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Alternatives in acute pain management

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Opioids provide traditional treatment of postoperative pain, but they can lead to undesirable side effects, which may hinder a patient's recovery (e.g. respiratory depression, sedation, drowsiness, nausea, vomiting, pruritis, urinary retention, and constipation) Thus, the anesthesiologist and surgeon are using more non-opioid techniques to achieve better analgesia and reduce side effects.

Nonsteroidal anti-inflammatory drugs (NSAIDS) can be used as part of a multimodal treatment for postoperative pain. NSAIDS can be divided into three groups: NSAIDS with predominantly analgesic effect (Ketorolac, Naproxen), NSAIDS that are anti-inflammatory (oxicams), and NSAIDS that have both properties (Diclodenac, Ketoprofen, Indomethacin)[1]. Ketorolac can be an effective alternative to opioids in the PACU. However, the risk of adverse events increases with high doses, with prolonged therapy (> 5 days), or in vulnerable patients (e.g. elderly).

Cyclooxygenase-2 inhibitors provide an alternative to nonspecific NSAIDS. Perioperative use of Cox-2 inhibitors have led to opioid-sparing effects, improved the quality of recovery and patient satisfaction. Merck voluntarily withdrew Rofecoxib in September 2004. Celecoxib and Valdecoxib are available worldwide. Pfizer withdrew Valdecoxib from the United States market in April 2005. Parecoxib is a parenteral pro-drug of Valdcoxib. Parecoxib (20-40 IV/IM) is available for use in Europe. The Cox-2 class is under review by the FDA and it unclear whether they will be available for perioperative use in the United States.

Acetaminophen is a non-opioid that is commonly given orally or rectally for postoperative pain. In children, a loading dose of 30-40 mg/kg PR followed by 15-20 mg/kg every 6-8 hours is appropriate. In adults, 2 grams PO is equivalent to Celecoxib 200 mg but less effective than Celecoxib 400 mg, Rofecoxib 50, or Ketoprofen 150 mg in preventing pain after ambulatory surgery[2]. Propacetamol is an injectable prodrug of acetaminophen prescribed in Europe. Paracetamol is an injectable form of acetaminophen. One gram Paracetamol q 6 hours can reduce Morphine consumption after lower extremity joint replacement surgery[3].

Clonidine and Dexmedetomidine can be used for postoperative analgesia. Clonidine can be given many ways: oral, transdermal, intravenous, epidural, and perineural. Dexmetodomidine is a pure alpha-2-agonist used primarily for ICU sedation. It can reduce postoperative pain and opioid requirements[4].

Ketamine in small doses given IM/IV or in the epidural space can improve analgesia after surgery. Epidural Ketamine 20-30 mg enhances epidural-morphine analgesia after abdominal surgery. Ketamine (0.1 mg/kg) reduces pain after tonsillectomy procedures. Opioid tolerant patients may benefit from a Ketamine infusion.

Local infiltration in the wound can improve postoperative analgesia. It can decrease the anesthetic requirements during surgery and decrease opioid use in the postoperative period. Local infiltration is limited to superficial procedures and the effect may last only a couple of hours. Continuous infusions of local through a catheter and non-electronic elastro-metric infusion device provide longer periods of analgesia. Continuous plexus and peripheral nerve block provide prolonged analgesia, decreased opioid requirements, and a faster functional recovery after surgery. Femoral or femoral-sciatic block helped after major knee surgery.

In summary, postoperative analgesia can be improved with a variety of non-opioid techniques. Non-opioid medications, local anesthetic infiltration and blocks all provide methods to improve postoperative pain.

REFERENCES

1. Miller. Miller's Anesthesia, 6th ed., Copyright © 2005 Elsevier, 2719-2000.
2. White PW. Role of Non-Opioid Analgesic Techniques in the Management of Pain After Ambulatory Surgery. IARS 2005 Review Course Lectures.
3. Sinatra SS, Jahr JS, Reynolds LW, et al. Efficacy and Safety of Single and Repeated Administration of 1 Gram Intravenous Acetaminophen Injection (Paracetamol) for Pain Management after Major Orthopedic Surgery. Anesthesiology 2005;102(4): 822-831.
4. Arian SR, Ruehlow RM, Uhrich TD, Ebert TJ. The efficacy of dexmedetomidine *versus* morphine for postoperative analgesia after major inpatient surgery. Anesth Analg 2004;98: 153-8.