Abstract

Background & Aim: Intravenous regional anesthesia method is used to perform upper limb surgeries. Lidocaine is an anesthethic drug that commonly used in this method. Tourniquet pain is a usual side effect of this method due to tourniquet pressure during and after surgery, which causes increasing in opioid administration to the patients. So, it feels that using adjuvant drugs to lidocaine in order to decrease the tourniquet pain during and after surgeries must be investigated. This study aimed to assess the effect of adding ondansetron or magnesium to lidocaine for intravenous regional anesthesia on tourniquet pain and postoperative pain in upper limb surgeries.

Methods & Materials: This study is a double blinded randomized clinical trial. In this study ٤٥ patients included who were elective candidate for upper limb surgery reffered to Qazvin Shahid Rajaei Hospital according inclusion criteria. Patients randomly and equally divided into ٣ groups of ١٥; control (٣ mg/kg lidocaine ٢٪ with ٤٠ cc solution), lidocaine+ondancetron (lidocaine with ٤ mg ondanceron with ١ cc solution) and lidocaine+magnesium (lidocaine with ٧,٥ ml $MgSo_4$ ٢٠٪; ١,٥ gr). Systolic blood pressure, heart rate, tourniquet pain according to VAS in times after drug administrations and after tourniquet cuff deflation, sensory and motor blocks delay times after drug administrations, amount of extra fentanyle during surgery, recovery times from sensory and motor blocks after tourniquet cuff deflation, time between tourniquet opening and needing to first dose of pethedine, amount of received pethedine when VAS>٤ and duration time of surgery were assessed and collected. Data after collecting were analyzed in SPSS V٢٢ with ANOVA and GLM tests. P<٠,٠٥ was considered as a significance level.

Results: The mean of sensory and motor block delay time was decreased significantly in lidocaine+ondancetron and lidocaine+magnesium rather to control group (P<٠,٠٠١). The mean of sensory and motor block recovery time was increased significantly in lidocaine+ondancetron and lidocaine+magnesium rather to control group (P<٠,٠٠١). The mean of tourniquet pain was decreased in lidocaine+ondancetron and lidocaine+magnesium rather to control group after drug administration and after tourniquet cuff deflation (P<٠,٠٠١). There was no significant difference in vital signs of patients in three groups (P>٠,٠٥). The surgery duration time was decreased in lidocaine+ondancetron and lidocaine+magnesium rather to control group but not significantly (P>٠,٠٥).

Conclusion: Results showed that adding ondansetron or magnesium to lidocaine in intravenous regional anesthesia as an adjuvant could have beneficial role in tourniquet pain and post surgery pain decline. But there was no significant differenc between ondancetron and magnesium. Also, there was no significant difference between these two groups in terms of pain severity after surgery.

Key words: Tourniquet pain, IVRA, Lidocaine, Ondansetron, Magnesium