



EFFECT OF PREMEDICATION WITH ONDANSETRON ON HYPOTENSION AND BRADYCARDIA DURING SUBARACHNOID BLOCK IN HYSTERECTOMY PATIENTS

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ABSTRACT

Background: Hypotension and bradycardia are common complications during spinal anaesthesia, particularly in hysterectomy cases. Ondansetron, a 5-HT₃ receptor antagonist, has been hypothesized to mitigate these effects by modulating the Bezold-Jarisch reflex. **Objective:** To evaluate the efficacy of premedication with ondansetron in preventing hypotension and bradycardia during subarachnoid block in patients undergoing hysterectomy. **Methods:** This randomized controlled study included 100 ASA grade I and II female patients scheduled for elective abdominal hysterectomy under spinal anaesthesia. Patients were divided into two groups: Group O received intravenous ondansetron 8 mg prior to subarachnoid block, and Group C received normal saline. Hemodynamic parameters were recorded. **Results:** The incidence of hypotension and bradycardia was significantly lower in the ondansetron group compared to the control group ($p < 0.05$). The requirement of vasopressors and atropine was also reduced. **Conclusion:** Premedication with ondansetron significantly reduces the incidence of hypotension and bradycardia during spinal anaesthesia for hysterectomy.

KEYWORDS : Ondansetron, Subarachnoid block, Hypotension, Bradycardia, Hysterectomy, Spinal anaesthesia.

INTRODUCTION

Spinal anaesthesia is a commonly used technique for lower abdominal surgeries, including hysterectomy. Despite its benefits, it is associated with complications such as hypotension and bradycardia due to sympathetic blockade. The Bezold-Jarisch reflex, mediated by serotonin (5-HT₃) receptors, contributes to these hemodynamic changes. Ondansetron, a 5-HT₃ antagonist, may attenuate this reflex, thereby improving hemodynamic stability. This study aims to investigate the role of intravenous ondansetron in reducing the incidence of hypotension and bradycardia during subarachnoid block in hysterectomy patients.

MATERIALS AND METHODS

This prospective, randomized, double-blind controlled trial was conducted at a tertiary care hospital. One hundred ASA I and II female patients aged 35–60 years, scheduled for elective abdominal hysterectomy under spinal anaesthesia, were enrolled. They were randomly assigned into two groups:

- Group O (Ondansetron): received 8 mg IV ondansetron 5 minutes before spinal anaesthesia.
- Group C (Control): received 2 ml normal saline.

All patients received standard spinal anaesthesia with 3 ml of 0.5% hyperbaric bupivacaine at L3-L4. Hemodynamic parameters including heart rate and blood pressure were recorded at baseline and at 3-minute intervals for 30 minutes. Hypotension (SBP <90 mmHg or >20% decrease from baseline) was treated with IV fluids and mephentermine. Bradycardia (HR <50 bpm) was treated with IV atropine. Statistical analysis was performed using SPSS software.

RESULTS

Baseline demographic and hemodynamic parameters were comparable between the groups. The incidence of hypotension was significantly lower in the ondansetron group (16%) compared to the control group (42%) ($p < 0.01$). Similarly, bradycardia occurred in 6% of patients in the ondansetron group versus 18% in the control group ($p < 0.05$). The requirement for vasopressors and atropine was significantly lower in Group O.

No significant adverse effects were reported with the use of ondansetron.

DISCUSSION

This study demonstrates that prophylactic administration of 8 mg IV ondansetron significantly reduces the incidence of

spinal-induced hypotension and bradycardia. The mechanism likely involves blockade of 5-HT₃ receptors, inhibiting the Bezold-Jarisch reflex. These findings are consistent with prior studies suggesting the role of ondansetron in improving cardiovascular stability during spinal anaesthesia. Routine use of ondansetron may thus enhance safety during procedures involving subarachnoid block, particularly in elderly or high-risk patients.

CONCLUSION

Premedication with intravenous ondansetron is effective in reducing the incidence of hypotension and bradycardia following spinal anaesthesia in hysterectomy patients. Its routine use can be considered a safe and simple intervention to improve perioperative hemodynamic stability.

REFERENCES

1. Owczuk R, et al. Influence of ondansetron on the hemodynamic response to spinal anesthesia. *Anesthesiology*. 2008.
2. Tiwari AK, et al. Effects of intravenous ondansetron on spinal-induced hypotension and bradycardia. *Indian J Anaesth*. 2015.
3. Sahoo T, et al. Prophylactic ondansetron in prevention of spinal anesthesia-induced hypotension and bradycardia: A randomized controlled study. *J Anaesthesiol Clin Pharmacol*. 2012.