

Original article:

Adverse Effects of Tramadol under neuraxial anaesthesia : Observational study

¹Dr Vinit C Sukhatankar* , ²Dr Bhumika Rangparia

¹Associate Professor , Anaesthesia Department , Rural Medical College , Loni

²Resident , Anaesthesia Department , Rural Medical College , Loni

Corresponding author*

Abstract:

Introduction: Other known causes of shivering include transfusion reactions, drug reactions, pre-existing high grade fever or bacteremia, or infusion of contaminated intravenous fluids (fungal growth in dextrose containing fluids). Perioperative hypothermia is the most common cause of shivering, though the exact incidence of each is difficult to evaluate.

Methodology: It was a prospective study which was carried out in tertiary care teaching hospital, over 2 years of time after obtaining the necessary approval from the institutional ethical committee . Total 390 Patients with 20 to 60 years of age , of either sex belonging to ASA I and II posted at P.R.H. LONI ,who developed grade III and IV shivering according to Wrench criteria after spinal anesthesia who were given Tramadol , without any exclusion criteria were included in our study.

Results: In our study we found that 11.04% patient had recurrence of shivering and 9.49% patients had Nausea and Vomiting .Bradycardia was seen in 1.28% and Hypotension in 3.08% Patients.

Conclusion: Our study concluded that , Tramadol causes side effects like Nausea Vomiting which are easily manageable. Recurrence of shivering is observed with Tramadol injection were very less which is manageable by repeat dose of Tramadol .

Keywords: Tramadol , shivering

Introduction:

Other known causes of shivering include transfusion reactions, drug reactions, pre-existing high grade fever or bacteremia, or infusion of contaminated intravenous fluids (fungal growth in dextrose containing fluids). Perioperative hypothermia is the most common cause of shivering, though the exact incidence of each is difficult to evaluate. ^[1] Tramadol may induce its anti shivering effects via both-opioid receptor and $\alpha 2$ -adrenergic agonist mechanisms. The interaction of opioid and $\alpha 2$ -adrenoceptor mechanisms working in a complementary or synergistic manner and produce anti shivering effects. ^[26]Recent studies have investigated the efficacy of tramadol in the management of perioperative of shivering. ^[2] The aim of this study was to observe the anti shivering effects and the accompanying early side effects of tramadol after neuraxial anesthesia.

Material and methods

It was prospective observational Longitudinal study for two years duration in the Department of Anesthesiology & Critical Care, Pravara Rural Hospital, Loni with sample size 384. Sample size was calculated using open epi software.

INCLUSION CRITERIA

- Patients aged between 20-60 years.
- Patients of both sex.
- Patients with ASA Grade I & II.
- All Patients who underwent for elective lower abdominal and lower limb surgeries under spinal anesthesia.
- Patients who developed grade III and IV shivering and who received IV Inj. Tramadol for cessation of shivering.
- All patients with spinal anesthesia level achieved up to T8-T10.
- Patients who were willing to give consent which was taken postoperatively when he/she was fully conscious and in a cognitive position of giving consent for his/her inclusion in the study.

EXCLUSION CRITERIA

- Patients with H/o Cardio-Respiratory disorders.
- Patients with Hepatic and Renal diseases.
- Patients who were allergic to tramadol or opioid drugs.
- Patients who were not willing to give consent.

It was a prospective study which was carried out in tertiary care teaching hospital, over 2 years of time after obtaining the necessary approval from the institutional ethical committee .

Total 390 Patients with 20 to 60 years of age , of either sex belonging to ASA I and II posted at P.R.H. LONI ,who developed grade III and IV shivering according to Wrench criteria after spinal anesthesia who were given Tramadol , without any exclusion criteria were included in our study.

All patients were administered:

Tramadol 1 mg/kg IV diluted up to 10 ml

Pre-anesthetic Evaluation

As per the routine protocol of our institute all patients were thoroughly evaluated by pre-anesthetic check up with general physical and systemic examination in the evening before the proposed surgery. General examination included recording pulse rate, blood pressure, airway assessment, examination of the respiratory and cardiovascular systems, spinal deformities and local infection at lumbar puncture site.

All the patients were graded according to American Society of Anesthesiologists classification. After explaining the anesthetic procedure to the patients, informed written consent was taken for anesthesia procedure as per routine. All patients were given 0.5mg of Alprazolam and Ranitidine 150mg orally the previous night. Patients were advised to be nil orally from 10 pm onwards on the previous day of surgery. On the day of surgery intravenous access was secured with 18 gauge venous cannula for fluid administration before the block.

Results:

Table 1: Complications

Complications	No. of Patients	%
Recurrence of shivering	44	11.04
Nausea & Vomiting	37	9.49
Bradycardia	5	1.28
Hypotension	12	3.08

In our study we found that 11.04% patient had recurrence of shivering and 9.49% patients had Nausea and Vomiting .Bradycardia was seen in 1.28% and Hypotension in 3.08% Patients.

Discussion

Anaesthesia can be categorized into local, conscious sedation, regional and general anesthesia (GA). Regional anesthesia is further separated into central neuraxial block and peripheral nerve block. Regional anesthesia is very safe and popular anesthetic technique for various surgeries. Shivering is unpleasant and frequent complications in the perioperative period under neuraxial anesthesia and around 40-60% of the patients under regional anesthesia develop shivering.^[1] The physiologic role of shivering is to provide heat, but its occurrence in relation to anesthesia is inconsistent and incompletely understood. The probable mechanism under regional anesthesia could either be a result of decrease in core body temperature, misinformation from receptors or impairment of the physiologic set points.^[3]

In our study we observed lower incidence of nausea and vomiting while earlier studies found higher incidence of Nausea & Vomiting after tramadol. ^[4] Sharma M ^[5] (77%) found higher incidence of nausea and vomiting while Manoucherian N *et al* ^[6](11.4%) found lower incidence of nausea and vomiting . Dhimar A *et al* ^[7] and Manoucherian N *et al* ^[8] mentioned in their study that slower injection of injection tramadol reduces incidence of nausea and vomiting and they found the incidence of nausea and vomiting only in 6.66% and 11.4% respectively. In our study we gave Inj. Tramadol very slowly and diluted up to 10 ml, with the incidence of nausea and vomiting in only 9.49 % patients.

We observed recurrence of shivering in 11.04 % patients. Rescue dose of Tramadol 1 mg/kg was given in patients in whom shivering reappeared. Dhimar A *et al* ^[70] observed recurrence in 10% patients in Tramadol group and 50% in Pethidine group. Attal P *et al* ^[7] found recurrence in 6.6% patients of Tramadol group and 13.3% patients in Clonidine group. *Joshi S et al* ^[5] found recurrence in 15.38% in Tramadol group and 26.67% in Butorphanol group. *Maheshwari BK* ^[6] found recurrence in 8% in Tramadol group and 20% in Butorphanol group.

Hence we concluded that Tramadol is most effective, with high success rate, rapid in onset, lesser recurrence rate. At the same time it is safe, with no respiratory depression or hemodynamic instability. Incidence of Nausea and Vomiting was less and easily manageable.

Conclusion

Our study concluded that , Tramadol causes side effects like Nausea Vomiting which are easily manageable. Recurrence of shivering is observed with Tramadol injection were very less which is manageable by repeat dose of Tramadol .

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