CHOICE OF METHODS FOR ACUTE PAIN CONTROL

L. B. Ready

INTRODUCTION

The major goals of pain management after surgery or other types of acute pain are as follows: 1. Minimize or eliminate discomfort. 2. Facilitate the recovery process. 3. Avoid or effectively manage side effects associated with therapy. 4. Make the therapy cost-effective. No currently available approach to postoperative pain control achieves these goals in all patients after all kinds of surgery. For optimal results, criteria are needed to guide the selection of analgesic methods that are best suited to different categories of patients undergoing different surgical procedures but at present there is little scientific basis for these choices.

OPTIONS FOR THE TREATMENT OF ACUTE PAIN

Systemic Opioids

Opioids produce analgesia as a result of their agonist effects on opiate receptors in the central nervous system. Effective doses of appropriate drugs can be administered by the oral, rectal, transdermal, or sublingual route, or by subcutaneous, intramuscular, or intravenous injection or infusion. Because intramuscular opioid injection is such an unpredictable delivery system, effective and safe analgesia requires careful ongoing assessment of patients, with adjustments in doses and frequency of administration until individual care is optimized. Intravenous opioid infusions can abolish wide swings in drug concentration and permit prompt titration to the needs of individual patients.
Oral opioids in appropriate doses are remarkably effective. Frequently they can be used in place of parenteral drugs 12-24 hours after superficial surgery, and after some intra-abdominal procedures as soon as oral intake is established. Placing oral analgesics at the bedside can improve analgesia by permitting patients to choose the dose and frequency of administration best suited to their individual needs.

Transdermal delivery of fentanyl, a synthetic opioid, after surgery has been demonstrated to be effective (1). This method of opioid administration avoids the discomfort of injections and offers a useful alternative for patients unable or unwilling to swallow oral medications. Therapeutic blood levels are achieved, and the usual side effects associated with opioid administration are seen.

**Patient-Controlled Analgesia**

Patient-controlled analgesia (PCA), the self-administration of small doses of opioids by patients when they experience pain, was conceived and developed to minimize the effects of pharmacokinetic and pharmacodynamic variability among individual patients (2,3). This approach is based on the premise that a negative feedback loop exists; when pain is reduced, there will be no further demand for analgesics until the pain returns. PCA devices consist of a microprocessor-controlled pump triggered by depressing a button. When triggered, a preset amount of opioid is delivered into the patient's intravenous line. A timer in the pump prevents administration of an additional bolus until a specified period has elapsed. Thus individual patients titrate opioids to their own needs within safe clinical parameters. A variety of devices are now commercially available for this purpose.

Quality of analgesia with PCA has been reported consistently as superior or equal to that with intramuscular opioids. Less PCA opioid use compared with intramuscular control groups is observed frequently. Satisfaction of patients and nurses is high. The principle advantages of PCA to patients are: high quality analgesia, autonomy, elimination of delay in decisions to medicate for pain, and freedom from painful intramuscular injections. It may take nurses less time to provide for the analgesic needs of postoperative patients using PCA.

Optimal efficacy and safety using PCA, as with other forms of treatment for postoperative pain, requires careful planning, establishment of appropriate