



EFFECTIVENESS OF PREGABALIN AND ORAL TRAMADOL AS PREVENTIVE ANALGESICS FOR POST-OPERATIVE DISCOMFORT IN PATIENTS UNDERGOING BREAST SURGERY

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ABSTRACT

OBJECTIVE: To evaluate the effectiveness of pregabalin and tramadol as preventative analgesics in association with need of opioids during and after breast surgery.

BACKGROUND: Although prophylactic analgesia is not a new idea, in recent years it has become much more widely acknowledged in the treatment of both acute and chronic pain. Because breast cancer surgery is one of the procedures linked to a higher prevalence of chronic post-surgical pain, optimal pain management is even more crucial. Many techniques are employed, such as the use of local anesthetics and intravenous analgesics, to lessen the discomfort.

STUDY DESIGN: randomized control trial

PLACE AND DURATION: This study was conducted in Ghulam Muhammad Mahar Medical College, Sukkur from January 2023 to January 2024

METHADODOLOGY: The breast cancer patients between the ages of 18 and 65 were included. Patients were divided into two groups: those in the experimental group took 50 mg of tab tramadol and 100 milligrams of pregabalin orally, while those in the placebo group took two soda mint pills orally half an hour earlier. The data analysis tool used was SPSS version 26

RESULTS: The mean age in group A was 42.34 ± 5.6 , while 44.75 ± 8.34 in group B. The mean BMI was 29.62 ± 3.67 and 27.91 ± 4.12 in group A and B respectively. The morphine utilized in both groups did not differ substantially, while the mean rescue morphine was 0.43 ± 1.1 and 0.12 ± 0.98 in A and B groups (P -value= 0.076). The VAS score was significantly different in both groups.

CONCLUSION: The study concluded that pregabalin and tramadol are a better choice as preventative analgesics during and after breast surgery to minimize the need for pain relievers.

KEYWORDS: Pain relievers, Breast surgery, pregabalin and tramadol

INTRODUCTION

While preventative analgesia is not a novel concept, it has gained significant recognition both acute and chronic pain in recent times [1]. Precise timing and dosage calculations are required for preventative analgesia to be effective in lowering pain that goes along with it. Woolf suggested the use of prophylactic analgesia as a means of reducing the pain after surgery. In his experimental investigation, he discovered a connection between the core features of post-injury pain hypersensitivity. [2]. Experimental results corroborated this, demonstrating that anti-nociceptive therapies were more effective when administered prior to damage rather than after the surgical shock. [3].

Pain management has many benefits, including early mobilization, increased patient satisfaction, shorter hospital stays, and lower costs. Numerous techniques, both pharmaceutical and non-pharmacological, have been employed. Preventive analgesia aims to minimize acute and chronic pain by blocking as many receptors before the surgical stimulation [4].

Tramadol is a mild opioid that binds to opioid μ -receptors and prevents noradrenaline and serotonin from being reabsorbed. The drug's pharmacokinetics are also advantageous because it has a high bioavailability and exhibits comparable patterns following enteral or parenteral administration. Pregabalin is an antiepileptic medication used to treat neuropathic pain and prevent persistent post-surgical pain. It works by blocking calcium channels in the central nervous system [4, 5].

Since breast cancer surgery is one of the operations linked to a greater incidence of persistent post-surgical pain. A variety of techniques, such as local anesthetics and intravenous analgesics, are employed to lessen the discomfort [6].

The aim of the current study was to evaluate the effectiveness of pregabalin and tramadol as preventative analgesics and to lower the need of opioids during and after surgery.

METHODOLOGY

The data for this double-blind, placebo-controlled experiment was collected after seeking the ethical permission from the hospital's ethical review committee. The breast cancer patients aged 18 to 65 who had American Society of Anesthesiologists (ASA) status 1 or 2 were and undergoing breast surgery were included in the sampling. Consent was taken before participation. A total of thirty patients were sought out.

We excluded the patients who were on beta blockers or had a history of allergy to either medication. With online software, participants were divided 2 separate groups. Individuals in the experimental group received 100 mg of pregabalin and 50 mg of tab tramadol, whereas individuals in the placebo group received two soda mint pills orally 30 minutes beforehand.

The patient group was kept a confidential from both the anesthetist and the patients. Propofol (2-4 mg/kg) and atracurium (0.4-0.5 mg/kg) were used to induce general anaesthesia in all of the patients, who were also monitored according to ASA guidelines. The airway was protected with a supraglottic gadget. Sevoflurane with 1.3 MAC in an oxygen and air combination was used to maintain anaesthesia. Before the incision, each patient got an intravenous infusion of 20 milliliters of 0.25% bupivacaine and 1 mg/kg diclofenac along with 15 mg/kg paracetamol. If there was an increase in blood pressure or heart rate from baseline of more than 20%, the anesthetist would provide incremental doses of 2 mg morphine as intra-operative rescue analgesia.

In the post-anesthesia care unit, pain was measured using a visual analogue scale (VAS) score (PACU). The first rescue analgesia's time was recorded. After meeting the requirements, patients were released from the PACU. The approved proforma was used to record analgesic medication used for the next 24 hours. The data analysis tool used was SPSS version 20.

RESULTS

In the current study, the mean age in group A was 42.34 ± 5.6 , while 44.75 ± 8.34 in group B. The mean BMI was 29.62 ± 3.67 and 27.91 ± 4.12 in group A and B and mean duration of surgery was 92.5 ± 28.23 and 97.5 ± 31.39 in group A and B. (As shown in Table I)

Table I Demographics of the study population

Study Variable	Group A (n=21)	Group B (n=21)	P-value
Age (y)	42.34 ± 5.6	44.75 ± 8.34	0.26
BMI (kg/m ²)	29.62 ± 3.67	27.91 ± 4.12	0.35
Duration of surgery (min)	92.5 ± 28.23	97.5 ± 31.39	0.09

Note *Denotes significant findings

The mean rescue morphine was 0.43 ± 1.1 and 01.12 ± 0.98 in group A and B. while the morphine used in both groups were not significantly different. (P –value= 0.076). The VAS score was higher (2.88 ± 2.34) in group B compare to the group A (01.57 ± 1.92). We observed that the total PACU stay in Group A was 84.22 ± 17.65 minutes and in Group B was 94.8 ± 28.26 minutes. (As shown in Table II)

Table II Statistics of study population

Study Variable	Group A (n=21)	Group B (n=21)	P-value
Rescue morphine (mg/kg)	0.43 ± 1.1	01.12 ± 0.98	0.083
Rescue analgesia need [n (%)]	2 (17.2)	11(62.17)	0.012
VAS Scores	01.57 ± 1.92	2.88 ± 2.34	0.039
Intra operative morphine (mg/kg)	1.35 ± 2.10	1.72 ± 3.67	0.076
Total PACU stay (min)	84.22 ± 17.65	94.8 ± 28.26	0.092
Tramadol in PACU (mg/kg)	11.54 ± 1.21	21.44 ± 2.77	0.043
Tramadol in ward (mg/kg)	27.38 ± 3.48	39.92 ± 4.12	0.097

Note *Denotes significant findings

The use of dexamethasone, paracetamol and ondansetron was higher in group B and use of diclofenac was found to be more in group A. The VAS score was significantly different in both groups. Table III and IV.

Table III. Details of the Drugs Used in the study groups

Variables	Group A (n=21)	Group B (n=21)	p-value
Dexamethasone	5.64 ± 3.12	6.71 ± 3.61	0.14
Ondansetron	4.23 ± 0.32	5.43 ± 1.2	0.03
Diclofenac	82.82 ± 9.76	76 ± 32.45	0.32
Paracetamol	965 ± 75.1	971 ± 96.6	0.12
LA used	11.22 ± 3.21	13 ± 3.22	0.04

DISCUSSION

One of the hardest problems for anesthetists to solve is postoperative pain control, yet it's crucial to provide patients the best treatment possible. Surgical trauma results in biochemical alterations at the surgical site. Several pharmacological treatments are frequently used to treat acute post-surgical pain; the most typically used medications are non-steroidal anti-inflammatory medicines (NSAIDs) and

opioids; however, the latter are linked to a considerable risk of nausea, vomiting, and delayed recovery [5, 6].

In the present study, the mean age in group A was 42.34 ± 5.6 , while 44.75 ± 8.34 in group B. The mean BMI was 29.62 ± 3.67 and 27.91 ± 4.12 in group A and B. The mean duration of surgery was 92.5 ± 28.23 and 97.5 ± 31.39 in group A and B.

Konishi T et al discovered a linear relationship between BMI and the length of anaesthesia as well as a correlation with postoperative problems, length of stay, and hospitalization expenditures [6].

In the present study, the mean rescue morphine was 0.43 ± 1.1 and 0.12 ± 0.98 in group A and B. While morphine used in both groups were not significantly different. (P -value= 0.076).

Since using opioids, there is an increasing risk of immunomodulation and cancer metastasis, as demonstrated by Afsharimani et al [7]. Conversely, new research has shown a correlation between intraoperative opioid use and enhanced recurrence-free survival in breast cancer [8].

In our findings the VAS score was higher (2.88 ± 2.34) in group B compare to the group A (0.57 ± 1.92). We observed that the total PACU stay in Group A was 84.22 ± 17.65 min and in Group B was 94.8 ± 28.26 min.

As reported by Kumar et al tramadol and pregabalin prior to lumbar laminectomy was found to considerably lower post-operative pain ratings and rescue analgesia [9]. Chang et al.'s meta-analysis also showed that following breast surgery, there was a decline in the incidence of persistent post-surgical pain and a drop in pain ratings and post-operative opioid intake [10].

Our findings revealed that the use of dexamethasone, paracetamol and ondansetron was higher in group B and use of diclofenac was found to be more in group A. In a recent research the Pregabalin was found to lower adverse effects, including constipation, respiratory depression, drowsiness, vomiting, and urine retention, in a meta-analysis by David L et al [11-12].

Our investigation's results showed a statistically significant decline in both visual analogue pain levels and rescue analgesia. Furthermore, compared to the patients in the placebo group, the control group's time in the PACU was shorter. These readily available moderate, non-opioid analgesics can provide an alternative method of pain management while also avoiding the harmful side effects of opioids in poor nations where the availability of opioids is an issue. [13-15].

CONCLUSION

Preventive analgesia is given to patients who are scheduled for surgery in order to improve pain management and reduce the amount of opioids used during the procedure. It was concluded that pregabalin and tramadol are a better choice as preventative analgesics during and after breast surgery to minimize the need for pain relievers.

CONFLICT

None

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ETHICAL PERMISSION

It was taken

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