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Effect of Intravenous Ketamine and Intravenous Tramadol on the Incidence of Post-Spinal Anesthesia Shivering Management in Urological Surgeries: A Triple-Blind Randomized Clinical Trial

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ABSTRACT

Introduction: Postoperative shivering is one of the most common complications due to disruption in the thermoregulatory system. It occurs in 65% of cases following regional anesthesia and leads to unfavorable outcomes and decreased patient satisfaction. Ketamine and intravenous tramadol are weak analgesics that affect the central thermoregulatory system. This study aimed to compare the effect of intravenous ketamine and tramadol on the incidence of shivering after spinal anesthesia in urological surgeries.

Methods and Materials: This study is a triple-blind parallel randomized clinical trial with a population of 90 urological surgery patients under spinal anesthesia in Hashminejad Hospital in Tehran, Iran, in 1403. Patients were divided into three groups of 30 people by random block sampling method: intravenous ketamine group with a dose of 0.5 mg/kg (group K), intravenous tramadol group with a dose of 0.5 mg/kg (group T), and normal saline group (group S). The intensity of the patient's tremors two hours after the operation, hemodynamic changes, nausea, vomiting, and sedation were recorded during the surgery. The data were entered into SPSS software version 22 and analyzed by chi-squared test, independent sample t-test, and repeated measure ANOVA.

Results: Patients were homogeneous in terms of demographic variables. Shivering was observed in 13 (43%), 6 (20%), and 18 (60%) patients in groups K, T, and S, respectively (p = 0.001). There was a significant difference in shivering intensity among the three groups. Half of the patients receiving ketamine experienced hallucinations and nystagmus postoperatively. However, there were no statistically significant differences in other variables, including heart rate, systolic blood pressure, diastolic blood pressure, and sedation level (p = 0.168).

Conclusion and Discussion: Our findings suggest that tramadol is an effective option for the incidence of shivering after spinal anesthesia in urological surgeries. These results can be generalized to similar patient populations undergoing urological surgeries with spinal anesthesia. Further studies are recommended to explore the long-term effects and potential benefits of tramadol in broader surgical contexts and among diverse patient demographics.

Keywords: Ketamine, Shivering, Tramadol