries.

### 2. Materials and Method

After approval from the Ethical Committee of the hospital Patients were enrolled after signing an informed consent. Female patients of ASA status I and II between age of 30 to 60 years who were scheduled for modified

radical mastectomy were selected for the study. The patients were divided into two equal groups by use of random number tables. Group T comprised of 30 patients who were given thoracic epidural anaesthesia (TEA) for the surgery. Group G comprised of 30 patients who underwent general anaesthesia (GA) for the surgery.

The exclusion criteria were ASA III/IV status patients, patient's refusal.

On arrival in the OT, monitors were attached and baseline readings of pulse rate and blood pressure taken. Then an 18 G IV catheter was secured and fluid was started. Patient monitoring in both the cases include noninvasive blood pressure monitoring, oxygen saturation, heart rate, respiratory rate and ECG.

For the Epidural group (group T), after the aseptic precautions, 18 G Tuohy needle was inserted in T1-T2 interspace, in sitting position and epidural space was identified by loss of resistance to air technique.

As the breast surgeries does not need motor block, adequate sensory anaesthesia and analgesia was achieved with bupivacaine.

After securing catheter 10 ml of 0.25% plain bupivacaine was injected through the catheter after giving test dose of 3ml of lignocaine with adrenaline, then more 3ml of 2% lignocaine was given through the epidural catheter. After confirmation of analgesia surgery was started. Inj Midazolam 1mg and Inj Butorphanol 1 mg was given iv for sedation, Supplemental oxygen @ 6 lpm was administered via facemask. If patient experienced pain during axillary clearance, inj. Propofol 1 mg/kg was given.

Top up doses of bupivacaine 0.25% 8 ml was given after 90 mins if required. The epidural catheter was removed at the end of surgery.

All patients in the general anaesthesia group (group G) were premedicated with inj. glycopyrrolate 0.2mg, inj. midazolam 1 mg, inj. butorphanol 1 mg. Patients were induced with inj. propofol 2 mg/kg. Tracheal intubation under direct laryngoscopy was facilitated by inj. vecuronium 0.1mg/kg. Anaesthesia was maintained by Isoflurane in combination with N<sub>2</sub>O:O<sub>2</sub>, inj. Vecuronium was given intermittently as and when required. In the end, the patient was reversed with inj. Myopyrrolate 2.5 mg and extubated.

Intraoperative haemodynamics were noted. Hypotension was treated with 6 mg Mephentermine IV and bradycardia was treated with 0.3-0.6 mg IV atropine. Surgeon's satisfaction was asked and noted.

The postoperative Aldrete score was recorded in 1hr and 2 hr after discontinuation of anaesthesia. Aldrete Score of 8/10 was considered satisfactory for discharge from PACU.

Patient's satisfaction with the anaesthetic technique was asked. The mean observation of the quantitative data was analyzed by students' unpaired 'T' test. For the qualitative data Chi-square test was used. The Stata version 8 software was used for statistical calculations. P-values <0.05 were considered statistically significant.

### 3. Results

There was no difference in the demographic data in both the group (Table 1). There was no statistically significant difference in the haemodynamic parameters of the two groups. Even though there was no significant difference between the two groups, still the incidence of haemodynamic derangements were higher in Group G, whereas hypotension and bradycardia was more noticed in the thoracic epidural group (Group T, Table: 2).

**Table 1: Demographic variable**

Variable	Group T	Group G
Age	54.8 ± 5.11	57.28±2.54
Height	145.04 ± 3.9	143.38±4.3
Duration of surgery	123.02±2.2	115.43±3.1
Base systolic Bp	113.10±3.94	111.07±6.35
Base Diastolic Bp	72.53±5.5	75.22±3.4

**Table 2: Intra operative haemodynamics**

Parameter	Group T	Group G
Hypotension	8 (26.6%)	3(10%)
Hypertension	0 (0%)	5(16.6%)
Bradycardia	6 (20%)	1(3.3%)
Tachycardia	0 (0%)	9(30%)

**Table 3: Comparison of post-operative parameters**

Parameters	Group T	Group G
Nausea and vomiting	4 (13.3%)	11(36.6%)
Shivering	0(0%)	5(16.6%)
Respiratory distress	0	0
Dural puncture	0	0
Hypotension	5(16.6%)	2(6.6%)
Bradycardia	2(6.6%)	1(3.3%)
Post op Aldrete Score @ 1hr (> 8/10)*	28(93.3%)	17(56.6%)
Post op Aldrete Score @ 2 hr (8/10)	29(95.7%)	24(80%)

Less postoperative complications were noted in the thoracic epidural group as compared to the general anaesthetic group. The post op Aldrete score was significantly higher in the TEA group (Group T) @ 1 hour and 2 hour after discontinuation of anaesthesia.

Surgeon satisfaction was almost same in both the groups. However the surgeons rated General anaesthesia group higher. The patients undergoing thoracic epidural anaesthesia were more satisfied regarding pain but 8(26.6%) complained of awareness during the surgery.

### 4. Discussion

Practitioners still prefer general anaesthesia for MRM surgeries. Even though there are case reports of comparison of MRM under Thoracic Epidural Anaesthesia, comparative analysis of both the technique is scarce and that too with upper thoracic epidural.

Thus we compared two techniques of anaesthesia i.e. general anaesthesia and upper thoracic epidural anaesthesia as sole techniques for MRM surgeries.

We found that the TEA technique is better in terms of intraoperative haemodynamics, and post-operative pain control and recovery profile.

Complications of general anesthesia such as airway management are avoided with the thoracic epidural technique.

Upper thoracic epidural anaesthesia technique provided adequate intraoperative anaesthesia, better haemodynamic stability. The patients were sedated with Midazolam 1 mg and 1mg Butorphanol for increasing their comfort. Few patients (i.e. 4/30 patients) needed supplemental doses of Propofol during axillary clearance.

The hypotensions observed in our study Population were easily managed with bolus doses of Mephentermine 6mg iv bolus.

Even though TEA decreases the thoracic component of ventilation, still adequate ventilation is maintained if the diaphragm is functioning properly.

We did not encounter any respiratory problems in response to upper thoracic epidural. The post-operative recovery profile was significantly better in the Thoracic epidural group with lesser incidence of post-operative nausea and vomiting and lesser pain.

However in our study we took out the catheter after completion of surgery as we were concerned about migration of catheter to sub dural space due to poor handling.

The patients were satisfied with the thoracic epidural technique and the surgeons were also satisfied.

Thoracic epidural technique can play a better role in patients with co morbid conditions like hypertension and coronary artery disease etc., as many patients have such associated co morbidities.

Few limitations of our study were a small sample size, and patients were of ASA grades I and II. So the effect of the technique in ASA III/IV patients could not be assessed. A longer follow up period and post discharge follow up of the patients may show the effect of thoracic epidural anaesthesia on the scar pain and phantom pain.

In spite of the above limitations we conclude that the thoracic epidural technique is a better alternative to general anaesthesia for the MRM surgeries.

Thoracic epidural technique has the advantage of better post-operative pain management.

## 5. Conclusion

Use of upper thoracic epidural technique as a sole anaesthetic technique for MRM surgeries provides adequate operating conditions, better side effect profile, better pain management and patient satisfaction.

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