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Comparison of the Postoperative Analgesic Effects of Morphine, Paracetamol, and Ketorolac in Patient-Controlled Analgesia in the Patients Undergoing Open Cholecystectomy

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Abstract : Background and objectives: Effective postoperative pain management in abdominal surgeries, which are painful procedures, plays an important role in reducing postoperative complications and increasing patient's satisfaction. There are many techniques for pain control, one of which is Patient-Controlled Analgesia (PCA). The aim of this study was to compare the analgesic effects of morphine, paracetamol and ketorolac in the patients undergoing open cholecystectomy, using PCA method. Material and Methods: This randomized controlled trial was performed on 330 ASA (American Society of Anesthesiology) I-II patients (three equal groups, n=110) who were scheduled for elective open cholecystectomy in Shahid Rjaee hospital of Qazvin, Iran from August 2013 until September 2015. All patients were managed by general anesthesia with TIVA (Total Intra Venous Anesthesia) technique. The control group received morphine with maximum dose of 0.02mg/kg/h, the paracetamol group received paracetamol with maximum dose of 1mg/kg/h, and the ketorolac group received ketorolac with maximum daily dose of 60mg using IV-PCA method. The parameters of pain, nausea, hemodynamic variables (BP and HR), pruritus, arterial oxygen desaturation, patient's satisfaction and pain score were measured every two hours for 8 hours following operation in all groups. Results: There were no significant differences in demographic data between the three groups. there was a statistically significant difference with regard to the mean pain score at all times between morphine and paracetamol, morphine and ketorolac, and paracetamol and ketorolac groups ($P<0.001$). Results indicated a reduction with time in the mean level of postoperative pain in all three groups. At all times the mean level of pain in ketorolac group was less than that in the other two groups ($p<0.001$). Conclusion: According to the results of this study ketorolac is more effective than morphine and paracetamol in postoperative pain control in the patients undergoing open cholecystectomy, using PCA method.

Keywords : analgesia, cholecystectomy, ketorolac, morphine, paracetamol
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