Abstract

Background: Postoperative pain is the main symptom following a surgical event and is related to an inflammatory process involving cytokine secretion. This type of pain is usually treated with opioids such as morphine, whose analgesic efficacy is well known. However, it is unknown when compared with ketorolac in measuring proinflammatory cytokine levels. The aim of this study was to determine the postoperative analgesic effect with endovenous morphine on proinflammatory cytokine levels in patients who underwent laparoscopic cholecystectomy.

Methods: We studied 40 patients who underwent laparoscopic cholecystectomy. Patients were randomized to receive morphine (0.05 mg/kg) or ketorolac (0.2 mg/kg) IV during gallbladder extraction and after the surgical event at the following dose: morphine (0.15 mg/kg) or ketorolac (0.7 mg/kg) for 40 min. Clinical evaluations included were hemodynamic, analgesic with visual analogue scale, and sedation (Ramsay scale). IL-1B and TNF-α were measured pre- and postoperatively and after 12 h. Safety profile was evaluated with hemodynamic constants. Statistical analysis was carried out using Mann-Whitney U test and Fisher exact test.

Results: TNF-α was increased significantly in the immediate postoperative period and after 12 h in the morphine group. IL-1B was not detected preoperatively, in the immediate postoperative period and 12 h after surgery the levels were similar in both groups. The main adverse event was respiratory depression, which occurred in the morphine group. Conclusions: Proinflammatory cytokines were increased after surgery, particularly TNF-α in the group receiving morphine. The use of morphine is safe postoperatively.

Keywords
Morphine, ketorolac, postoperative analgesia, cytokines