

# Pain management in the outpatient surgical setting

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Pain management in the post-surgical setting has become an increasingly pertinent issue to healthcare professionals for a variety of reasons. In the United States, the Joint Commission of Accreditation of Healthcare Organizations (JCAHO), a governmental organization responsible for certifying hospitals, began incorporating new evidence-based pain standards as part of its accreditation process in 2001. JCAHO has termed pain "the fifth vital sign," and has made appropriate pain assessment and intervention important criteria by which to grade the quality of healthcare in the U.S. In addition, economic pressures on a healthcare system burdened by an increasing patient population with decreasing financial support have forced surgeons in America to perform procedures on an outpatient basis that would traditionally have included inpatient care post-operatively. Consequently, effective outpatient pain management has been emphasized not only for the preeminent purpose of maintaining patient comfort, but also for reasons of a medico-economic nature vital to physicians and healthcare administrators alike.

Optimal pain control in the surgical setting requires the use of multimodal analgesia such that multiple medications offering different mechanisms of action or sites of intervention along the pain pathway are utilized. By combining analgesics and modalities which act both centrally and peripherally, the post-operative pain response can be modified to a minimum level. This allows patients to participate in post-operative rehabilitation in a more aggressive fashion, decreases post-operative emotional stress, and as a result should improve overall surgical outcomes in our present economically-strained setting.

In the case of orthopaedic surgical procedures such as anterior cruciate ligament reconstruction, which is generally performed on an outpatient basis in the U.S., several methods of pain management are useful. In the pre-operative setting, pre-emptive analgesia utilizing appropriate oral medications, femoral nerve blocks, and intra-articular injections blocks the pain and the inflammatory response to surgical trauma before it occurs. The benefits of pre-emptive analgesia in terms of decreasing the negative physiologic impact of trauma have been documented in the anaesthesia literature and animal models, and have been borne out in the clinical experience at my institution. In addition, pre-emptive analgesia allows surgical procedures to be performed under a light general anaesthetic, allowing more rapid post-operative recovery with decreased gastrointestinal side effects such as nausea and vomiting.

Post-operatively, the combination of nerve blocks, intra-articular anaesthetics, oral analgesics, and anti-inflammatory medications provide the most effective means of pain control. Intra-articular local anaesthetics (bupivacaine) and opioids (morphine) may be combined both pre-emptively and post-operatively to achieve local control. Oral analgesics such as paracetamol and the judicious use of oral opioids are utilized to attack pain centrally. Anti-inflammatory drugs are another adjunct which are beneficial in both the pre-

emptive and post-operative setting. These medications inhibit prostaglandin synthesis, promote analgesia, and consequently decrease the post-operative demand for opioids. This is beneficial as excess opioid use can result in significant morbidity in terms of gastrointestinal side effects, mental status changes, and potential for addiction. However, traditional non-steroidal anti-inflammatory drugs (NSAIDs) have side effects including platelet inhibition and gastric ulceration which may prevent their use in the pre-operative setting. Moreover, ketorolac is contraindicated before major operations due to the increased bleeding risks that all traditional NSAIDs possess. However, newer cyclooxygenase-2 selective inhibitors such as rofecoxib and celecoxib have no clinical effect of coagulation. As such, these medications may be utilized in the pre-emptive setting to decrease post-operative pain, decrease opioid consumption, and allow for improved function in the outpatient and inpatient surgical setting.

A reasonable plan for the management of surgical pain in the outpatient setting would include the administration of paracetamol and cox-2 selective inhibitors for 48 hours pre-operatively, intra-articular injection of bupivacaine and morphine just prior to surgery, femoral nerve block and a light general anaesthetic at the time of surgery, and post-surgical intra-articular injection combined with paracetamol, cox-2 selective inhibitors, and opioid of choice for out-patient pain control. This regimen has allowed for outpatient anterior cruciate ligament surgery with minimal re-admissions for pain control or nausea/vomiting in my clinical experience, and has greatly benefited my patients as a result.

As a surgeon, my training has emphasized the technical aspects of the management of injuries, focusing on the operation itself with pain control being an afterthought. The economic demands of the present health care system in the U.S. require an attitude which ascribes great importance to effective pain management post-operatively. The use of multi-modal analgesia, including cox-2 inhibitors, certainly helps to achieve this goal.

## References

1. Hawkeye, C. Cox 2 inhibitors. *Lancet*, 353: 307 – 314, 1999.
2. Reuben S, Sklar J. Pain management in patients who undergo outpatient arthroscopic surgery of the knee. *J Bone Joint Surgery*, 82A:1754 – 1766, 2000.
3. Reuben S, Connelly N. Postoperative analgesic effects of celecoxib or rofecoxib after spinal fusion surgery. *Anesth Analg*, 91: 1221 – 1225, 2000.
4. Reicin A, Brown J, Jove M, et al. Efficacy of single-dose and multidose rofecoxib in the treatment of post-orthopaedic surgery pain. *Am J Orthop*, 30: 40 – 48, 2001.
5. Woolf C, Chong M. Preemptive analgesia – treating postoperative pain by preventing the establishment of central sensitization. *Anesth Analg*, 77:362 – 379, 1993.