

Acute Postoperative Pain

Selma Harrison Calmes, MD, Olive View/UCLA Medical Center, Sylmar, California

Why try to prevent and treat postoperative pain? After all, you had an operation – it’s supposed to hurt! This old attitude is changing today as the result of numerous influences. The new attitude evolving is that we are not supposed to have any pain at all. In reality, it is very difficult to achieve this new goal of no pain at all, which may not even be realistic – or good for you. But postoperative pain (abbreviated as “postop” from now on) can usually be made much better with some relatively easy techniques.

What about the role of post-polio in postop pain? It does seem that post-polio people often report more pain than other patients. Many of us have experienced, for example, very severe pain with a simple stub of a toe. Pain signals travel up (and down) the spinal cord, and I postulate that pain signals are modified (probably enhanced, or “wound-up”) because of inflammatory changes in the spinal cord from the original polio infection of the cord. There is no experimental evidence (as far as I am aware) to support this concept; it is a theoretical idea only. But, we do know in other patients that pain signals are often modified in the spinal cord.

What is available for acute, postop pain management? Planning for a particular surgical event should be done at the initial pre-anesthesia visit. Multiple interventions should be planned, as a mix of approaches generally leads to greater efficacy and fewer side effects.

1. IV OPIATES are what most postop patients receive, because they are effective. These are drugs like morphine, and they work directly on the pain receptors in the brain and spinal cord. They have side effects such as nausea, urinary retention and depressed respiration.

Typically, they are given only when a patient requests pain relief. The RN has to get a key to the narcotic box, sign out and prepare the medicine, and then administer it. This process often takes a long time, and it also results in an “up and down” blood level of the drug, not a constant therapeutic level. High blood levels of the opiate reached soon after the medicine is given can cause side effects such as airway obstruction, and low blood levels as the medicine is wearing off can give inadequate pain relief.

Patient Controlled Analgesia (PCA) systems, which were developed by anesthesiologists in the late 1960s, can deliver a constant blood level of drug, and boluses are possible when patients determine they need more pain relief. These machines solve the “up and down” problem and the RN time problem. PCA can be started in the recovery room soon after surgery is completed.

Morphine and Demerol® are typical drugs used for PCA. Demerol® is used less and less because it has more side effects. Other long-acting narcotics can be delivered in this system. Many hospitals today have PCA available with RNs well trained in its use. PCA, in general, is very safe and effective.

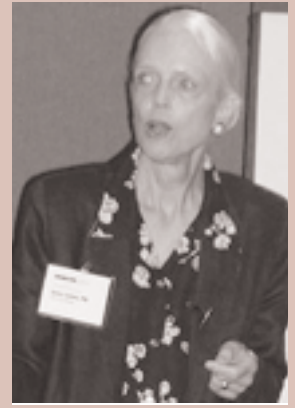
Intramuscular (IM) opioids should not be used because the onset of pain relief is too long, and they are often ineffective. An anti-inflammatory drug Toradol® (ketorolac) is popular for its additive effects to opioids for pain relief but has many contraindications. It is an anti-inflammatory drug (an NSAID, like Vioxx) and is given IM or IV. It acts on the initiation of the pain signals at the site of the painful stimulus, in this case, a surgical incision.

2. TECHNIQUES THAT ARE PART OF THE ANESTHESIA PLAN:

■ *Injection of local anesthesia at the surgical site(s).* This is done by the surgeon, usually before the surgery begins, so it helps decrease the pain stimulus from the incision site during surgery and thus decreases the amount of other anesthesia needed. If a long-acting local anesthetic (usually bupivacaine or marcaine) is used, pain relief can be as long as 48 hours. This forms the background, or basal pain relief technique. It is not always possible to inject local anesthesia at a surgical site, usually because of infection. Because giving the injection takes time, it is often difficult to convince surgeons to take this simple but important step.

■ *IV injection of a long-acting narcotic toward the end of surgery.* This is done to cover the initial pain as a patient wakes up from general anesthesia. The usual drug is morphine; some use longer-acting drugs. A possible problem is that this could delay awakening, but cautious dosing, with additional small doses as it becomes clear where the patient is in the awakening process, can solve this problem.

Selma Harrison Calmes, MD, an anesthesiologist from Olive View/UCLA Medical Center, Sylmar, California, presented this paper at PHI's Ninth International Conference on Post-Polio Health and Ventilator-Assisted Living, June 2-4, 2005. Calmes, a polio survivor herself, has counseled many polio survivors and health professionals on anesthesia issues.



For short operations, the long-acting narcotic can be given even before anesthesia starts, as a pre-medication, planning on a postop effect also.

■ *Regional anesthesia, with additional drugs/techniques to prolong its pain relief.* Regional anesthesia includes spinal, epidural and various blocks of the arms, hands, legs, feet and peripheral nerves. Not all operations can be done with regional anesthesia; but if this is possible, it can serve as a background technique for postop pain relief. First, a long-acting local anesthetic could be used, to give pain relief for 24-48 hours. A good example of this would be an axillary block or supraclavicular block of the arm done with the long-acting local anesthetic marcaine or bupivacaine, as mentioned.

Another possibility is to add narcotics to the local anesthetics injected into the spinal canal or epidural space. These narcotic drugs migrate into the spinal cord and actually enter it to "sit" on narcotic receptors in the spinal cord, giving long-acting pain relief from small doses. If many days of pain are expected, a small plastic catheter can be placed in the epidural space and a continuous infusion, or bolus injections, of local anesthetics, narcotics or a mixture of both, can be given. Catheters give excellent pain relief. (This is how "labor epidurals" are given for obstetric patients.) They are a manpower intensive technique, however, and many hospitals don't have adequate staff to manage them.

continued on page 6

Staff can't just walk away and think the technique will work perfectly.

No matter which pain relief technique is used for a postop patient, certain "system" pieces must be in place: The RNs should ask frequently how much pain a person is having and what the pain is like. The timing of questioning varies from the recovery room to the floor. If significant pain is reported, it should be expected that the RN administer additional pain medicine, and then reassess the pain to see how effective that medicine in that dose was. These two requirements must be met by every hospital that is accredited. The RN is also to record your pain level, the intervention used and the response to the intervention. Unfortunately, there are many difficulties getting these requirements established consistently, especially the reassessment part.

Unusual circumstances may interfere with efforts to get good postop pain relief. For example, low blood pressure (hypotension) or breathing (ventilation) problems may occur postoperatively for various reasons and interfere with the ability to "push" narcotics to the needed level. Finally, surgical misadventures can lead to new pain postop. The most common example I see is unrecognized postop bleeding in a laparotomy patient, with blood accumulating inside the abdomen. This is typically painful. If the usual pain relief techniques don't seem to be working well, the patient needs to be re-evaluated to determine all possible causes of pain. Return to the operating room might be needed instead of additional morphine.

3. POLIO AND POSTOP PAIN

MANAGEMENT: Postop pain management depends on narcotics such as morphine. Many post-polio patients have obstructive sleep apnea. Narcotics may increase the apnea episodes and increase the risk of death. (Deaths have occurred in "normal" postop patients with sleep apnea.) The solution is, first to try to rely on other pain relief techniques such as generous local anesthesia or Toradol®, etc., and, second, to put the patient where they can be observed (an ICU) for 24-48 hours postop.

Breathing is often marginal in post-polio patients also, and the respiratory depression from narcotics can cause further problems. The solutions are to, first, identify ahead of time patients with limited respiratory reserve; next, make an appropriate plan (use local or regional anesthesia and avoid narcotics, if possible), admit the patient to an ICU postop and be ready to support ventilation. Artificial ventilation (sometimes using the patient's home ventilatory system) might be done for several days, and pain management could then be adequate since the risk of respiratory depression is taken away. During weaning from ventilation, if that were desired or possible, pain medication would have to be cut back, of course.

Finally, technical issues can be prominent for post-polio patients. For example, I might want to place an epidural catheter for several days of postop pain relief after a major operation, but a patient's severe scoliosis would make this very difficult or even impossible. New technology such as ultrasound identification of the epidural space may help with this problem. ●