

Title: NAUSEA AND VOMITING AFTER INDUCTION OF SPINAL ANESTHESIA FOR CESAREAN SECTION: EFFECTS OF INTRAVENOUS EPHEDRINE

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Introduction. Nausea and vomiting following induction of spinal anesthesia for cesarean section is a common occurrence and is disturbing and uncomfortable to patients. These symptoms have been attributed to hypotension (1). The present study was designed to assess the effectiveness of intravenous ephedrine in the prevention of nausea and vomiting and also to examine maternal and neonatal acid-base status following its use.

Methods. Sixty healthy parturients, scheduled for elective primary or repeat cesarean section at term, were selected at random. The parturients received at least 1500 ml of 5% dextrose in Ringer's lactate solution before the induction of anesthesia. Left uterine displacement was routinely used and all patients received 6L of oxygen by plastic face mask. The patients were divided into three groups: Group A consisted of 22 patients who did not develop hypotension and received no ephedrine; Group B (n=18) developed hypotension (systolic BP <100 or 30% below the original level) and were subsequently treated with intravenous ephedrine 10-30 mg; in Group C (n=20), intravenous ephedrine 10-30 mg was administered as soon as any fall in blood pressure was detected and hypotension as defined in Group B did not develop. The protocol was approved by the BHW Research Advisory Committee; informed consent was obtained from all subjects.

Results.

Table 1. Patient Characteristics

Group	A(22)	B(18)	C(20)	P
Incidence (%)	0	66	10	<0.001
I-D Interval (min)	15 ± 2*	13 ± 3	15 ± 2	NS
UI-D Interval (sec)	90 ± 10	110 ± 12	100 ± 10	NS
Apgar score <7				
1 min	0	15	0	
5 min	0	0	0	

(*mean ± S.E.)

Table 2. Acid-base and blood gas data

Group	A(22)	B(18)	C(20)	P
MA				
pH	7.44 ± 0.01	7.40 ± 0.01	7.43 ± 0.01	NS
BD (mEq/L)	1.3 ± 0.6	2.8 ± 0.6	0.8 ± 0.8	NS
UV				
pH	7.36 ± 0.01	7.31 ± 0.01	7.38 ± .01	<0.001
UA				
pH	7.30 ± 0.01	7.23 ± 0.01	7.30 ± 0.01	<0.001
BD (mEq/L)	3.00 ± 0.5	7.3 ± 0.6	2.7 ± 0.7	<0.001
Δ BD				
UA	1.7 ± 0.3	4.5 ± 0.8	1.9 ± 0.5	<0.001
MA (mEq/L)				

Discussion. The intravenous administration of ephedrine as soon as any fall in blood pressure is detected prevents further fall in blood pressure and significantly reduces the incidence of nausea and vomiting. In addition, fetal acid-base balance in the parturients so treated is identical to that in the patients who did not experience a fall in blood pressure and hence received no ephedrine. Fetal acid-base status in both of these groups was significantly better than in the group that developed frank hypotension, subsequently treated with ephedrine. It is likely that prevention of blood pressure fall from the baseline level protects the vomiting center from hypoxic stimulation and also prevents reduction of uteroplacental circulation and placental perfusion.

Reference.

1. Ratra CK, Badola RP, Bhargava KP: A Study of factors concerned in emesis during spinal anaesthesia. Br J Anaesth 44:1208-1211, 1972.