

A23

**TITLE:** VITAL CAPACITY RAPID INHALATION INDUCTION(VCRII) WITH DESFLURANE: THE EFFECTS OF PREMEDICATION ON EMERGENCE CHARACTERISTICS AND PATIENT ACCEPTANCE

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**Introduction:** Despite its low lipid solubility favoring rapid inhalation inductions, the pungency of the ether desflurane(D) has resulted in poor patient acceptance of mask inductions. While premedication might lessen this shortcoming, prolonged emergence may result. We report the effect of intravenous premedication(P) with midazolam(M) and fentanyl(F) on emergence criteria and patient acceptance of VCRII with D.

**Methods:** After receiving IRB approval and written consent, 17 ambulatory patients were randomized to receive either no P or a combination of 1.0 µg/kg of F and 0.04mg/kg of M intravenously five minutes prior to induction. Induction was performed using a VCRII technique of 2 MAC D in a mixture of 60% N<sub>2</sub>O / 40% O<sub>2</sub>. Emergence data collected on all patients consisted of total anesthetic time (T<sub>Anes</sub>), times from cessation of D until patients could: open their eyes responsively (T<sub>OE</sub>), state their name and birthday (T<sub>Resp</sub>), tolerate PO fluids (T<sub>PO</sub>), and meet criteria for discharge (T<sub>D/C</sub>). Patients were interviewed by a blinded observer the first postoperative day and a patient acceptability score of 1 (unpleasant) to 10 (pleasant) was elicited. Data were analyzed using a Student's t-test with significance of P ≤ 0.05.

**Results:** Data are summarized in Table 1.

Table 1	No Premedication	Premedication	P value
Age (years)	52.9(19.7)	56.2 (16.2)	NS
Weight (kg)	76.8 (18.2)	82.1 (14.2)	NS
T <sub>Anes</sub> (min)	35.6(17.7)	32.2(24.8)	NS
T <sub>OE</sub> (min)	7.0 (1.9)	9.9 (2.7)	0.05
T <sub>Resp</sub> (min)	8.6 (2.3)	10.8 (3.2)	NS
T <sub>PO</sub> (min)	53.8 (7.5)	56.6 (36.4)	NS
T <sub>D/C</sub> (min)	74.2 (20.6)	79.5 (30.7)	NS
Acceptability	4.0 (2.9)	8.9 (0.9)	0.01

All values are mean (SD)

**Discussion:** We observed a dramatic increase in patient acceptability for the VCRII technique with the addition of P. While the intravenous medications did prolong the T<sub>OE</sub>, no significant changes in T<sub>Resp</sub>, T<sub>PO</sub>, and T<sub>D/C</sub> were observed. The low solubility of desflurane results in rapid elimination and emergence from anesthesia. Delayed opening of eyes may reflect residual sedation from P. A pure inhalation induction and maintenance anesthetic technique would not rely on metabolism for elimination; this might prove advantageous for short ambulatory procedures. Patient intolerance for VCRII however has favored the use of intravenous inductions. We have demonstrated that the addition of P to VCRII results in a very acceptable mode of induction without prolonging emergence and delaying discharge. Whether this combination results in more rapid emergence than that seen with an intravenous induction needs to be determined. Further investigation is ongoing.

A24

**TITLE:** HEMODYNAMIC EFFECTS AND POSTOPERATIVE RESPIRATORY DEPRESSION OF FENTANYL, SUFENTANIL, ALFENTANIL AND NALBUPHINE IN OUTPATIENT SURGERY

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**Introduction:** This clinical randomized blinded study evaluated the perioperative hemodynamic control and postoperative ventilatory recovery when equianalgesic doses of fentanyl (F), sufentanil (S), and alfentanil (A) or nalbuphine (N) was used to supplement balanced anesthesia during short surgical procedures.

**Methods:** Institutional Human Ethics Committee approval and informed consent were obtained. Twenty patients, ASA I-II, aged 18-60 yrs, undergoing surgery of about 60 min duration were studied. Baseline respiratory inductive plethysmography (Respirace) and ventilatory response to CO<sub>2</sub> rebreathing were done pre-op. Patients were randomly allocated into 4 groups: (F) 3 µg/kg, (S) 0.5 µg/kg, (A) 30 µg/kg or (N) 0.3 mg/kg. A standardized drug protocol with precurarization, study medication, thiopentone and succinylcholine was used prior to intubation. Anaesthesia was maintained with 70% N<sub>2</sub>O/O<sub>2</sub>, vecuronium and isoflurane. In the recovery room, patients were continuously monitored by pulse oximeter and Respirace. At 60 min post-op, ventilatory response to CO<sub>2</sub> rebreathing was repeated.

**Results:** There were no significant differences between the 4 groups in demographic data, thiopentone dosage, duration of anesthesia and post-op oxygen saturation. Within each group, heart rate was significantly higher from baseline in group F, S and N during intubation (p<.05). Blood pressures were significantly higher post-intubation within N group, as well as when compared to A, F and S groups (p<.05) (Figure 1). The apnea index was significantly higher in S group and persisted during 60 min recovery (Fig. 2). At 60 min post-op, the slope of CO<sub>2</sub> response decreased by 41%, 38%, 26% and 37% in group A, F, S and N, respectively. The incidence of nausea and vomiting was 40%, 20%, 20% and 0% in the A, F, S and N groups, respectively.

**Discussion:** The three narcotic agonists (A, F, S) were not significantly different in the hemodynamic control during induction and intubation. Whereas, the narcotic agonist-antagonist (N) caused significant tachycardia and hypertension. However during the 60 min recovery, sufentanil had the highest and nalbuphine the lowest risk of postoperative respiratory depression.

