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Commentary Article

Optimal Opioid Analgesia in Early Postoperative Period with and without Addition of NSAIDS in Cardiac Surgery

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ABSTRACT

Opioid analgesia is used as a standard postoperative analgesia in cardiac surgery patients. Opioids hold several unwanted side effects as nausea, vomiting, constipation, physical dependence, and even respiratory depression. Multimodal therapy is proposed as the best option for decreasing postoperative pain while reducing side effects. NSAIDs are among the commonly used agents. In this study we evaluate the dosages of fentanyl for appropriate analgesia management and lower side effects, additionally looking at the possibility of a threshold at which NSAID agents could be added to opioid analgesia therapy and is of high importance to effective pain reduction and decrease the addition of unnecessary medication.

Keywords: Fentanyl, Opioid analgesia, NSAIDs, Cardiac surgery

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INTRODUCTION

Study was conducted in Latvian Centre of Cardiology of Pauls Stradins Clinical university hospital. A total of 50 cardiac surgery patients were included in the study where 28 patients were male and 22 patients were female with mean age of 70.3 years. Postoperative Visual Analog Scale (VAS) score, weight, fentanyl dose, Non-Steroidal Anti-Inflammatory Drugs (NSAID) use, effects as meteorism, breakthrough pain, nausea in 2nd, 4th and 6th postoperative hour were registered. All patients received fentanyl analgesia at rate 0.2 mg/h during the first 4 hours, while some patients received NSAIDs along with fentanyl analgesia. All the patients were categorised into two groups, patients with significant pain (≥ 4 VAS) group and patients no significant pain (≤ 3 VAS) group.

Further 4th hour significant pain patients were divided into NSAID group and no-NSAID use group where 6th hour pain VAS score was tested. Further division into moderate pain (4-5 VAS score) NSAID and no-NSAID use group was done and 4th to 6th postoperative hour decrease in pain tested.

DESCRIPTION

Highest side effects were found in 4th hour. The side effects included 46% of nausea, 28% breakthrough pain and 10% meteorism. Pain severity according to VAS score in 4th hour was higher compared to 6th hour and was significant with 4-8 VAS score in 56% of patients. It was insignificant in 44% of the patients whose VAS was 0-3. Moderate pain was observed in 30% of patients where VAS score was 4-5. VAS score with grading 6-7 comprehends to severe pain which was observed in 18% and subsequently, 8% of patients were observed to have very severe pain where the VAS score was 8. According to the Receiver Operating Characteristic (ROC) curve analysis, at the dosage of 0.2516 mcg/kg/h approximately around 78.6% of patients with pain were identified and false positive rate was found to be around 9%. According to ROC coordinates of the curve, at the dosage of 0.2516 mcg/kg/h sensitivity was ~87% of patients with nausea and the false positive rate was ~22%. Similarly, at the dosage of 0.2800 mcg/kg/h the sensitivity was found to be ~61%, but the false positive rate depicted very low (~3.7%).

6th hour VAS score was significantly different in patients with NSAID use and with non-NSAID use in 4th hour (p=0.016). In 6th hour, VAS for patient with NSAID use median (Q1-Q3) was 2 (1-3), but with no-NSAID use median (Q1-Q3) was 1 (0.5-1.5). The VAS score difference from 4th to 6th hour in moderate pain was insignificant (p=0.776).

Most of common side effects encountered while conducting the study were nausea and breakthrough pain. 0.2516 mcg/kg/h of fentanyl is the optimal standard dosage regarding pain management and the point of high probability of nausea. As per physician's advice, for standard optimal pain management, anti-emetics should be given to patient's right at the beginning of the fentanyl therapy. VAS group in 6th hour is significantly different in patients with NSAID use and with patients who do not use NSAIDs. In the 4th hour both groups presenting with pain whose score of VAS was <4 and therefore was considered to provide adequate therapy. No-NSAID group showed similar results to NSAID group but consisted of only 4-5 VAS values.

CONCLUSION

Therefore, further evaluation should be focused on moderate pain with VAS score, 4-5 in both the groups. VAS score difference from 4th-6th hour in moderate pain proved insignificant, but due to the inclusion of small number of patients (small sample) and the outliers in this group, the significance can neither be proven nor ruled out. Thus, we recommend more studies with more participants for the future study.