

Title: EPIDURAL FENTANYL SIGNIFICANTLY DECREASES NAUSEA AND VOMITING DURING UTERINE MANIPULATION IN AWAKE PATIENTS UNDERGOING CESAREAN SECTION

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Introduction. Nausea and/or vomiting may occur in awake patients undergoing cesarean section during uterine eventration in spite of an adequate sensory level and a normal blood pressure (1). The etiology of the nausea and/or vomiting is unclear but may be related to uterine traction (2). The purpose of this randomized double blinded study was to see what effect epidural fentanyl had on this response.

Methods. Human Research Committee approval and informed consent were obtained. Thirty (30) ASA I or II patients who had requested epidural anesthesia for their cesarean section were randomly assigned to one of two groups. Group I received 10 ml of preservative free saline. Group II received 50 ug of fentanyl dissolved in 9 ml of saline. The epidural study solutions were administered in a double blinded fashion at the time of the umbilical cord clamping. All patients had their epidural catheters placed at the L2-3 or L3-4 interspace and were dosed with 0.5% bupivacaine to a bilateral level of T4 or higher. All patients were prehydrated with 15 ml/kg of intravenous fluid prior to epidural blockade. Preoperative medications consisted of 30 ml of epidural blockade. Preoperative medications consisted of 30 ml of sodium citrate. All patients received oxygen by nasal cannula until delivery of the baby. All patients were placed in a left lateral tilt on the operating table. Monitoring consisted of an electrocardiograph, pulse oximeter, automated blood pressure cuff, respiratory rate and skin temperature strip. Nausea or vomiting was scored as: 0 = none, 1 = nausea, 2 = nausea and vomiting. No patient was included in this study who was hypertensive or who required analgesics during surgery. Statistical analysis was done using the student t test and the Chi square test where applicable. Significant is $p < 0.05$.

Results. There were no maternal differences between the groups. There were no differences in the operative characteristics (table 1). Epidural fentanyl significantly decreased the incidence of nausea and/or vomiting during uterine manipulation (Table 2).

Table 1. Operative characteristics.

	Group I	Group II
Duration of surgery (min)	62.35 \pm 3.98	63.93 \pm 6.85
Amount of local anesthetic (ml)	22.97 \pm 2.83	23.13 \pm 1.7
Duration of uterine exteriorization (min)	22.97 \pm 3.38	24.15 \pm 2.54

Values are expressed as means \pm SD. * $p < 0.05$.

Table 2. Study characteristics.

	Group I	Group II
Incidence of nausea/vomiting during uterine manipulation (N/%)	7/47/7%	1/6.7%*

* $p < 0.05$

Discussion. The reasons why epidural fentanyl significantly decreased the incidence of nausea and vomiting during uterine manipulation in normotensive and pain free patients is unknown and is under further investigation.

References

1. Chestnut DH, Vanderwalker GE, Owen CH, Bates JN, Choi WW: Administration of metoclopramide for prevention of nausea and vomiting during epidural anesthesia for elective cesarean section. *Anesthesiology* 66:563-566, 1987.
2. Ratra CK, Badola RP, Bhargava KP: A study of factors concerned in emesis during spinal anaesthesia. *Br J Anaesth* 44:1208-1211, 1972.