

A COMPARATIVE STUDY OF OUTCOMES AFTER MODIFIED RADICAL MASTECTOMY DONE UNDER THORACIC EPIDURAL vs. GENERAL ANAESTHESIA

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ABSTRACT

BACKGROUND

In earlier days General Anaesthesia (GA) was the choice for MRM, but recently Thoracic Epidural (TE) analgesia is being increasingly used for MRM. TE technique has a lot of advantages over the conventional GA technique.

MATERIALS AND METHODS

100 patients with carcinoma breast are divided into two groups- Thoracic Epidural (TE) and General Anaesthesia (GA) of 50 patients each. Four patients in TE group were converted to GA in view of patient's anxiety during surgery. All the intraoperative parameters heart rate, blood pressure, bleeding and postoperative outcomes, seroma formation, drains, wound infection rates, flap necrosis and hospital stay are recorded.

RESULTS

The demographic data showed no differences between both groups. During the intraoperative period, hypertension and tachycardia were more frequent in GA group while hypotension and bradycardia more in TE group, which was statistically significant (p value <0.05). In the immediate postoperative period, nausea and vomiting were more in GA group (31%) than in TE group (8.6%), which was statistically significant (p value 0.01). Also, pain scores were more in GA group than in TE group. Wound infection rates, seroma incidence, flap necrosis, length of hospital stay and hospital costs were less in TE group than GA group.

CONCLUSION

Use of thoracic epidural technique as a sole anaesthetic technique for MRM surgeries provides adequate operating conditions, better side effect profile, better pain management, less postoperative complications, early ambulation, early drain removal and early discharge from the hospital.

KEYWORDS

MRM, Thoracic Epidural, General Anaesthesia.

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BACKGROUND

Modified Radical Mastectomy (MRM) is done for patients of carcinoma breast. In earlier days, General Anaesthesia (GA) was the choice for MRM, but recently Thoracic Epidural (TE) analgesia is being increasingly used for MRM and has become standard of care in most of the tertiary care hospitals and cancer centres.¹

Aims and Objectives

In the present study, we compared general anaesthesia and thoracic epidural block in female patients undergoing MRM - evaluating intraoperative haemodynamic parameters, postoperative analgesia and side effects, seroma and wound infection rates, hospital stay and hospital cost to the patients.

MATERIALS AND METHODS

This is a prospective analytical study of 100 breast cancer patients who underwent MRM in our tertiary hospital from July 2015 to January 2017.

Inclusion Criteria

1. Patients of carcinoma breast proven by FNAC or biopsy and mammogram.
2. Age between 30-65 years, female breast cancer patients.
3. ASA class I and II; diabetes and/or hypertension controlled.

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Exclusion Criteria

1. Patients undergoing BCS (breast conservation surgery) for carcinoma breast.
2. Male breast cancer patients.
3. Infection of the puncture area was considered an exclusion criterion for thoracic epidural block.

100 patients with carcinoma breast are divided into two groups- Thoracic Epidural (TE) and General Anaesthesia (GA) of 50 patients each. Four patients in TE group are converted to GA in view of patient anxiety during surgery. All the intraoperative parameters heart rate, blood pressure, bleeding and postoperative outcomes, seroma formation, drains, wound infection rates, flap necrosis and hospital stay are recorded.

TE group - 46 patients.

GA group - 54 patients.

RESULTS

The Demographic Data Showed no Differences between Both Groups (Table 1)

Parameter	GA Group (Mean \pm SD)	TE Group (Mean \pm SD)
Age (yrs.)	53.4 \pm 11.21	45.9 \pm 9.8
Height (cms)	157 \pm 4.8	153 \pm 4.9
Weight (kg)	74 \pm 9	72 \pm 11
Surgery duration (minutes)	100 \pm 20	110 \pm 15
Physical status ASA I	34	30
Physical status ASA II	20	16
Mean systolic BP (mmHg)	130 \pm 20	128 \pm 18
Mean diastolic BP (mmHg)	78 \pm 6.2	80 \pm 4.6

Table 1. Patients Data on Admission

The duration of surgery was almost similar in both groups. The blood loss was within acceptable limits and none of them required transfusion of blood or blood products. All the surgeries were performed by same surgical and anaesthesia team.

During the intraoperative period, hypertension and tachycardia were more frequent in GA group while hypotension and bradycardia more in TE group, which was statistically significant, p value 0.002 for hyper/hypotension; p value 0.01 for tachy/bradycardia - GA vs. TE, respectively (Table 2).

Intraoperative	GA (n=54)	TE (n=46)
Hypotension	1 (1.8%)	11 (24%)
Hypertension	9 (16.6%)	0
Bradycardia	2 (3.7%)	10 (21.8%)
Tachycardia	6 (11.1%)	1 (2.2%)

Table 2. Intraoperative Haemodynamic Parameters

In the immediate postoperative period, nausea and vomiting were more in GA group (31%) than in TE group (8.6%), which was statistically significant (p value 0.01). Also, pain scores were more in GA group than in TE group. Wound infection rates, seroma incidence, flap necrosis, average length of hospital stay were also recorded and compared between both the groups. Overall, wound infection rate was 4%. One patient in TE group and three patients in GA group developed wound infection. Overall incidence of seroma was 11% in this study. Three patients in TE group and eight patients in GA group developed seroma. Incidence of flap necrosis was 3% in this study. One patient in TE group and two patients in GA group developed flap necrosis. Average length of hospital stay in TE group was 5.8 days, while in GA group, it was 7.2 days. Though not statistically significant, patients in GA group stayed in hospital more longer than TE group. Hospital costs were also more for GA group than TE group. In the postoperative period, suction drains were removed early for patients in TE group (average 6.8 days) than GA group (average 8.7 days).

DISCUSSION

The incidence of breast cancer and breast surgeries is increasing. Nowadays, thoracic epidural is becoming more popular and better option than general anaesthesia in most of the tertiary care hospitals.^{1,2} This study is an attempt to compare outcomes after MRM done under thoracic epidural vs. general anaesthesia.

We found that the TEA technique has got many advantages primarily in terms of better intraoperative haemodynamics and a better postoperative recovery profile. Patients were sedated with midazolam for increasing their comfort. Four patients who were given TE in our study became apprehensive and non-cooperative during the process of surgery and hence were converted to general anaesthesia- conversion rate to general anaesthesia in this study is 4%. Hypotension and bradycardia were observed more with TE, but were managed easily in our study.

On the other hand, GA may increase the risk of impaired cardiac function³ with a decrease in myocardial blood flow and left ventricular function as well as introduce the possibility of damage induced by mechanical ventilation such as alveolar barotrauma⁴ increasing the risk of pneumonia. Neuromuscular blockade during GA increases atelectasis in the dependent lung leading to a right-to-left shunt and increased risk of intraoperative hypoxia. In addition, intubation-related airway trauma to teeth or vocal cords can also occur during intubation. Hypertension and tachycardia were also more seen in GA group, which can result in more intraoperative bleed and patient discomfort after surgery.

Incidence of postoperative nausea-vomiting^{5,6} was also more frequent in GA group with statistical significance (p value 0.01). Immediate pain scores⁷ were more in GA group, which resulted in more analgesic dosage with possible side effects. Duration of ICU stay was almost similar in both the groups with no statistical significance. It was observed in our patients, that in TE group the patients were ambulating in ward early with more comfort and satisfaction than patients

in GA group. Wound infection rates in both the groups was statistically insignificant, but overall wound infection rate was 4% (4 out of 100 patients- one in TE group and 3 in GA group), which is in par with most of the studies.⁸ Not surprisingly, all the wound infections were in diabetes patients (in spite of controlled glycaemic levels).

Seroma was seen in three patients in TE group and eight patients in GA group. Overall, incidence of seroma in this study is 11%, which is comparable to seroma rates after MRM in literature.⁹ Flap necrosis rate in this study was 3%.¹⁰ Suction drains were removed early for patients in TE group (average 6.8 days) than GA group (average 8.7 days). Though not statistically significant, patients in GA group stayed in hospital more longer than TE group (7.2 vs. 5.8 days).¹¹ Hospital costs were also more for GA group than TE group.¹² All this data in our study suggest that the complications in TE group were less than GA group.¹³

CONCLUSION

We conclude that the thoracic epidural technique is a better alternative to general anaesthesia for the MRM surgeries.¹⁴ TEA avoids many problems of general anaesthesia, viz. nausea and vomiting, delayed postoperative recovery and has the advantage of better postoperative pain management,¹⁵ early ambulation of patients postoperatively, early removal of suction drains, decreased hospital stay and hospital costs. However, meticulous dosing of TEA and proper asepsis is a prime requirement of the success of TEA technique^{16,17} and clinicians must pay particular attention to intraoperative hypotension and bradycardia during use of TEA in awake patients.

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