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## Study Of Comparative Efficacy Of Intra-Venous Tramadol And Intra-Venous Dexmedetomidine In Prevention Of Post - Anaesthesia Shivering.

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### ABSTRACT

Postanesthesia shivering continues to be a major challenge in the perioperative care. Our aim was to study comparative efficacy of intra-venous tramadol and intra-venous dexmedetomidine in prevention of post - anaesthesia shivering. This study was conducted in our Department. The patients were randomly assigned to two groups of 30 patients each. Group 1 received received tramadol 1 mg/kg, Group 2 received dexmedetomidine 1 mcg/kg all intravenous diluted in NS to 5 ml . Parameters analysed included postoperative blood pressure (BP), pulse rate, respiratory rate (RR), arterial saturation, and tympanic membrane temperature. Patients were observed for shivering episodes, sedation, pain, respiratory depression, nausea, and vomiting. The incidence of shivering was 6 % in group A and 20 % in group B. Patients who were given tramadol had significantly less shivering than dexmedetomidine groups ( $P < 0.01$ ). We conclude that tramadol has been shown to be more effective in preventing postoperative Shivering.

**Keywords:** D exmedetomidine, tramadol , postanesthesia shivering

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## INTRODUCTION

Prevention of postanesthetic shivering improves outcomes in terms of reduced morbidity and blood loss, improved wound healing, and shorter hospital stays. Numerous drugs have been proposed for the treatment of postoperative shivering, including tramadol,  $\alpha_2$  agonists, opiates, ketanserin, MgSO<sub>4</sub>, steroids, and 5HT<sub>3</sub> antagonists. A thorough review of the literature revealed that tramadol and dexmedetomidine [1,2] were individually effective in treating postoperative shivering. Post-anaesthetic shivering has been a major challenge in perioperative care. Our aim was to investigate the comparative efficacy of intravenous tramadol and intravenous dexmedetomidine in preventing shivering after anaesthesia [3].

## MATERIAL AND METHODS

The present study was conducted in our department. The patients were randomly assigned to two groups of 30 patients each.

Group 1 received to 5 ml Tramadol 1 mg/kg intravenous diluted in NS to 5 ml while Group 2 received Dexmedetomidine 1 mcg/kg intravenous diluted in NS to 5 ml.

Parameters analysed included postoperative blood pressure (BP), pulse rate, respiratory rate (RR), arterial saturation, and tympanic membrane temperature. Patients were observed for shivering episodes, sedation, pain, respiratory depression, nausea, and vomiting.

On arrival in the operating room, baseline heart rate (HR), BP, RR, SpO<sub>2</sub>, and body temperature (axillary, tympanic membrane temperature) were recorded. A large bore intravenous cannula was inserted. Operating room temperature was maintained at 22°C.

Shivering was graded using a five-scale point scale.

## RESULTS

**Table 1: Duration of surgery**

Group	Mean $\pm$ SD (Duration of surgery) (Minutes)	P value / Results
Group A (N=30)	68.33 $\pm$ 18.27	P = 0.71 No statistically significant
Group B (N=30)	69.01 $\pm$ 17.98	

The mean duration of surgery showed no statistically significant difference ( $P = 0.71$ )

**Table 2: Incidence of shivering**

Group	Incidence of shivering (Number of patients)	%
Group A (N=30)	2	6.6
Group B (N=30)	6	20

The incidence of shivering was 6 % in group A and 20 % in group B. Patients who were given tramadol had significantly less shivering than dexmedetomidine groups ( $P < 0.01$ ).

**Table 3: Incidence of rescue anaesthesia**

Group	Incidence of shivering (Number of patients)	%
Group A (N=30)	3	10
Group B (N=30)	8	26.60

### DISCUSSION

Shivering is a common problem in patients undergoing surgery under spinal anaesthesia. Persistent impairment of autonomic control of thermoregulation under anaesthesia, together with the cold environment and cold IV fluids in the operating room, contribute to hypothermia, thus causing postoperative shivering. Tramadol intravenously is a drug that can be used after various surgeries where traditional opioids (such as morphine and oxycodone) are often used to relieve pain. However, these conventional opioids carry a higher risk of abuse compared to tramadol. Effective analgesia in patients undergoing surgery is one of the main goals of postoperative management.

Tramadol, a centrally acting analgesic, is commonly used to control postoperative analgesia. When administered parenterally, it is approximately 10% more potent than morphine. Tramadol has a dual mechanism of action. This medicine acts on opioid receptors and inhibits the uptake of norepinephrine and serotonin into neurons. Because of its non-opioid effect, tramadol has a lower risk of causing respiratory depression than other opioids. However, the high incidence of nausea and vomiting is one of the concerns when using tramadol in postoperative patients [4,5].

In our study, Shivering were lowest in the tramadol group. Tramadol, a non-opioid analgesic, at a dose of 1 mg/kg suppressed postanesthetic Shivering and improved thermoregulation. Lower the set point of, double the range between thresholds, and lower the vasoconstriction and chill thresholds.

Tramadol was reviewed by Trevoka et al [6]. More effective than placebo Mathews et al [7] observed a 4% reduction in Shiverings in the tramadol group compared to 48% in the control group. This is similar to our research results. Saha et al. observed that administration of tramadol at the time of wound closure reduced the incidence of Shivering to 20% compared to 60% in the control group.

Shigeta et al [8] compared the efficacy of tramadol with pethidine (0.5 mg/kg) at different doses of 1, 2, and 3 mg/kg and observed a reduction in the incidence of Shivering (9 %, 6%, 3%, and 12%). Compared to the control group (42%), Talakoub and Noorimeshkati reported a 97.2% response rate when he used 0.5 mg/kg tramadol to treat chills. This is high compared to our study. The difference may be due to the fact that we did not distinguish between partial and complete responses [9].

### CONCLUSION

We conclude that tramadol has been shown to be more effective in preventing postoperative Shivering.

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