Pain after laser surgery is one of the most commonly experienced patient problems. It is a pervasive part of laser treatment and a problem with which nurses and physicians are expected to deal. The nurse’s most important role is preoperative patient teaching. Prior to undergoing the prescribed treatment, patients must have a realistic understanding of the laser procedure, including the expected sensations associated with the surgery. Education will not only correct misconceptions and reduce anxiety, but will also allow patients to play an active role in their surgery and to optimize fully from pain-reducing techniques and strategies.

Pain after laser surgery is one of the most commonly experienced patient problems. It is a pervasive part of laser treatment and a problem with which nurses and physicians are expected to deal. Interventions to deal with pain during laser treatment can be as simple as providing distraction and relaxation or as complicated as requiring general sedation and analgesia. The goal in laser pain management is to reduce the incidence and severity of patients’ intraoperative and postoperative pain, to enhance patient comfort and satisfaction, and to contribute to fewer postoperative complications. For this to be achieved, one must employ both pharmacologic and nonpharmacologic interventions. The challenge for nurses is to balance pain control with concern for patient safety due to medication side effects.

**Pain Management with Pulsed Dye and Q-Switched Lasers**

Because laser treatment of cutaneous lesions is associated with the production of heat, pain and temperature nerve endings are activated, resulting in discomfort to the patient. The magnitude of this discomfort is variable, so the method chosen for intraoperative pain management should be individualized. The lasers specifically designed to treat vascular, pigmented, and tattooed cutaneous lesions usually do not require anesthesia (Alster, 1997a; 1997b). The “snapping sensation” associated with the pulsed-dye laser and the Q-switched (QS) ruby, alexandrite, and Nd:YAG lasers can be tolerated by most adult patients. However, when the treatment area is large or in a particularly sensitive area (for example, periorbital region, upper lip, nose, fingertip), or when the patient is a child, intravenous sedation, intralesional injections, or topical anesthesia may be required.

Intravenous or general anesthesia are anesthetic modalities that are effective in minimizing the pain and discomfort associated with laser treatment with only minimal sequelae (Grevelink, White, Bonoan, & Denman, 1997). The use of general or intravenous anesthesia allows treatment of a larger surface area without having the additional task of quieting an agitated younger child. Intravenous sedation and general anesthesia require administration by a certified nurse anesthetist or anesthesiologist and necessitates monitoring of heart rate, blood pressure, and pulse oximetry. Recovery
lime after laser surgery is prolonged when compared to topical or intral- sional anesthesia and there are, of course, risks associated with the use of systemic anesthetics. Although laser treatment in children without general anesthesia is often difficult, it is certainly possible (and preferable) to general anesthesia if the physician and laser nurse have enough patience and allow adequate time for each session.

Topical lidocaine is effective in decreasing the subjective assess- ment of pain and can easily be administered by the attendant nurse (Alster, 1997b; Ashinoff & Geronemus, 1990). Patients who may necessitate topical lidocaine are children between the ages of 2 to 12 years, patients with low toler- ance to pain, and patients who may become anxious before or during the procedure (Tan & Stafford, 1992). If the patient desires intral- sional or topical lidocaine, the nurse should instruct the patient to arrive one-half hour before his or her scheduled procedure. This allows ample time to either inject the area or to apply a topical anesthetic and allow it to take effect. Topical lidocaine does not provide 100% analgesia, but can reduce the discomfort and allow the patient to tolerate therapy relatively comfortably (Rabinowitz & Esterly, 1992). Care must be taken to avoid eye exposure to the cream, since it may cause severe irritation and burning, but no permanent ocular damage has been observed. Percutaneous absorption of lidocaine is not typically a problem even with its topical application over a large body surface area, except in instances where there are metabolic distur- bances known to be present in the patient (for example, methemoglobinemia) who is receiving a prilocaine-containing compound (for example, EMLA). Exacerbation of underlying methemoglobinemia (or other disease) may, therefore, be avoided.

Patient education regarding intraoperative and postoperative pain should be provided prior to the procedure. The patient should be informed that the laser treatment produces a sensation similar to that of a “snapping rubber band” or “hot grease” hitting the skin and that the area may feel like a sunburn. A small, high-powered fan should be held six inches from the treat- ment site throughout the procedure to help minimize the burning sensation. Preoperative teaching is a simple non- pharmacologic method that will increase the patient’s understanding of the procedure, reduce anxiety, and mini- mize the risk of intraoperative and postoperative complica- tions. When treating a young child, the sensation of heat and the bright flash of the laser may be upsetting, and limit the child’s ability to stay still. Even when complete local analgesia has been achieved, the nurse may need to restrain small chil- dren during the procedure which may lead to a particular- ly unsatisfactory experience for the patient, the parent, and those providing the treatment (Epstein, Halmi, & Lask, 1995).

Intraoperatively, the use of other nonpharmacologic inter- ventions will also reduce stress and pain. Relaxation tech- niques such as slow, deep breathing, guided imagery, or the presence of a significant other promote a sense of control and reduce anxiety. Distraction can also be used by having the patient count the laser pulses backward and for- ward to 20 throughout the procedure. This also gives the patient a sense of control throughout the procedure and breaks the session into manage- able “segments.” Giving the patient a sense of control can decrease patient anxiety and objective measurements of pain.

Additional pain relief is not typically necessary following treatment with the pulsed-dye and Q-switched laser systems. The patient may be instructed postoperatively to apply ice to the treated area and to take acetaminophen every 4 to 6 hours as needed for pain.

Pain Management with the Erbium:YAG and Carbon Dioxide Lasers

While excellent clinical results have been achieved after either carbon dioxide (CO2) or erbium:YAG laser resurfacing, pain control is more difficult to achieve. A full-face laser procedure typically requires intravenous sedation by a nurse anesthetist or anesthesiologist to achieve an adequate level of comfort during the surgery (Alster & Apfelberg, 1998). Facial and intraoral nerve blocks are administered by the anesthetist or attendant physician to temporarily block transmission of pain and sensory impulses. These nerve blocks are an invaluable means of establishing field blocks in a comfortable and easily tolerated manner (Bisaccia, Scarborough, & Shumaker, 1997).

If the patient is having regional or facial areas (for example, peri- orbital or perioral units) resur- faced or elects not to undergo intravenous sedation, the nurse should monitor his or her level of pain intraoperatively and offer an oral sedative and analgesic if neces- sary. Relatively short-acting sedatives and analgesics, such as Valium®, Versed®, clonidine, and Demerol® are recommended.

The nurse should provide emotional support to the patient throughout the procedure as well. Again, it is important to stress the need for preoperative teaching by the nurse. If the patient is pre- pared for what the procedure entails and how he or she will feel during the postoperative period, anxiety and postoperative compli- cations will be decreased (Formica & Alster, 1997).

Immediately following a full- face laser procedure, the patient may awake from anesthesia with a “hot, burning” sensation to the face. Applying ice packs or cold compresses will help to alleviate this pain along with additional oral pain medications (for example, Lortab®, Toradol®, Demerol, oxycodezone, Tylenol with Codeine®) if necessary. It is important that the
The nurse’s most important role is preoperative patient teaching. Prior to undergoing the prescribed treatment, the patient must have a realistic understanding of the laser procedure, including the expected sensations associated with the surgery. Appropriate patient participation in postoperative care and pain management should be emphasized. The patient should receive both written and verbal instructions and be given the opportunity to speak with another patient who has undergone the procedure. Education will not only correct misconceptions and reduce anxiety, but will also allow the patient to play an active role in his or her surgery and to optimize fully from pain-reducing techniques and strategies.

References

Heparin-Induced Skin Necrosis
continued from page 423