Reduction of postoperative lumbar hemilaminectomy pain with Marcaine

Technical note

JOHN B. MULLEN, M.D., AND WESLEY A. COOK, JR., M.D.
Division of Neurosurgery, Duke University Medical Center, Durham, North Carolina

A technique is described using intraoperative infiltration of paravertebral musculature with Marcaine, a long-acting local anesthetic. This has resulted in a marked reduction of postoperative pain following lumbar disc surgery.

KEY WORDS • pain • intervertebral disc surgery

In the initial postoperative period, patients who have undergone lumbar hemilaminectomy will often suffer a considerable amount of back pain requiring narcotic analgesics. Many will also require urethral catheterization for urinary retention. These problems are generally accentuated in patients with exploration for recurrent herniated disc. In an attempt to alleviate these problems, we have developed a technique using a local anesthetic intraoperatively. The results have been quite successful.

Technique

We have been using Marcaine (bupivacaine) as an adjunct in the postoperative management of patients undergoing lumbar disc surgery. After closure of the lumbodorsal fascia, the paravertebral musculature is infiltrated with 50 ml of 0.25% Marcaine. The optimal method is to inject approximately 15 ml in divided doses at each end of the fascial closure (where tissue tension was highest during retraction); the remainder is injected in five divided doses, three of which are infiltrated into the musculature of the side on which the hemilaminectomy was performed and two on the opposite side, adjacent to the interspinous ligaments. After the injections have been given, the subcutaneous tissues and skin are closed.

This technique has been used in 21 consecutive patients, including 18 initial explorations, and three patients who underwent re-exploration for recurrent herniated disc. Postoperatively, two patients required a single dose of narcotic analgesic for transient radicular pain. No other analgesics were requested by these patients. After a suitable postoperative period they were discharged without analgesics. All of these patients were able to walk without difficulty on the first postoperative day. None required urethral catheterization. Neither the nursing personnel nor the patients were aware of the intraoperative infiltration of anesthetic. The relief period is longer than that achieved by sensory block; when they were questioned at the time of discharge, the patients stated that they had little, if any, discomfort during their postoperative period. No complications were observed.

Discussion

Marcaine hydrochloride is a long-acting local anesthetic which is related chemically and pharmacologically to the aminoacyl local anesthetics. It is a homologue of mepivacaine and is chemically related to lidocaine. All three of these anesthetics contain an amide linkage between the aromatic nucleus and the amino or piperidine group. They differ in this respect from the procaine-type local anesthetics, which have an ester linkage.1

Since the late 1950’s, Marcaine has been widely used in peripheral nerve block, and obstetrical and dental anesthesia. One of its earliest uses for relief of postoperative pain was postthoracotomy intercostal...
nerve block. Telivuo reported a 50% reduction in postoperative narcotic usage in postthoracotomy patients who had intercostal nerve blocks after surgery with the use of 0.5% Marcaine. The duration of action of sensory block with Marcaine is in the range of 6 to 14 hours. Prolongation may be achieved with the addition of epinephrine in the ratio of 1:200,000. The recommended single dose of Marcaine is up to 150 mg without epinephrine, and 225 mg with epinephrine 1:200,000. As with all local anesthetics, the dosage varies and depends upon the area to be anesthetized.

We believe that this technique provides a more rapid and comfortable recovery for patients undergoing lumbar disc surgery. Because postoperative pain is diminished the psychological impact of back surgery may also be lessened. Considering these factors, this technique is currently a routine in back surgery performed by us. This work was designed as a pilot study which, on the present evidence, now deserves a double-blind trial.

References


Address reprint requests to: Wesley A. Cook, Jr., M.D., Division of Neurosurgery, Duke University Medical Center, Durham, North Carolina 27710.