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Dysphagia with Intrathecal Fentanyl

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INTRATHECAL opioids are now commonly used alone or as adjuncts for labor analgesia, and as expected, complications have occurred. Hamilton *et al.* reported a series of six parturients who exhibited high sensory effects after intrathecal sufentanil (10 μ g) for labor analgesia.¹ Despite the fact that fentanyl is also a popular choice for labor analgesia, to date there have been no reports describing similar effects after intrathecal fentanyl alone or combined with bupivacaine. We describe two cases of sensory changes presenting as dysphagia that occurred after injection of intrathecal fentanyl for labor analgesia.

Case Reports

Case 1

A 21-yr-old healthy, 81-kg, nulliparous woman, with 4-cm cervical dilation, requested analgesia and agreed to a combined spinal-epidural technique. With the patient in the sitting position, an 18-gauge Tuohy-Weiss needle was positioned in the epidural space at the L3-L4 interspace using a loss of resistance technique. A 27-gauge, 120-mm Sprotte spinal needle was then introduced through the epidural needle into the subarachnoid space without eliciting paresthesias. After identification of free flow of cerebrospinal fluid (CSF), 20 μ g of undiluted fentanyl (0.4 ml of 50 μ g/ml solution) was injected, and the spinal needle was withdrawn. A 20-gauge Arrow FlexTip epidural catheter (Arrow International, Inc., Reading, PA) was threaded approximately 3 cm into the epidural space. After negative aspiration of the catheter, 1 ml of normal saline was injected to verify patency. No other drugs were injected at this time. The catheter was secured,

and the patient returned to a supine position with left uterine displacement within 5 min. The patient obtained excellent analgesia within 1 min of the intrathecal fentanyl injection. Vital signs were carefully monitored for 15 min, with no significant changes from baseline levels. There was no evidence of motor blockade and no alteration of temperature discrimination.

One hour later, the patient complained of difficulty swallowing and an inability to clear her throat. She favored a sitting position, was obviously agitated but oriented, with normal vital signs and no respiratory distress (SaO₂ 99% on room air). There was no thoracic, cervical, or facial sensory changes. Examination revealed no visible pharyngeal dysfunction, lesions, or particulate matter, and phonation was normal. The patient was able to swallow an ice chip without difficulty and subsequently reported some relief.

After informing the patient that she and the baby were doing well, she was reassured that this sensation would be temporary. Her anxiety decreased, and within 30 min her dysphagia had resolved. Two hours after administration of intrathecal fentanyl, the patient requested additional analgesia. The epidural was dosed with low-dose bupivacaine and fentanyl without complications, and an uneventful delivery followed.

Case 2

A 27-yr-old nulliparous woman requested analgesia and agreed to a combined spinal-epidural technique. With the patient sitting, 25 μ g of fentanyl (0.5 ml of 50 μ g/ml solution) and 2.5 mg of bupivacaine (1 ml of 0.25% solution) were injected intrathecally. An epidural catheter was then positioned, and the patient returned to a supine position with left uterine displacement within 5 min. No other drugs were injected at this time.

Approximately 20 min after the intrathecal injection, the patient reported generalized itching, difficulty swallowing, and tingling around the lips and at her fingertips. She had no shortness of breath, and phonation was normal. Examination revealed a bilateral sensory level to cold extending from T6 to L2. Vital signs were unchanged. Her symptoms completely resolved within 60 min, and she subsequently requested additional analgesia. A low-dose bupivacaine-fentanyl infusion was started, and an uneventful delivery occurred 4 h later.

Discussion

In 1993, Cohen *et al.* reported their experience with 108 patients who received intrathecal sufentanil as part of a combined spinal-epidural technique for labor analgesia.² Segmental sensory blocks to cold and pinprick

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CASE REPORTS

occurred in 94% of these patients and persisted for about 1 h. One patient in the study complained of transient difficulty in taking a deep breath, facial numbness, and inability to swallow. She exhibited decreased facial sensation to pinprick over her face and could not swallow a sip of water. In 1995, Hamilton *et al.*¹ reported six patients with similar sensory changes indicative of extreme cephalad spread after intrathecal sufentanil. In each patient, 10 μ g of sufentanil diluted to 1 or 2 ml with preservative-free saline was injected with the patient in a sitting position as part of a combined spinal-epidural technique. These authors believed that these clinical signs and symptoms were the result of an opioid effect on the fifth and ninth cranial nerves. Similarly, D'Angelo *et al.* found several patients experiencing sensory blockade above T4 within 15–30 min after an intrathecal sufentanil (10 μ g) injection for labor analgesia.³

Although Palmer has reported segmental sensory changes after intrathecal fentanyl in laboring patients, extensive rostral spread has not been described when injected intrathecally with such doses.⁴ We believe that the two cases reported here indicate that intrathecal fentanyl can result in distressing symptoms caused by cephalad action of the drug. It is intriguing that in every case report discussed, including ours, the intrathecal narcotic has been administered with the patient in the sitting position. We believe this adds support to the theory that it is the relative hypobaricity of the injected narcotic or narcotic–local anesthetic mixture, aided by postural effects, that results in excessive rostral action of the opioid. Until recently, narcotic and narcotic–local anesthetic solutions were often believed to be isobaric. However, Richardson *et al.*⁵ have shown that these solutions are hypobaric at body temperature, even relative to the lowered CSF density seen at term and immediately postpartum.⁶ Ferouz *et al.* attempted to minimize intrathecal sufentanil's side effects by adding

dextrose.⁷ Their study demonstrated a lower incidence of pruritus but inferior analgesia in parturients who received 10 μ g of intrathecal sufentanil made hyperbaric with dextrose. These authors concluded that effective labor analgesia may require a spinal and subpraspinal action of intrathecal opioids. Therefore, side effects resulting from cephalad spread may be difficult to control without compromising analgesia.

Dyspnea, dysphagia, and upper body and facial numbness occurring after intrathecal administration of narcotic and narcotic–local anesthetic mixtures should be evaluated carefully. Care should be taken to exclude such potentially serious complications as respiratory depression, airway obstruction, unintentional high spinal anesthesia, and pulmonary embolism. The transient nature of the symptoms experienced by these patients is consistent with the rapid clearance of fentanyl from CSF. Although short-lived, these effects can be distressing.

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