

## RANDOMIZED DOUBLE BLINDED PROSPECTIVE STUDY TO COMPARE THE EFFICACY OF BUPIVACAINE AND ROPIVACAINE FOR POST-OPERATIVE ANALGESIA

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### Abstract

**Background:** To compare postoperative analgesic efficacy and duration of analgesia of 0.125 % Bupivacaine and 0.125% Ropivacaine using pectoral nerves block with transversus thoracic muscle plane block for postoperative pain relief in breast surgeries. **Materials and Methods:** This is a Randomized Double blinded Prospective study of 80 female patients of ASA 1 , 2 &3 patients undergoing mastectomy surgery with axillary clearance admitted were divided into two groups. 0.125% Ropivacaine and 0.125% Bupivacaine were used. **Result:** In this study compared the efficacy of Bupivacaine and Ropivacaine for post-operative analgesia. Ropivacaine group is a newer drug which is wide spread use in regional Anesthesia (R group) nowadays, another drug Bupivacaine routinely used and proven efficacy in regional anesthesia (B group). In this study there is statistically significant difference in the VAS score between the Bupivacaine and Ropivacaine group at 1st, 6th, 12th and 24th hour with p value of 0.003, <0.001, <0.001 and <0.001 respectively. : The primary outcome was the study of efficacy of 0.125% Ropivacaine in post operative period over 0.125% Bupivacaine. This was supported with the following variables measured at 1st, 6th, 12th and 24th hour post operatively- VAS Score. In this study no statistically significant difference in pulse rate among the two study groups at 1st, 6th, 12th and 24th hour, with a p value of 0.208, 0.053, 0.696, 0.828 respectively. This study shows that there was significantly less post operative pain in the R Group (0.125% Ropivacaine) compared to the B Group (0.125% Bupivacaine) as seen from the significant difference in VAS score.3. **Conclusion:** The results of our study is supportive, in proving, that 0.125% Ropivacaine is superior to 0.125% Bupivacaine for post-operative analgesia using PECS block and TTP block for breast cancer surgery. It should be considered as an adjuvant therapy multimodal analgesic technique to general anaesthesia.

## INTRODUCTION

Now a days breast cancer incidence increasing worldwide. According to recent statistics reports says that are 1.8 million women diagnosed with breast cancer and 53,00,00 its related deaths. American cancer society studied and reported that 1 in 8 women will possible to develop breast cancer in her life time.

In India along with other countries account for one-third of breast cancer burden in the world. Among the Indian women, it has increased that of cancer cervix become the most common cancer with 26 per one million population and mortality of 13 per million. This study was an initiative to provide further development for the efficacy and safety of

this procedure towards pain management in mastectomy surgeries.

### Aim

To compare postoperative analgesic efficacy and duration of analgesia of 0.125 % Bupivacaine and 0.125% Ropivacaine using pectoral nerves block with transversus thoracic muscle plane block for postoperative pain relief in breast surgeries.

## MATERIALS AND METHODS

This is a Randomized Double blinded Prospective study of 80 female patients of ASA 1 , 2 &3 patients undergoing mastectomy surgery with axillary clearance admitted were divided into two groups. After induction of anesthesia R group who received USG guided PECS Block and TTP Block.0.125%

Rupivacaine and B group who USG guided PECS Block and TTP Block.0.125% Bupivacaine After obtaining institutional ethical committee approval under the Department of Anesthesiology ,Sri Manakula Vinayagar Medical college and Hospital, Kalitheerthalkuppam, Puducherry during the period of NOV 2021 to OCT 2023.

**Inclusion Criteria**

All ASA 1, 2 and 3 patients -breast cancer surgery with axillary clearance.

**Exclusion Criteria**

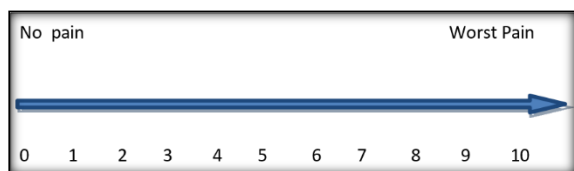
- ASA 4 patients.
- Bilateral mastectomy procedures.
- Allergy to local and general anaesthetic drugs.
- Chest wall abnormality.
- Presence of infection.
- Patients on anti-coagulants or anti-platelet drugs.
- In the post operative ward Pulse rate will be monitored.
- Post operative pain score to be assessed using visual analog score(VAS score,0-10,0=no pain,10=worst pain.)
- VAS score to be obtained at 1,6,12 and 24 hrs after surgery.

Post-operative Period

**Pain Assessment Tool:**

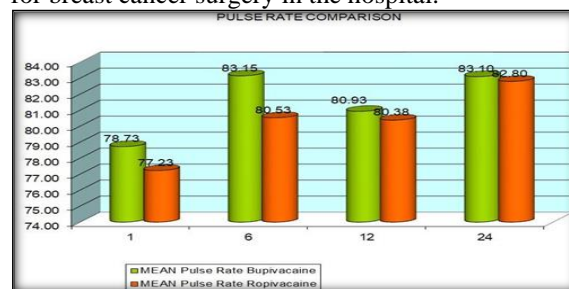
**Visual Analog:**

The Numerical Rating Scale has shown high correlations as compared to other pain-assessment tools. The patients were instructed to circle the number between 0 and 10, zero representing “no pain at all” whereas the upper limit represents “the worst pain possible”



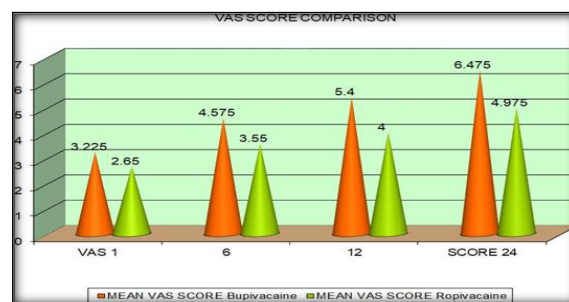
**RESULTS**

There were 80 patients recruited as per inclusion and exclusion criteria during the study period from Nov 2018 to Oct 2019. These patients were admitted for breast cancer surgery in the hospital.



**Figure 1: Comparison of pulse rate between the two study groups at 1st, 6th, 12th and 24th hours**

[Table 1 and Figure 1] shows that there was no statistically significant difference in in pulse rate among the two study groups at 1<sup>st</sup>, 6<sup>th</sup>, 12<sup>th</sup> and 24<sup>th</sup> hour, with a p value of 0.208, 0.053, 0.696, 0.828 respectively.



**Figure 2: Comparison of VAS score between the two study groups**

[Table 2 and Figure 2] shows that there is statistically significant difference in the VAS score between the Bupivacaine and Ropivacaine group at 1<sup>st</sup>, 6<sup>th</sup>, 12<sup>th</sup> and 24<sup>th</sup> hour with p value of 0.003, <0.001, <0.001 and <0.001 respectively.

**Table 1: Pulse rate**

Pulse Rate	Bupivacaine		Ropivacaine		P VALUE
	Mean	SD	Mean	SD	
1 <sup>st</sup> Hour	78.725	5.094	77.225	5.456	0.208
6 <sup>th</sup> Hour	83.15	6.112	80.525	5.809	0.053
12 <sup>th</sup> Hour	80.925	5.342	80.375	7.099	0.696
24 <sup>th</sup> Hour	83.1	5.5	82.8	6.749	0.828

**Table 2: VAS Score**

VAS score	Bupivacaine		Ropivacaine		P VALUE
	Mean	SD	Mean	SD	
1 <sup>st</sup> hour	3.225	1.025	2.65	0.58	0.003
6 <sup>th</sup> hour	4.575	0.712	3.55	0.749	<0.001
12 <sup>th</sup> hour	5.4	1.105	4	0.716	<0.001
24 <sup>th</sup> hour	6.475	0.933	4.975	0.698	<0.001

**DISCUSSION**

The study shows that there was no statistically significant difference in in pulse rate among the two

study groups at 1<sup>st</sup>, 6<sup>th</sup>, 12<sup>th</sup> and 24<sup>th</sup> hour, with a p value of 0.208, 0.053, 0.696, 0.828 respectively and shows that there is statistically significant difference in the VAS score between the Bupivacaine and

Ropivacaine group at 1<sup>st</sup>, 6<sup>th</sup>, 12<sup>th</sup> and 24<sup>th</sup> hour with p value of 0.003, <0.001, <0.001 and <0.001 respectively. Since then there have been multiple studies showing mixed results of this block. Our study was undertaken to see if the PECS I and II block and TTP block could offer quality analgesia for mastectomy surgery and effectiveness and duration of Ropivacaine compared with Bupivacaine.

## CONCLUSION

The results of our study is supportive, in proving, that 0.125% Ropivacaine is superior to 0.125% Bupivacaine for post-operative analgesia using PECS block and TTP block for breast cancer surgery. It should be considered as an adjuvant therapy multimodal analgesic technique to general anaesthesia.

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