CHAPTER **40**

POSTOPERATIVE PAIN: A Therapeutic Option

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Postoperative pain is often considerable following reconstructive foot surgery. Patient anxiety and narcotic use with the concomitant problems of nausea and constipation are some of the many issues facing the surgeon. Several studies have demonstrated that the intensity of initial pain can determine the duration of postoperative pain. Activity levels and overall patient satisfaction are clearly related to the degree and duration of postoperative pain.

Attempts to reduce pain include corticosteroids, nonsteroidal antiinflammatory drugs, cryotherapy, and TENS units. Local infiltration and peripheral nerve blocks with long-acting anesthetics are the mainstays of initial pain management. Local anesthetic agents are effective because they block transmission of nociceptive signals but only for a limited duration. Bupivacaine provides the longest duration of anesthesia, typically 6-8 hours, but will rarely carry the patient through the first evening. Bupivacaine administered as a popliteal nerve block will often provide 12 hours or more of sensory anesthesia. The possibility of tibial nerve injury, popliteal artery aneurysm, and the administration time make it impractical for most simple forefoot surgeries.

A new formulation of bupivacaine, (Exparel; Pacira Pharmaceuticals) is now available and can provide pain relief up to 72 hours postoperative. It is only indicated for local infiltration of the surgical site, not for peripheral nerve blocks. Exparel is a liposomal suspension of bupivacaine and is available in a 20 cc vial with 13.3 mg/ml. Approximately 3% exists as a free form and is available for immediate effect; the rest is slowly released from microvesicular liposomes over an extended time period. However, the free form is not sufficient for the immediate postoperative period. It can take up to two hours before sufficient anesthesia is obtained after injection.

Lidocaine or other non-bupivacaine local anesthetics can be injected preoperatively but not concomitantly with Exparel. At least 20 minutes need to pass prior to the injection of Exparel to prevent immediate release of bupivacaine from the liposomes.

The dose equivalent of Exparel to bupivacaine cannot be calculated. Bupivacaine, when injected immediately prior to infiltration of Exparel, may impact the pharmacokinetic and/or physicochemical properties of the drug when the milligram dose of bupivacaine solution exceeds 50% of the dose of Exparel. Therefore, up to 133 mg of bupivacaine can be safely injected prior to or with the administration of Exparel. My initial experience has been limited but positive. The medication comes in a single dose vial and costs just over $300. It is reimbursable through some insurance companies. All patients have experienced about 36 hours of anesthesia before requiring medication for breakthrough pain. Exparel has lowered overall narcotic use with fewer requests for refills. As patient satisfaction and pain mediation become important markers in newer CMS quality measures, effective pain control will benefit the patient and physician several fold.