Reducing post-op pain

The primary care physician is up front on the surgical team

by J.H. Ennis, MD

CASE PRESENTATION

Roger is a 53-year-old man who had a 5-year history of chronic back pain. He found the pain "excruciating" as it radiated into his right leg. Investigations were positive for spinal instability and he was scheduled for a fusion from lumbar segment 4 to sacral segment 1.

Though he'd tried to "live with it," Roger was becoming progressively more immobile. He used morphine sulfate controlled-release tablets 80 mg twice daily (b.i.d.), yet it didn't seem to improve his function. He was socially isolated. Although Roger had always been difficult to get along with, he was now despondent with poor appetite and sleep, and is thinking about dying.

After the surgery, Roger had severe post-operative pain (POP). He should have been mobilized the day after surgery but he refused to sit up and developed a deep vein thrombosis. He had a machine for patient-controlled analgesia (PCA); however, the doctors on staff were concerned about his continuing need for high-dose opioids, well above his usual amount. He was discharged after 10 days instead of the typical 5. As time went by, the procedure didn't seem to help with pain or function. His opioid requirement climbed to 120 mg b.i.d., and Roger was diagnosed with a "failed back syndrome."

EVEN WITH TODAY'S SOPHISTICATED methods of surgery and post-operative care, the most common side effect of surgery is pain. People who believe they've received insufficient painkillers suffer more long-term and are less satisfied with the results of their procedure.[1] Contrary to the traditional view, the family physician is in the ideal position to provide patient education that can have an impact on post-op pain control.[2-4]

POP isn't benign or self-limiting. In fact, it's associated with the development of chronic noncancer pain, whose incidence varies from 4-37% after hernia repair to 30-81% after limb amputation. Though the etiology is unclear, factors that play a role include peripheral and central sensitization, among other things.[4,5]

Beyond the surgeon/anesthetist/nurse practitioner team, management can be viewed as a temporal process that begins in the pre-operative period and continues through surgery and into the post-op period. Each of these moments has its own set of issues.

Pre-op considerations

Psychiatric factors

What's important for the primary care physician to recognize is that helping a patient to psychologically prepare for surgery has been shown to shorten hospital stay and to reduce the need for post-op analgesics.[2] Though clinical wisdom holds that certain personalities are more prone to developing chronic pain, otherwise known as "the pain-prone personality," to date, no such characteristic type has been identified. Certain factors, however, are predisposing — i.e. sexual and physical

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Staying active

- central to pain management
- prevents muscle wasting
- stimulates endorphins
- shifts attention elsewhere

abuse, depression, anxiety, self-perceived poor health, and pain behaviours.[6] Psychological vulnerability has been identified as a risk factor for persistent pain after cholecystectomy[4] and lumbar spine operations.[7]

Chronic pain

Evidence suggests that pain lasting longer than 1 month prior to surgery is a risk factor for POP.[4] Here again, the family doctor can influence the outcome by maximally treating the patient's pain in a timely fashion.

Pre-emptive analgesia

If persistent pain after surgery results from sensitization of the nervous system, prevention may be possible by blocking this sensitization in the first place. Findings on the impact of pre-emptive analgesia, however, are inconclusive.[4,8] A recent review showed negative results, regardless of the type of painkiller used.[9]

During surgery

The operative period is a juncture of potential risk for the patient. Even though surgical techniques have become more sophisticated with the passage of time, a number of intra-operative factors can impact on the post-op period.

Nerve injury has been associated with chronic POP in thoracotomy, hernia repair and breast surgery. This is by no means a certainty, however, for only 50% of patients with such an injury go on to develop chronic pain.[4]

Intraoperative neuraxial infiltration is the only method of pain control currently available that reduces the metabolic and endocrine consequences of surgical trauma. Blockade of afferent sensory fibres is enhanced if it's started in the operative period and maintained postoperatively.[2]

Epidural anesthesia has been associated with more rapid post-operative mobilization of patients and improved surgical outcome. If the patient is given the option, the family physician can advise him or her to choose an epidural vs general anesthesia, barring any medical issues that necessitate a general.

After the procedure

Pain meds

It's not surprising that the period following surgery has been given the most attention in the study of POP. The less pain the patient experiences, the faster he will be able to get up and resume a normal level of activity. Severe acute post-operative pain has been found to be a risk factor for the development of chronic pain — e.g. as has been found in breast surgery, thoracic surgery and hernia repair. A number of different management methods for POP are available — NSAIDs/COX-2 inhibitors, intravenous (IV) or intramuscular (IM) N-methyl-D-aspartate (NMDA) receptor antagonists (experimental), and IV/IM opioids.[9]

If opioids are prescribed by the surgeon/anesthetist, the delivery system will be either by a regimen monitored by the nursing staff or as patient-controlled analgesia (PCA). PCA is associated with higher patient satisfaction and some reduction in nursing time. The total amount of opioids used tends to be far less than when prescribed as a regimen. Note that PCA in itself has no significant impact on surgical stress, organ dysfunction, post-operative mortality, morbidity or length of hospital stay.[10-12] In fact, no method of post-operative pain control has been identified that reduces the risk of developing chronic pain.[5]

NSAIDs have little effect on surgical stress or organ dysfunction, but are considered to spare opioids by 20-30%.[10] In this way, they can reduce opioid side effects such as nausea, vomiting, respiratory depression and ileus. It's important to remember, however, that the risk of bleeding, renal failure and cardiovascular complications goes up.[9]

TABLE 1

Factors that affect perceived pain long after surgery

Pre-operative	During surgery	Post-operative
Pain, moderate-to-severe, lasting > 1 month	Risk of nerve damage	Acute pain, moderate-to-severe
Repeat surgery	Surgical approach — laparoscopic vs open, etc.	Radiation therapy to area
Psychologic vulnerability (personality-related issues)	Use of general anesthetic	Neurotoxic chemotherapy
Workers' compensation	Neural blocks (lessen POP)	Depression
	Local anesthesia within the surgical wound (lessens POP)	Psychologic vulnerability
		Neuroticism
		Anxiety

Adapted from Perkins FM, Kehlet H.[4]

Sparing other complications

Epidural and spinal anesthetics have been shown to reduce mortality, in meta-analyses. Regardless of the type of surgery, neuraxial blockade also decreases the risk of venous thromboembolism, myocardial infarction, bleeding complications, pneumonia, respiratory depression and renal failure.[10] Glucocorticoids reduce post-operative complications such as nausea and vomiting, pain, and pulmonary complications, without significant side effects.[13]

Adjuvant therapy

Post-operative adjuvant radiation therapy increases the risk of chronic pain after breast surgery, and when required, neurotoxic chemotherapy raises the risk of phantom limb pain after amputation.[4]

Key points

Post-operative pain control begins in the pre-op period. The primary care physician is in the ideal position to manage pre-operative pain, thereby reducing the risk of chronic POP. After surgery, better control of pain not only has an impact on patient comfort, but on morbidity and mortality as well. It can reduce the time for hospitalization and result in lower economic and human costs. Even though the type of surgery dictates the optimum method of POP management, the primary care physician has a role to play. The family doc is in the optimum position to provide education to his or her patients about what to expect during the surgical process and to counsel them about their options. In this way, individuals are better able to interact with their surgical team, asking relevant questions that can have an impact on their own care and the outcome of the procedure. The family physician should be included as part of the surgical team, acting as the first contact for patients in a multimodal approach to post-operative pain control. PE

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Choice of anesthesia

EPIDURAL

- faster recovery
- fewer complications

GENERAL

- enhanced post-op pain and inflammation
- lasting cognitive impairment

Coping with pain

- going for a walk
- spending time with family or friends
- hobbies, new task
- music

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