

Original Article

Effect of Addition of Ondansetron or Magnesium to Lidocaine on Duration of Analgesia of Intravenous Regional Anesthesia in Elective Upper Extremities Surgery: Comparative Study

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Abstract

Background: This study aimed at evaluating and comparing the effect of ondansetron and magnesium added to lidocaine on intravenous regional anesthesia (IVRA) in the surgery of upper extremity.

Methods and Materials: The current randomized, clinical trial was conducted on 45 patients considered as candidates for upper extremities surgery in Qazvin, Iran. The patients were randomly assigned into three groups. Group C only received 3 mg/kg lidocaine, group O lidocaine +4 mg/kg ondansetron, and group M lidocaine +7.5 mL magnesium sulfate 20%. Then, the sensory and motor blocks, tourniquet pain, the amount of administered extra fentanyl, pain intensity, and other parameters involved in analgesia were analyzed in the groups using the statistical tests.

Results: The time for onset of sensory and motor blocks in the M group was significantly shorter than the groups C and O ($p < 0.05$). In terms of the recovery time of the sensory block, the time of group O was significantly longer than those of groups M and C ($p < 0.05$). The amount of administered extra fentanyl and tourniquet pain after block in groups O and M were significantly lower than of group C ($p < 0.05$). No significant difference was observed in postoperative pain and other features among the groups ($p > 0.05$).

Conclusion: Magnesium had more rapid effectiveness and ondansetron had prolonged postoperative analgesia. Although the induced analgesia relatively improved the intensity of pain, it failed to maintain its supremacy in postoperative pain. To obtain more conclusive results, further studies are required.

Keywords: Bier Block, Ondansetron, Magnesium, Lidocaine

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Introduction

Intravenous regional anesthesia (IVRA) or Bier block is an anesthesia method in which the local

anesthetic is intravenously injected into the extremity to induce analgesia for surgical purposes. Lidocaine is a common drug to induce regional anesthesia (1). The prevalence of lidocaine drug toxicity is low among