

**TITLE:** EFFECT OF PREINDUCTION ALFENTANIL ON BLOOD PRESSURE AND HEART RATE ON LARYNGOSCOPY

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**BACKGROUND:** Endotracheal intubation and otolaryngological endoscopic examination of the larynx can produce hypertension and tachycardia which may result in perioperative myocardial ischemia, especially in patients with coronary artery disease. This study was undertaken prospectively to evaluate changes of the vital signs using alfentanil plus isoflurane anesthesia and atracurium for muscle relaxation.

**MATERIAL AND METHODS:** Thirteen patients, 18-80 years of age, ASA I-III, with no known neuromuscular disease were studied. Alfentanil 15-30 ug/kg was given IV and vital signs were closely followed. Anesthetic induction comprised of thiamylal Na 4 mg/kg and atracurium 0.5 mg/kg was used to facilitate endotracheal intubation at maximum EMG (Electromyogram) suppression of the adductor pollicis muscle. A repeat dose of alfentanil (15 ug/kg) was given just prior to endoscopic examination by the Otolaryngologist if required, based on changes in blood pressure and heart rate. Anesthesia was maintained with N<sub>2</sub>O:O<sub>2</sub> 60:40 and isoflurane. Muscle relaxation was maintained with atracurium infusion 5-8 ug/kg/min titrated to T<sub>1</sub> response of train-of-four monitoring on EMG (Puritan Bennett NMT

Monitor 221). The heart rate (EKG) and blood pressure (Dinamap) were closely monitored and other monitoring included ETCO<sub>2</sub> (Airway Gas Monitor-Datex 254), SaO<sub>2</sub> (Nellcor), and axillary temperature (MOM-A-THERM).

At the conclusion of surgery the residual muscle blockade was reversed with atropine 0.01-0.02 mg/kg and edrophonium 0.5-1 mg/kg. The adequacy of reversal was confirmed with clinical tests and EMG monitoring.

**RESULTS:** See TABLE I for results. There was no statistical difference ( $P > 0.05$ ) in blood pressure and heart rate changes during the course of the endoscopies.

**CONCLUSIONS:** Alfentanil 15-30 ug/kg may be beneficial in endoscopic examination of the larynx to suppress laryngeal reflexes although, due to small sample size, data is inconclusive at this point.

TABLE I  
VITAL SIGNS  
X±SEM

	BASELINE	POST ALFENTANIL	INTUBATION	DL*	END PL
BP	130.60/79.2 ±4.31/3.11	125.0/69.46 ±3.73/2.67	140.61/87.15 ±7.52/5.19	126.57/82.57 ±11.62/10.04	118.36/73.90 ±4.60/4.69
HR	70.73±3.48	72.80±3.25	83.78±3.46	79.00±4.68	84.20±4.93

\*DIRECT LARYNGOSCOPY

**Title:** Comparison of alfentanil and isoflurane anesthesia on pressor and catecholamine responses during outpatient laparoscopic surgery.

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The purpose of this study was to compare the effects of alfentanil and isoflurane on the hemodynamic and catecholamine responses to tracheal intubation, rate of recovery from anesthesia, incidence of side effects and complications such as nausea, vomiting and respiratory depression in patients undergoing out-patient laparoscopic surgery.

**Methods:** After obtaining Institutional approval and informed consent, the study was conducted in 16 ASA Class I or II females undergoing outpatient laparoscopic surgery. They were assigned to receive either alfentanil (group A n = 6) or isoflurane (group I n = 10). All were premedicated with ranitidine 50 mg IM, droperidol 0.625 mg IV and Na citrate 30 ml PO given 1 hour before surgery. Patients in group A received alfentanil 50 ug/kg over 60 sec followed by pentothal 4mg/kg and atracurium 0.5 mg/kg and anesthesia was maintained with 67% N<sub>2</sub>O in O<sub>2</sub> and alfentanil 1 ug/kg/min. In group I, anesthesia was induced with pentothal followed by atracurium and maintained with 67%N<sub>2</sub>O in O<sub>2</sub> and isoflurane 1-2%. The syst BP, diast BP, HR, MAP, rate pressure product (RPP) changes before and after tracheal intubation were noted. Serial blood samples were drawn for

catecholamines, and cortisol levels prior to and after intubation. The recovery was assessed by time to eye opening, extubation and serial performances of 'p' deletion test, coin counting tests and Maddox Wing tests. The respiratory rate and O<sub>2</sub> saturation (finger pulse oximetry) were closely monitored during recovery. The requirement of narcotics for pain, incidence of nausea and vomiting and length of recovery room stay were noted.

**Results:** The mean syst BP, HR and RPP increased significantly in group I after induction of anesthesia and intubation. The catecholamine levels were available in 5 patients from each group and these decreased significantly in group A and remained unchanged in group I after intubation (Table 1). Side effects such as nausea and vomiting were more frequent in group I. Respiratory depression (RR <12/min) and oxygen desaturation (<97%) were not evident in group A. The requirement for narcotics for pain was lower and the serial recovery-tests scores were better in group A.

**Conclusions:** General anesthesia using alfentanil with N<sub>2</sub>O/O<sub>2</sub> prevents the sympatho-adrenal responses to tracheal intubation patients undergoing outpatient laparoscopic surgery. The side effects were minimal and recovery time was shorter and respiratory depression was absent in this group.

Table 1 Hormonal levels

		Baseline	After Intubation
Epi-A	pg/ml	392±124.7	119±37 (p<0.006)
Epi-I	pg/ml	206.25±75.7	110.7±96.7 (NS)
Nor Epi-A	pg/ml	476±17.7	288±54.3 (p<0.001)
Nor Epi-I	pg/ml	628±40.8	427±40.4 (NS)