

Anesthesiology
78:486-491, 1993
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Postcesarean Delivery Epidural Patient-controlled Analgesia

Fentanyl or Sufentanil?

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Background: The highly lipid-soluble opioids, fentanyl and sufentanil, frequently are used in combination with local anesthetic agents and/or epinephrine to provide postoperative epidural analgesia. The authors compared the incidence of side effects and patient satisfaction during prolonged epidural patient-controlled analgesia (PCA) infusions of these opioids in combination with bupivacaine and epinephrine.

Methods: Using a double-blind study design, 250 patients scheduled for elective cesarean delivery were, on arrival in the postanesthesia care unit, randomized into two epidural PCA infusion groups: group I (n = 125) received fentanyl 2 µg/ml with bupivacaine 0.01% and epinephrine 0.5 µg/ml and group II (n = 125) received sufentanil 0.8 µg/ml with bupivacaine 0.01% and epinephrine 0.5 µg/ml. The initial infusion

rate was 16 ml/h with self-administered 3-ml boluses every 15 min by PCA as desired. At intervals after discontinuation of the infusion, plasma samples were obtained to determine opioid concentrations.

Results: The median overall satisfaction scores were 9.0 for group I and 10.0 for group II (difference not significant). Pain relief was satisfactory and comparable in both groups, and all patients could ambulate easily. The total number of times PCA requests were made was greater ($P < 0.05$, by Wilcoxon rank-sum test) for group I than for group II (106.7 ± 312 vs. 70.8 ± 138). There were no differences between the groups with respect to incidence of pruritus, sedation, and nausea; however, vomiting occurred more frequently with sufentanil than with fentanyl (12% vs. 4.8%, respectively; $P < 0.05$). At approximately 1-2 h after discontinuation of the infusion, 1 patient receiving fentanyl and 42 patients receiving sufentanil complained of lightheadedness and dizziness ($P < 0.0001$).

Conclusions: Epidural PCA in both groups had no serious side effects and achieved a high level of patient satisfaction. Those receiving sufentanil made fewer PCA requests but had a significantly greater incidence of vomiting during the infusion and dizziness after the termination of the infusion. Epidural sufentanil offered no advantages over epidural fentanyl. (Key words: Analgesics, epidural; fentanyl; sufentanil. Anesthetic techniques: epidural. Pain: postoperative.)

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Received from the Departments of Anesthesiology, Albert Einstein College of Medicine, Bronx, and the Memorial Sloan-Kettering Cancer Center and Columbia University College of Physicians and Surgeons, New York, New York. Accepted for publication November 17, 1992. Presented in part at the Annual Meeting of the International Anesthesia Research Society, San Francisco, California, March 14-18, 1992.

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THE highly lipid-soluble opioids, fentanyl and sufentanil, have been administered epidurally for postcesarean delivery analgesia as bolus injections^{1-5,¶} and by continuous infusion.^{6-8,**} Both fentanyl and sufentanil (with and without bupivacaine) were compared with morphine in this population of patients^{5,6,¶,**} and were found to cause a lower incidence of opioid induced side effects. The addition of epinephrine to fentanyl⁹ or sufentanil^{10,11} has been reported to reduce opioid requirements and perhaps improve the quality of analgesia.

In a recent report,¹² we described the safety and efficacy of bupivacaine 0.015% when combined with epidural fentanyl with or without epinephrine. However, there is little information, to our knowledge,

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