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ORIGINAL ARTICLE

Comparison of Efficacy of Intravenous Tramadol and Bupivacaine Irrigation through Surgical Drains after Modified Radical Mastectomy in patients with Carcinoma Breast

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ABSTRACT

Background: Severe postsurgical pain continues to be hard to manage in patients who experience breast cancer surgery. Badly managed pain can lead to meager patient satisfaction, prolonged hospital stay, and increased risk of complication by analgesics, and may be a reason in the development of long-lasting pain.
Aim: To compare the efficacy of Intravenous Tramadol and Bupivacaine irrigation through surgical drains after Modified Radical Mastectomy in patients with carcinoma breast.
Methods: This was a randomized controlled trial conducted in the Department of Anesthesia, Mayo Hospital Lahore. Total 70 female patients aged 18-70 years undergoing radical mastectomy for CA breast diagnosed on histopathology were selected. Patients were divided into two groups A and B through simple random sampling technique. Group A received intravenous Tramadol. Group B received Bupivacaine through surgical drains.
Results: At 0, 2, 4 and 6 hour postoperatively no significant difference was seen in severity of pain in both treatment groups. In Group-A at 0, 2, 4 and 6 hour postoperatively, 68.8%, 71.4%, 57.1% and 60% respectively had reported no pain while in Group-B at 0, 2, 4 and 6 hour postoperatively, 48.6%, 65.7%, 45.7% and 54.3% patients had reported no pain. Complaints of Nausea, vomiting, sedation, urinary retention was higher in patients in Tramadol Group as compared to Bupivacaine Group.
Conclusion: Results of this study demonstrated that bupivacaine administrated through surgical drain was equally effective as intravenous tramadol for controlling postoperative mastectomy pain with less side effects.
Keyword: Breast Cancer, Acute Pain, Analgesia, Tramadol, Bupivacaine, Radical Mastectomy, Nausea, Vomiting, Sedation, Urinary retention, Hypotension

INTRODUCTION

WHO defined pain as "Pain is an unpleasant sensory and emotional expression associated with actual tissue damage or described in terms of such damage[1]. There are different types of pain like visceral pain, somatic pain, acute pain, chronic pain, persistent pain, post-operative pain etc[2]

Breast cancer is one of the most common malignancies, badly affecting about 11% of our women in Pakistan. It has psychological impacts[3]. In comparison to India and Iran, the breast cancer incidence in Pakistan is 2.5 times higher, which is calculated as 34.6% of female cancer[4].

Post mastectomy pain is acute superficial pain characterized by dull, burning and aching sensation exacerbated by movement of shoulder girdle(5) which can be treated with different types analgesics like NSAIDs , narcotics, local anesthetics[6,7].

NSAIDs and narcotics can be used to treat post-mastectomy pain in immediate post-operative period[6]. Both groups are very effective in relieving post-mastectomy pain but these drugs are not without side-effects[6]. NSAIDs cause gastritis, gastric ulcer, interstitial nephritis, renal failure in diabetics and increased bleeding tendency. Narcotics causes drug dependence, addiction, drug tolerance, nausea, vomiting constipation, urinary retention, respiratory depression and pruritis[7].

Tramadol is a meu opioid receptor-agonist, nor epinephrine and serotonin reuptake inhibitor[1]. Tramadol has been found a better pain reliever but it can develop other complications like vomiting, nausea and urinary retention etc[8].

Local anesthetics can be used in various modes for relieving pain e.g., infiltration , nerve blocks ,caudal, epidural block, shower of LA through drains placed in wound[6,7]. The advantage of local anesthetics over other modalities is that there are no systemic side effects provided maximum dosage of local anesthetics is not used[6,7], provides analgesia for longer duration and decreased need of IV analgesics[6].

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Studies have showed that both tramadol and bupivacaine groups had equally good pain relief with equal mean pain relief at rest and movements (36.4% vs. 52.1%, $p > 0.05$)[9]. Tramadol group had significantly more nausea as compare to Bupivacaine (63.6% vs. 21.7% $p < 0.007$)[9]. Although in Tramadol group higher incidence of vomiting (68.2% vs. 39.1%), urinary retention (31.8% vs. 17.4%), Sedation (5% vs. 0%) when compared with Bupivacaine were seen, but this was not significant statistically (p-value > 0.05)[9]. Another study has also showed that both tramadol and bupivacaine groups had equally good pain relief with equal mean pain relief at rest and movements (35% vs. 40%, $p > 0.05$)[7].

Tramadol group had significantly more nausea as compare to Bupivacaine (75% vs. 25% $p < 0.007$) and vomiting (75% vs. 25%, $p<0.05$) and Sedation (0% vs. 25%). Although in Tramadol group higher incidence of urinary retention (10% vs. 0%), when compared with Bupivacaine were seen, but this was not significant statistically (p-value > 0.05)[7].

The rationale of this study is that previous studies showed conflicting results comparing the efficacy of bupivacaine and tramadol. Also these are the studies with small sample size. This prompted us to conduct this study in our set up.

MATERIALS AND METHODS

This randomized controlled trial was conducted in the Department of Anesthesia, Mayo Hospital Lahore. A total of 70 patients (35 in each group) were included in this study. The sample size was calculated using 90% power of study, 1% level of significance and taking expected percentage of nausea i.e. 63.6% with tramadol vs. 21.7% with bupivacaine. Females of age 18-70 years (ASA I and II) undergoing modified radical mastectomy for Carcinoma of breast diagnosed on histopathology were included in the study. Patients having pregnancy, allergic to local anesthetics, Regularly consuming analgesics, having Liver disease, patient with Coronary artery disease, were not included in the study.

Data Collection Procedure: Mayo hospital ethical committee and institutional review board KEMU approved the synopsis. Pre-operative assessment was done a day before surgery. 70 patients coming to surgical departments for MRM, meeting our criteria,

were included in the study. After getting their basic contact history and demographical details (age, etc) patients were enrolled in this study with a prior informed consent from patient. Patients were randomly divided (Group A and Group B) into two groups using random number table. In group A Intravenous Tramadol ($0.5mg.kg^{1}$) was administered at the end of surgery and in group B Bupivacaine irrigation through surgical drains (0.5% 10 ml in each drain) was given. After shifting to operation theatre, standard one (trained anesthetist) and standard two (pulse, b.p, oxygen saturation, ECG) monitoring was instituted. A standard anesthetic technique was adopted. Ondansteron 4mg was given intravenously just before induction. Intravenous propofol 2 mg/kg was given for induction and Atracurium (0.5mg/kg) for tracheal intubation. Intravenous nalbuphine 0.1mg/kg was given for analgesia .Maitenance of Anesthesia was done with isoflurane 1-1.5 MAC in nitrous oxide (50%) and oxygen (50%). Relaxation was maintained with Atracurium during maintenance of anesthesia. Intraoperative hemodynamic parameters were recorded after every 5 minutes interval.

Before wound closure, the surgeon placed one drain in the axilla and one along the chest incision. Once wound was closed, both chest drain and axillary drain was attached to a close drainage system using negative pressure. Isoflurane was stopped at the beginning of skin closure. At the end of the surgery, reversal was given . After patient starts obeying commands, patient was extubated. Before shifting, both drains were checked for collection of blood.10 ml of 0.5% bupivacaine was instilled by the surgeon in each drain and 0.9% saline intravenously was given. Tramadol group received intravenous tramadol 0.5mg/kg and normal saline irrigation through surgical drains by surgeon. The drains remained clamped for twenty minutes. Then patient was shifted to recovery area and when stable shifted to ward. Time between administration of study drugs and patient's first requirement for analgesia was noted. If needed, rescue analgesia was given using Ketorolac 30mg IV as rescue drug. patients were kept under strict observation for pain assessment .Nausea ,vomiting, sedation, urinary retention and hypotension was recorded at 0,2,4,6 hours .All data was collected on prescribed proforma.

Statistical Analysis: SPSS version 20 was used to analyze the collected data. The qualitative variables like Outcome (including nausea, vomiting, urinary retention and sedation) was presented in form of frequency and percentages (%). The quantitative data like age and pain was presented in form of mean ± S.D. Independent sample t-test was used to compare pain at 0,2,4,6 hours in both study groups. P-value ≤ 0.05 was taken as significant.

RESULTS

Mean age of patients in Group-A and in Group-B was 45.85±9.16 and 46.22±9.22 years respectively (Table-1).

In Group-A 18(51.4%) patients were operated on right side and 17(48.6%) patients were operated on left side, in Group-B 22(62.9%) patients were operated on right side and 13(37.1%) patients were operated on left side (Table-2).

At 0, 2, 4 and 6 hour postoperatively no significant difference was seen in severity of pain in both treatment groups. However pain control was good in Group-A patients as compared to Group-B patients. As in Group-A at 0, 2, 4 and 6 hour postoperatively 68.8%, 71.4%, 57.1 and 60% had reported no pain while in Group-B at 0, 2, 4 and 6 hour postoperatively 48.6%, 65.7%, 45.7% and 54.3% patients had reported no pain (Table-3).

At 0-hour mean pain score in Group-A and in Group-B patients was 0.45±0.81 and 0.54±.56. At 2nd hour it was 0.37±0.68 and 0.37±0.54. At 4th hour mean pain score in Group-A and in Group-B patients was recorded as 0.65±0.90 and 0.71±0.78 and at 6th our mean pain score recorded in Group-A and Group-B patients was 0.51±0.74 and 0.71±0.95. Figure-1

No significant difference was seen in rescue analgesic requirement for the patients in both treatment groups at 0, 2nd, 4th and at 6th hour postoperatively (Figure-2).

At 0 hour nausea was significantly higher in Group-A patients as that of Group-B patients. i.e. 54.3% vs. 22.9%, p-value=0.007. At 2nd hour 7 patients in each group suffered nausea. i.e. 20% vs. 20% and at 4th and 6th hour no significant difference was seen for frequency of nausea in both treatment groups (Table-4).

At 0 and 2 hour 25.7%,11.4% patients in Group-A and 17.1%,5.7% patients in Group-B had vomiting at these point intervals frequency of vomiting did not show any significant difference in both treatment groups. At 4th and 6th hour frequency of vomiting was same in both treatment group patients (Table-5).

In Group-A frequency of sedation at 0,2,4, and 6th hour was seen in 28.6%, 14.3%, 5.7% and 2.9% patients while in Group-B it was 11.4%, 8.6%, 2.9% and 0% respectively. No significant difference was seen for sedation in both treatment groups during follow up time period at 0-hour (p-value=0.073), 2-hour (0.452), 4-hour (p-value=0.555), and 6th hour (p-value=0.314) (Table-6).

In Group-A patient's frequency for urinary retention was higher as compared to Group-B patients but it was not statistically significant. i.e. Group-A [0-Hour: 14.3%, 2-Hour: 8.6%, 4-Hour: 8.6% & 6-Hour:5.7%] & Group-B [0-Hour: 2.9%, 2-Hour: 0%, 4-Hour: 0% & 6-Hour:0%]. p-value (0-hour): 0.088, p-value (2-hour): 0.077, p-value(4-hour): 0.077 & p-value(6-hour): 0.151 (Table-7).

Frequency of hypotension did not show any significant different in both treatment groups during follow up time duration postoperatively except at 2nd hour. i.e. Group-A [0-Hour: 11.4%, 2-Hour: 2.9, 4-Hour: 5.7% & 6-Hour:0%] & Group-B [0-Hour: 8.6%, 2-Hour: 17.1%, 4-Hour: 8.6% & 6-Hour:2.9%]. p-value (0-hour): 0.690, p-value (2-hour): 0.046, p-value(4-hour): 0.643 & p-value(6-hour): 0.314 (Table-8).

Table-1: Age distribution of patients in Treatment Groups

	Group-A	Group-B
N=no. of patients	35	35
Mean	45.85	46.22
SD	9.16	9.33
Minimum	30	26
Maximum	70	70

Table-2: Anatomical side of patients to be operated

	Group-A	Group-B	Total
Right	18(51.4%)	22(62.9%)	40
Left	17(48.6%)	13(37.1%)	30
Bilateral	0(0%)	0(0%)	0
Total	***35***	***35***	70

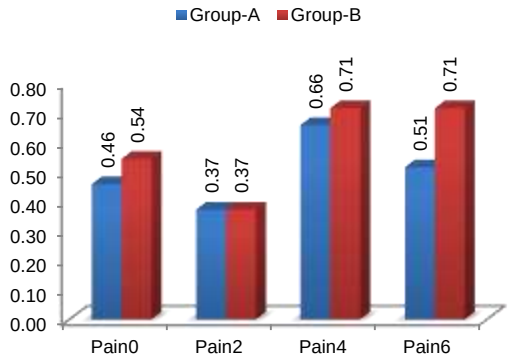
Group-A: Intravenous Tramadol ($0.5mg.kg^{-1}$) *Group-B:* Bupivacaine

Table-3: Severity of Pain in Treatment Groups at different time Intervals

	0-Hour		2-Hours		4-Hours		6-Hours	
Study Group	A	B	A	B	A	B	A	B
No	24(68.6%)	17(48.6%)	25(71.4%)	23(65.7%)	20(57.1%)	16(45.7%)	21(60%)	19(54.3%)
Mild	8(22.9%)	17(48.6%)	8(22.9%)	11(31.4%)	9(25.7%)	14(40%)	11(31.4%)	10(28.6%)
Moderate	1(2.9%)	1(2.9%)	1(2.9%)	1(2.9%)	4(11.4%)	4(11.4%)	2(5.7%)	3(8.6%)
Severe	2(5.7%)	0(0%)	1(2.9%)	0(0%)	2(5.7%)	1(2.9%)	1(2.9%)	3(8.6%)
Mean scores±SD	0.45±0.81	0.54±0.56	0.37±0.68	0.37±0.54	0.65±0.90	0.71±0.78	0.51±0.74	0.71±0.95
Min-Max	0-3	0-2	0-3	0-2	0-3	0-3	0-3	0-3
Total	35	35	35	35	35	35	35	35
p-value	0.092		0.669		0.601		0.718	

Scoring Criteria for Pain Score: No-Pain=0, Mild-Pain=1, moderate-Pain=2, Sever-Pain=3
Group-A: Intravenous Tramadol ($0.5mg.kg^{-1}$) Group-B: Bupivacaine

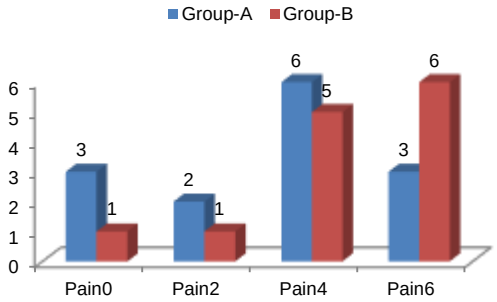
Figure-1: Pain score in Treatment groups at 0, 2nd, 4th and 6th hour postoperatively



	0-Hour		2-Hours		4-Hours		6-Hours	
Study Group	A	B	A	B	A	B	A	B
Mean±SD	0.45±0.81	0.54±0.56	0.37±0.68	0.37±0.54	0.65±0.90	0.71±0.78	0.51±0.74	0.71±0.95
Minimum	0	0	0	0	0	0	0	0
Maximum	3	2	3	2	3	3	3	3

Group-A: Intravenous Tramadol (0.5mg.kg^{-1}) Group-B: Bupivacaine

Figure-2: Rescue Analgesia in Treatment groups at 0, 2nd, 4th and 6th hour postoperatively



Study Group	0-Hour		2-Hours		4-Hours		6-Hours	
	A	B	A	B	A	B	A	B
Rescue Analgesia (no. of patients)	3(9%)	1(3%)	2(6%)	1(3%)	6(17%)	5(14%)	3(9%)	6(17%)
p-value	0.304	0.555	0.742	0.285				
p-value	0.304		0.555		0.742		0.285	

Dose of Rescue Analgesia: Ketorolac 30mg IV Group-A: Intravenous Tramadol (0.5mg.kg^{-1}) Group-B: Bupivacaine

Table-4: Nausea in Treatment Groups at different time Intervals

Nausea	0-Hour		2-Hours		4-Hours		6-Hours	
	A	B	A	B	A	B	A	B
Yes	19(54.3%)	8(22.9%)	7(20%)	7(20%)	4(11.4%)	6(17.1%)	4(11.4%)	3(8.6%)
No	16(45.7%)	27(77.1%)	28(80%)	28(80%)	31(88.6%)	29(82.9%)	31(88.6%)	32(91.4%)
Total	35	35	35	35	35	35	35	35
p-value	0.007		-		0.495		0.690	

Group-A: Intravenous Tramadol (0.5mg.kg^{-1}) Group-B: Bupivacaine

Table-5: Vomiting in Treatment Groups at different time Intervals

Vomiting	0-Hour		2-Hours		4-Hours		6-Hours	
	A	B	A	B	A	B	A	B
Yes	9(25.7%)	6(17.1%)	4(11.4%)	2(5.7%)	4(11.4%)	4(11.4%)	1(2.9%)	1(2.9%)
No	26(74.3%)	29(82.9%)	31(88.6%)	33(94.3%)	31(88.6%)	31(88.6%)	34(97.1%)	34(97.1%)
Total	35	35	35	35	35	35	35	35
p-value	0.382		0.393		-		-	

Group-A: Intravenous Tramadol (0.5mg.kg^{-1}) Group-B: Bupivacaine

Table-6: Sedation in Treatment Groups at different time Intervals

Sedation	0-Hour		2-Hours		4-Hours		6-Hours	
	A	B	A	B	A	B	A	B
Yes	10(28.6%)	4(11.4%)	5(14.3%)	3(8.6%)	2(5.7%)	1(2.9%)	1(2.9%)	0(0%)
No	25(71.4%)	31(88.6%)	30(85.7%)	32(91.4%)	33(94.3%)	34(97.1%)	34(97.1%)	35(100%)
Total	35	35	35	35	35	35	35	35
p-value	0.073		0.452		0.555		0.314	

Group-A: Intravenous Tramadol (0.5mg.kg^{-1}) Group-B: Bupivacaine

Table-7: Urinary Retention in Treatment Groups at different time Intervals

	0-Hour		2-Hours		4-Hours		6-Hours	
	A	B	A	B	A	B	A	B
Yes	5(14.3%)	1(2.9%)	3(8.6%)	0(%)	3(8.6%)	0(0%)	2(5.7%)	0(0%)
No	30(85.7%)	34(97.1%)	32(91.4%)	35(100%)	32(91.4%)	35(100%)	33(94.3%)	35(100%)
Total	35	35	35	35	35	35	35	35
p-value	0.088		0.077		0.077		0.151	

Group-A: Intravenous Tramadol (0.5mg.kg^{-1}) Group-B: Bupivacaine

Table-8: Hypotension in Treatment Groups at different time Intervals

Hypotension	0-Hour		2-Hours		4-Hours		6-Hours	
	A	B	A	B	A	B	A	B
Yes	4(11.4%)	3(8.6%)	1(2.9%)	6(17.1%)	2(5.7%)	3(8.6%)	0(0%)	1(2.9%)
No	31(88.6%)	32(91.4%)	34(97.1%)	29(82.9%)	33(94.3%)	32(91.4%)	35(100%)	34(97.1%)
Total	35	35	35	35	35	35	35	35
p-value	0.690		0.046		0.643		0.314	

Group-A: Intravenous Tramadol (0.5mg.kg^{-1}) Group-B: Bupivacaine

DISCUSSION

Incidence of pain after mastectomy is 25–60%[1]. It is a neuropathic postsurgical pain which may last for more than 3 months[1]. Post-Mastectomy Pain Syndrome can occur immediately or after numerous months and can continue for many years[2]. The said syndrome has a significant adverse effect on life of the patient[3].

The use of local anesthetics for wound instillation and wound infiltration are gaining popularity over intravenous and intramuscular use of opioids and NSAIDs an-d intramuscular use of local anesthetic[10]. Wound irrigation with local anesthetics through surgical drains is a newer concept[8,11]. Wound perfusion with local anesthetics through drains or catheters has been described after cholecystectomy, splenectomy, abdominal hysterectomy and cardiac surgery.

In our study a total of 70 patients were included and randomly divided into two groups. Patients in Group-A were given IV Tramadol and the patients in Group-B were given Bupivacaine through surgical drain. Results of this study demonstrate that no significant difference was seen for pain control in both treatment groups. i.e. Frequency of severe pain at 0,2,4,6 hour in Group-A patients was 5.7%, 2.9%, 5.7% and 2.9% respectively and in Group-B it was 0%, 0%, 2.9% and 8.6% respectively. In our study frequency of nausea, vomiting, sedation and urinary retention was higher in patients who were given tramadol as compared to bupivacaine. However frequency of hypotension was higher from 2-6 hours follow up in bupivacaine Group.

An Indian study also showed similar findings regarding no significant difference in pain control for Intravenous Tramadol and Bupivacaine (Irrigation through surgical Drains) in patients undergoing radical breast surgery. His study showed significant higher nausea (75% vs. 25% $p < 0.007$), vomiting (75% vs. 25%, $p<0.05$) and sedation (0% vs. 25%) in Tramadol group as compared to Bupivacaine. Although in Tramadol group higher incidence of urinary retention (10% vs. 0%), when compared with Bupivacaine were seen, but this was not significant statistically (p-value > 0.05)[7]. The same trend was seen in this study but no significant difference was seen for these variables in both treatment groups at 0,2,4 and 6th hour post operatively[6].

Jacek Zielinski in his study compared bupivacaine Infiltration of incision site with placebo to see the post-operative acute pain control. His findings showed significantly lower pain scores at 4th and 12th hour after the surgery among patients who were given bupivacaine[7].

The results of study by Anjum S Khan-Joad is in agreement with our results. They also reported no significant difference in pain score for bupivacaine and tramadol groups for both pain at rest and pain at movement.(8) The results of complications observed by them were consistent with our study. They reported higher frequency of nausea (63.6% vs. 21.7%), vomiting (68.2% vs. 39.1%) urinary retention (31.8% vs. 17.4%) and sedation (4.5% vs. 0%) in the Tramadol group[8].

Tugsan Egemen Bilgin studied the effect of wound infiltration with bupivacaine and IM diclofenac administration on PCA in patients who underwent radical retropubic prostatectomy. As per his findings wound infiltration with bupivacaine during surgical closure combined with IM diclofenac administration may reduce tramadol consumption within 24 hours in patients who underwent radical retropubic prostatectomy under general anesthesia. Pain scores were considerably lower and decreased antiemetic and analgesic requirement in group who received wound infiltration with bupivacaine and intramuscular Diclofenac[12].

Nirmala Jonnavithula in her study, found that patients who were given 0.25% bupivacaine through surgical drains, experienced less pain as compared with patients who were given saline, and the control group[13]. This finding support the result of our study as bupivacaine when used through surgical drain produces effective analgesia and pain control and reduced requirement of rescue analgesia.

Legeby et al. reported that after breast reconstruction surgery, three hourly injection of levobupivacaine at site of incision along with oral paracetamol, and morphine given by Patient Control Analgesia improved pain relief at rest and during mobilization compared with placebo[14].

Leonard Lu and Neil A studied the use of indwelling catheters for the continuous infiltration of local anesthetic (bupivacaine) in 74 successive breast reduction and 74 successive tissue expander breast reconstruction patients. Pain was recorded on a verbal response scale of 0 to 10, while in the recovery room was significantly less in the pain pump group than in the comparison group ($p< 0.01$), as were cumulative amounts of pain medications ($p < 0.01$). There were no statistically significant differences in the number of complications or in the rate of nausea or vomiting[15].

Ian Campbell and his team members examined the effect of wound infiltration of bupivacaine (0.25%) for post-operative pain, analgesic use and complications in patients who underwent breast lump excision, wide local excision and mastectomy with or without axillary surgery. Analysis revealed that the group who received local anesthetic needed less opioids than the group who did not receive local anesthetics. There were no significant differences in post-operative pain scores or complications[16].

Moshe Fayman reported no significant difference in analgesia effects achieved in bupivacaine infiltration and ropivacaine infiltration in patients who underwent bilateral breast surgery[17].

But in a study by Fredman et al. it was seen that after major abdominal surgery repeated wound instillation of 0.25% bupivacaine solution via an electronic patient-controlled analgesia (PCA) device and a double-catheter system did not decrease postoperative pain or opioid requirements[18].

H TalBot in his prospective double-blind, randomized, placebo-controlled trial used bupivacaine irrigation through the axillary wound drain 4-hourly for 24 h postoperatively in patients who underwent modified Patey mastectomy. These results were in accordance with our study as morphine requirements or pain scores between the two groups had no significant difference, nor

were there differences in anti-emetic or supplemental analgesic consumption[11].

In a study by Kristensen et al. in which catheters were placed between muscle layer and peritoneum, bolus injections of bupivacaine 15ml of a 2.5mg/ml solution did not decrease pain or analgesic requirement after abdominal hysterectomy performed through a Pfannenstiel incision[19]. These were inconsistent with our study results reason being difference in surgical procedure.

Instead of intensive efforts for pain management, the postsurgical pain results in poor consequences. With multimodal analgesia, the postsurgical pain can be better controlled. Local anesthetics are important constituents of multimodal analgesia owing to their ability to inhibit pain transmission and their relative tolerability on appropriate administration. The major disadvantage of using traditional local anesthetics in the postsurgical setting is the need of continuous infusions via infusion control devices due to their relatively short duration of action. Complication rates are high because of the use of catheters and infusion control devices.

There are certain limitations in our study. Firstly long term follow up of the patients pain was not evaluated. Secondly, our study utilized only single doses of bupivacaine and tramadol rather using infusion and continuous infiltration. Thirdly, we compare two different modalities rather comparing drug effects at different strength of same drug.

Further studies are needed to assess the long term effect of our multimodal approach after breast surgery. There should be a study to measure dose versus response relationship for either drug

CONCLUSION

Results of this study demonstrated that bupivacaine administrated through surgical drain was equally effective as that of intravenous tramadol for controlling postoperative mastectomy pain with less side effects.

REFERENCES

1. John F DC. Morgan & Mikhail's Clinical Anesthesiology: LANGE. 1025-6 p.
2. Fecho K, Miller NR, Merritt SA, Klauber-DeMore N, Hultman CS, Blau WS. Acute and persistent postoperative pain after breast surgery. Pain medicine. 2009;10(4):708-15.
3. Shaheen G AM, Shamim T, Shah SMA, Ansari KA, Asif H, . Prevalence Of Breast Cancer In Punjab. Int J Pub Health. 2010;1(1).
4. Shaukat U, Ismail M, Mehmood N. Epidemiology, major risk factors and genetic predisposition for breast cancer in the Pakistani population. Asian Pacific Journal of Cancer Prevention. 2013;14(10):5625-9.
5. Caviggioli F, Maione L, Forcellini D, Klinger F, Klinger M. Autologous fat graft in postmastectomy pain syndrome. Plastic and reconstructive surgery. 2011;128(2):349-52.
6. Rekha S JK, Bipin P, Yogesh M, Arun C, Dhiraj P. . Acute Pain: A Study of Intravenous Tramadol Hydrochloride Versus Bupivacaine Hydrochloride Irrigation Through Surgical Drains. IJSR. 2014;3(10):2277-8179.
7. Zielinski J, Jaworski R, Smietanska I, Irga N, Wujtewicz M, Jaskiewicz J. A randomized, double-blind, placebo-controlled trial of preemptive analgesia with bupivacaine in patients undergoing mastectomy for carcinoma of the breast. Medical science monitor: international medical journal of experimental and clinical research. 2011;17(10):CR589.
8. Khan Joad AS, Gupta P, Tiwari M, Patni S. Acute Post Mastectomy Pain: A Double Blind Randomised Controlled Trial: Intravenous Tramadol Vs Bupivacaine Irrigation through Surgical Drains. Indian Journal of Anaesthesia. 2008;52(2):164.
9. Strazisar B, Besic N, Ahcan U. Does a continuous local anaesthetic pain treatment after immediate tissue expander reconstruction in breast carcinoma patients more efficiently reduce acute postoperative pain-a prospective randomised study. World journal of surgical oncology. 2014;12(1):16.
10. Bianconi M, Ferraro L, Traina G, Zanoli G, Antonelli T, Guberti A, et al. Pharmacokinetics and efficacy of ropivacaine continuous wound instillation after joint replacement surgery. British Journal of Anaesthesia. 2003;91(6):830-5.
11. 52.
12. Talbot H, Hutchinson S, Edbrooke D, Wrench I, Kohlhardt S. Evaluation of a local anaesthesia regimen following mastectomy. Anaesthesia. 2004;59(7):664-7.
13. Bilgin TE, Bozlu M, Atici S, Cayan S, Tasdelen B. Wound Infiltration with Bupivacaine and Intramuscular Diclofenac Reduces Postoperative Tramadol Consumption in Patients Undergoing Radical Retropubic Prostatectomy: A Prospective, Double-blind, Placebo-controlled, Randomized Study. Urology. 2011;78(6):1281-5.
14. Jonnavithula N, Khandelia H, Durga P, Ramachandran G. Role of wound instillation with bupivacaine through surgical drains for postoperative analgesia in modified radical mastectomy. Indian Journal of Anaesthesia. 2015;59(1):15.
15. Legeby M, Jurell G, Beausang-Linder M, Olofsson C. Placebo-controlled trial of local anaesthesia for treatment of pain after breast reconstruction. Scandinavian journal of plastic and reconstructive surgery and hand surgery. 2009;43(6):315-9.
16. Heller L. The Efficacy of Continuous Local Anesthetic Infiltration in Breast Surgery: Reduction Mammaplasty and Reconstruction. Breast Diseases: a YB Quarterly. 2006;17(1):101-2.
17. Campbell I, Cavanagh S, Creighton J, French R, Banerjee S, Kerr E, et al. To infiltrate or not? Acute effects of local anaesthetic in breast surgery. ANZ J Surg. 2015;85(5):353-7.
18. Fayman M, Beeton A, Potgieter E, Becker PJ. Comparative analysis of bupivacaine and ropivacaine for infiltration analgesia for bilateral breast surgery. Aesthetic plastic surgery. 2003;27(2):100-3.
19. Fredman B, Zohar E, Tarabykin A, Shapiro A, Mayo A, Klein E, et al. Bupivacaine wound instillation via an electronic patient-controlled analgesia device and a double-catheter system does not decrease postoperative pain or opioid requirements after major abdominal surgery. Anesthesia & Analgesia. 2001;92(1):189-93.
20. Kristensen BB,Christensen DS,Ostergaard M,et al. Lack of post-operative pain relief after hysterectomy using preperitoneally admiistered Bupivaaine.Reg Anes Pain Med 1999;24:576-80. 61. Vigneau A, Salengro A, Berger J, Rouzier R, Barranger E, Marret E, et al. A double blind randomized trial of wound infiltration with ropivacaine after breast cancer surgery with axillary nodes dissection. BMC anesthesiology. 2011;11(1):23.