

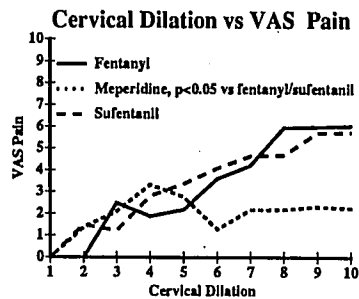
A839

**Title:** Comparison of Fentanyl, Meperidine and Sufentanil for Intrathecal Labor Analgesia.  
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**Purpose:** The purpose of this study is to compare the analgesic potency, duration, hemodynamic and other effects of fentanyl(F), meperidine(M) and sufentanil(S) for continuous intrathecal labor analgesia.

**Methods:** Sixty one healthy laboring term parturients gave written informed consent to participate in this IRB approved double-blind study. Patients randomly received either fentanyl 10 µg, meperidine 10 mg, or sufentanil 5 µg via an indwelling lumbar intrathecal catheter. Patients received a second injection of study drug if they remained in pain after 15 minutes. Those women still in pain at 30 minutes received bupivacaine 2.5 mg. When pain returned, we repeated the above dosing protocol until the patient required bupivacaine or delivered. At baseline and every five minutes for thirty minutes after the initial injection, patients rated their pain, nausea, and pruritus on 10 cm horizontal visual analog scales (VAS). They continued to rate these variables every thirty minutes until they requested additional pain relief. Concomitantly we measured blood pressure (BP) and evaluated sensory (alcohol) and motor (Bromage scale) blockade. Before and 15 minutes after each reinjection, we obtained VAS, and measured BP, sensory and motor blockade. We used analysis of variance for repeated measures to compare the changes in VAS, BP, sensory and motor blockade, and cervical dilation vs VAS pain. We used product limit survival analysis and Gehan's Wilcoxon test to compare the duration of analgesia after the first dose of narcotic and the total duration of effective narcotic analgesia (the time from initial study drug injection until the patient either delivered or required injection of local anesthetic for pain relief). Data are mean±SE.

**Results:** The patient groups did not differ in age, height, weight, parity, time to delivery, method of delivery, or incidence of headache. Blood pressure fell slightly after drug injection in all groups. Some patients in each group developed transient sensory changes, no patient developed any evidence of motor blockade. Intrathecal narcotics provided adequate initial analgesia in each group as follows; fentanyl 80%, meperidine 100% and sufentanil 90%. The groups did not differ in the mean duration of the first dose (F=82±9, M=103±11, S=104±9 min) nor the mean total duration of effective narcotic analgesia (F=217±31, M=267±24, S=267±32 min). Meperidine provided more pain relief when the cervix dilated beyond six cm (Fig). Meperidine caused more nausea than fentanyl or sufentanil (p<0.001). Mild pruritus developed equally in all groups.  
**Conclusion:** All three narcotics provide adequate analgesia for most patients in labor. Meperidine appears superior to fentanyl and sufentanil at the later stages of labor.



A840

**Title:** INTRATHECAL FENTANYL FOR LABOR ANALGESIA  
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**Introduction:** Since intrathecal morphine used for labor analgesia<sup>1</sup> produces several side-effects<sup>2</sup>, we studied the efficacy and side-effects of fentanyl for this purpose.

**Methods:** After institutional review board approval, 10 patients requesting labor analgesia gave informed consent. Patients received Ringer's lactate 125 ml/hr without a fluid bolus. A #32g Microspinal catheter was inserted at L3-4 level via a #25g spinal needle at 4 cm cervical dilatation and fentanyl 25 µg (0.5 ml) administered. Patients rated pain, itching and nausea using a 10 cm visual analog scale. End tidal CO<sub>2</sub> (ETCO<sub>2</sub>), respiratory rate, heart rate and blood pressure, fetal heart rate (FHR) and Bromage motor scale were recorded at 0, 5, 15, 30, 60 and 90 min following injection. Subsequent 25 µg doses were given upon request. Results were expressed as mean±1SE. For statistical analysis, analysis of variance and t-test were used.

**Results:** All patients experienced satisfactory analgesia after each dose (Fig 1). The duration of the third injection was significantly shorter than the first (Fig 2). No patient had nausea. Most patients had moderate itching (VAS<5). One patient required diphenhydramine 25 mg IV for itching and had urinary retention. There was no significant effect on ETCO<sub>2</sub>, RR, BP, HR, FHR or motor function.

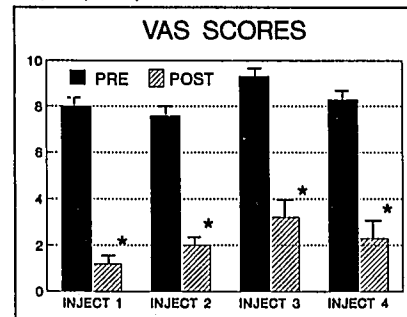


Figure 1.

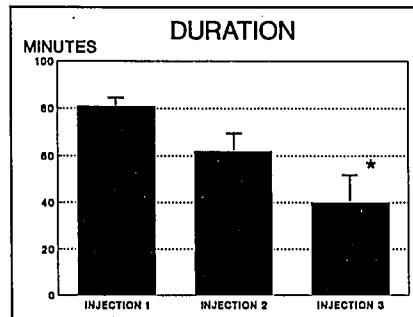


Figure 2.

**Conclusion:** Intrathecal fentanyl produces effective labor analgesia with minimal side effects and no hemodynamic changes or motor blockade.

- References:** 1. Int J Clin Pharmacol Ther Toxicol 22:316-18, 1984  
2. Anesthesiology 54:136-40, 1981