

Magnesium sulfate and sufentanil for patient-controlled analgesia in orthopedic surgery.

[Sedighinejad A¹](#), [Haghighi M¹](#), [Naderi Nabi B¹](#), [Rahimzadeh P²](#), [Mirbolook A³](#), [Mardani-Kivi M³](#), [Nekufard M¹](#), [Biazar G¹](#).

Abstract

BACKGROUND: Postoperative analgesia is one of the concerns of anesthesiologists and patients. Systemic opioid administration is the gold standard in reducing the severe pain after the surgery but some side effects prevent the use of adequate dosage of opioids.

OBJECTIVES: The aim of this study was to evaluate the result of adding magnesium sulphate to sufentanil in patient-controlled intravenous analgesia (PCIA) system.

PATIENTS AND METHODS: In this randomized clinical trial, 60 patients candidate for lower limb orthopedic surgery were recruited in Poursina Medical Center for six months. They were randomly classified in two group of patient-controlled intravenous analgesia for postoperative pain control, one was group S [(sufentanil) (n = 30)] and the other was group S + M [(magnesium sulphate/sufentanil) (n = 30)]. The drug infusion rate was 5 mL/h. Each mL of solution in group S contained 1 mcg of sufentanil and in group M + S, 1 mcg of sufentanil and 200 mcg magnesium sulphate, respectively. Pain score, sedation score, satisfaction score, nausea and vomiting score were evaluated 6, 12, 24, 36 and 48 hours after surgery.

RESULTS: The demographic data between two groups were not significantly different. The pain scores after 6, 12 and 24 hours in S and S + M groups were significantly different. But the comparison of Visual Analogue Scale (VAS) scores after 36 and 48 hours didn't show significant differences ($P < 0.001$). Comparison of the sedation, nausea and vomiting scores between two groups did not show any difference. But the number of patient's satisfaction in S + M group was more than S group which suggests significant differences ($P < 0.05$).

CONCLUSIONS: This study showed that magnesium sulphate added to sufentanil through PCIA is an effective method to alleviate pain in patients undergoing lower limb orthopedic surgery. Moreover, we found fewer side effects on magnesium-sufentanil regimen in terms of in nausea, vomiting, and sedation; and patients' satisfaction in this regimen was more rather than that in the regiment of sufentanil alone.

KEYWORDS: Magnesium Sulphate; Sufentanil

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