

Comparative Study of Thoracic Epidural and General Anesthesia in Modified Radical Mastectomy

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Abstract

Background: Surgery is the treatment of choice in breast cancer and the current motto is towards less extension of removal of tissue with axillary dissection for removal of lymph nodes to guide further treatment. **Aim:** The present study compares thoracic epidural with general anesthesia in cancer surgeries of the breasts. **Materials and Methods:** It is a comparative study in 60 patients divided into two groups, epidural group (n = 30) underwent epidural thoracic block and other group (n = 30) underwent conventional general anesthesia. Following variables were noted as duration of the surgery, the need of anesthesia or sedation, and intraoperative hemodynamic parameters. In the postoperative period, length of time until discharge from the recovery room and from the hospital, severity of pain, adverse effects, and satisfaction with the anesthetic techniques were noted. **Results:** Both groups have no significance in the duration of the surgery was observed. The rate of hypertension was more in the group of patients who underwent general anesthesia, while hypotension was more in the epidural group. Postoperatively, pruritis (40%) has more incidences in the epidural block group. Nausea (20%) and vomiting (33%) was more in general anesthesia group. The length of stay in the recovery room and hospitalization were lower in the epidural group; Satisfaction with the anesthesia is more with epidural block. **Conclusions:** Epidural block is advantages when compared with general anesthesia and can be used as anesthesia option in oncologic mastectomies with axillary lymph node dissection.

Keywords: Thoracic Epidural; Radical Mastectomy.

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Introduction

Breast cancer is most common among Indian females is 25.8 per 100,000 women and mortality 12.7 per 100,000 women [1]. Presently incidence of breast cancer has been increasing. Surgery is the choice of treatment and the current tendency is towards less extensive procedure with axillary dissection for removal of lymph nodes to guide further treatment. In present scenario anesthetic technique should provide good intraoperative anesthesia and

adequate postoperative analgesia without collateral effects and with minimized hospital stay.

General anesthesia combining intravenous and inhalational agents, is the technique normally followed for this procedure. The consideration for general anesthesia includes ineffective pain control due to a lack of residual analgesia, and an increased incidence of nausea and vomiting, increase hospital stay [2]. Other unwanted effects of general anesthesia in these cancer patients are related to depression of the immune system [3].

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Thoracic epidural block is more used in collaboration plastic surgeries of the breasts [4] and postoperative analgesia of thoracotomies, and there are also few studies on its use in cancer surgeries of breast [5]. The present study is done to compare thoracic epidural block and general anaesthesia in female patients who are undergoing cancer surgeries of the breast with axillary exploration, with intraoperative hemodynamic parameters, postoperative analgesia, and side effects.

Materials and Methods

This is a prospective case study conducted in 60 patients scheduled for elective cancer breast surgery done in collaboration with anaesthesia department.

Inclusion Criteria

ASA one or two, females aged 25-65 years with breast carcinoma proven by FNAC or biopsy and mammogram.

Exclusion Criteria

Difficult airway, contraindications to epidural block, Infection of the puncture area for epidural block.

Sixty patients with carcinoma breast are divided into two groups- Thoracic Epidural (T) and General Anaesthesia (G) of 30 patients each. 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.

During the surgery, the surgeon evaluation of the quality of anesthesia, the need of residual sedation, hemodynamic changes as tachycardia, represented by a heart rate greater than 100 bpm; bradycardia, heart rate below 60 bpm; hypotension, defined as a 20% drop in baseline blood pressure; and hypertension, a 20% increase in baseline blood pressure, and other intercurrents, such as pruritus, nausea, and vomiting were recorded as well as the length of the surgery.

Postoperatively, the length of stay in the recovery room and the hospital stay were recorded. Quality of analgesia was evaluated using a verbal scale that included very strong pain, strong pain, mild pain, absence of pain, and the consumption of other analgesics were recorded. The incidence of nausea and vomiting was also recorded and at the time of discharge patients were questioned about their degree of satisfaction with the anesthetic technique. Analgesia consisted of 20 mg of IV tenoxicam every 12 hours, and 1 g of dypirone and 50 mg of tramadol were administered intravenously whenever tenoxicam was not enough. For the statistical analysis SPSS Version 16 using a p < 0.05 as significant.

Results

There is no significance in between both groups. (Table 1).

The duration of surgery was similar in both groups. Hypotension more frequent in patients who underwent epidural block, while hypertension more in those who underwent general anesthesia (Table 2).

Table 1: Demographic details

Details	Group-T	Group-G	P- Value
Age(in years)	56 ± 8	61 ± 9	>0.05
weight(Kgs)	70± 10	72± 13	>0.05
Height(cms)	159± 11	161± 12	>0.05
Surgery			
segmental mastectomy	26	25	>0.05
Total mastectomy	4	5	>0.05
Physical status			
ASA-1	4	7	>0.05
ASA-11	26	23	>0.05

Table 2: Intraoperative findings

Interooperative Data	Group-T	Group-G	P- Value
Duration of surgery (min)*	100 ±35	105±38	>0.05
Hypertension(in number)	1(3%)	6(20%)	<0.05
Hypotension	16(53%)	3(10%)	<0.05
Tachycardia	0	0	<0.05
Bradycardia	5(17%)	4(13%)	<0.05

Table 3: Post operative data

Post operative data	Group-T	Group-G
Nausea	0	6(20%)
Vomiting	3(10%)	10(33%)
Pruritis	12(40%)	0
Discharge (in minutes)	54+19	116+14
Hospital discharge(in hours)	40+13	65+25
Satisfied	30(100%)	21(70%)
Dissatisfied	0	9(30%)

Postoperatively, the incidence of pruritus (40%) was greater in the epidural block group and that of nausea (20%) and vomiting (33%) was observed in general anesthesia group. The length of stay in the recovery room and hospitalization were lower in the epidural group; Satisfaction with the anesthesia is more with epidural block. (Table 3).

Discussion

Mastectomy is traditionally performed under general anaesthesia. The anesthetic technique should provide good intra-operative anesthesia and post-operative analgesia without collateral effects and with reduced hospital stay. Regional anesthesia has protective effect against the peri operative stress response and beneficial effects have been attributed to the changes in physiology used by neuraxial anesthesia and better pain management. Patients did not complaint of pain and request for additional analgesic was lower.

The hypotension incidence was more ie of 53%; however, the fall in blood pressure was easily controlled with low doses of vasopressor. Reason for Hypotension could be due to inhibiting sympathetic cardiac fibers in thoracic block . since other studies have similar results it is correlating with our study [5,6].

Postoperative analgesia using local anesthetic with spinal opioid and intravenous anti-inflammatory had better results; patients did not complain of strong pain and the request for supplementary analgesic was lower. Tramadol was not used in patients in the epidural block group. Complete control on pain is important since it provide good postoperative period and early hospital discharge, and can have a long-term effect, decreasing complications such as chronic pain [7]. Prior administration of tenoxicam can be advantageous, as suggested by another study [8].

Regional block has decreased nausea and vomiting rate, in comparison to general anesthesia,

which is in agreement with several procedures and studies [9]. In the present study, the incidence of this complication in the general anesthesia group is comparable to that reported literature which is done previously in those comparing general anesthesia and regional block. The only study [6] that made a comparable evaluation showed an incidence of 10% of nausea and vomiting among patients undergoing epidural block, which is considerably lower than the incidence seen in general anesthesia, but it still suggests that there are other factors involved in the development of this problem. It is speculated that it could be due to the spinal administration of opioid (fentanyl) for sedation. It would be interesting to study whether the association with anti-emetics can reduce the incidence.

Reason for Pruritus in study may be due to the administration of fentanyl through spine, it is most frequent adverse effect. Since pruritus was not severe, specific treatment of this occurrence was not necessary.

The recovery room length of stay and in the hospital stay was lesser in the epidural block group. As the stay is less it is cost effective and also that decrease hospital sickness in patients.

Belzarena, Sérgio D [10] compared thoracic epidural block and general anesthesia in female patients undergoing cancer surgeries of the breast with axillary exploration same as our study. He concluded Epidural block is more advantage when compared with general anesthesia and can be considered an anesthesia option in oncologic mastectomies with axillary lymph node dissection. Groeben H. et al. [11] studied the effect of high thoracic epidural and local anesthetic on bronchial hyper reactivity and concluded that thoracic epidural is safer than general anesthesia in respiratory compromised patients. It can provide adequate anesthesia with minimal effect and without patient discomfort because surgery of breast does not require motor blockade. Hypotension incidence was more (60%) however it was easily controlled by lower dose of vasopressor. Similarly Doss NW, Ipe J, Crimi T et al. [6] studied continuous thoracic epidural anesthesia with 0.2% Ropivacaine versus general anesthesia for perioperative management of modified radical mastectomy and had similar results. Respiration was also not significantly effected demonstrating that thoracic epidural can be safely used in respiratory compromised patients.

Similarly, Groeben H, Schuafer B et al. [12] studied lung functions under high thoracic segmental epidural anesthesia with Ropivacaine or Bupivacaine in patients with severe obstructive

pulmonary disease undergoing breast surgery and had similar results. The patients undergoing regional anesthesia were discharged earlier than general anesthesia and is more cost effective.

Conclusion

To conclude, single-dose thoracic epidural block associated with local anesthetic and opioid was sufficient for mastectomy. Also quality of postoperative analgesia, shorter recovery time and lower incidence of nausea and vomiting, early hospital discharge, can be considered as advantages.

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