

TITLE: ANESTHESIA FOR PEDIATRIC CANCER PATIENTS: KETAMINE, ETOMIDATE OR PROPOFOL?

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INTRODUCTION: General anesthesia is commonly used for uncomfortable outpatient pediatric procedures. In a Quality Assurance review of our experience performing diagnostic and therapeutic procedures in a cancer center, several unexpected trends came to light which are summarized herein.

METHODS: We collected detailed data regarding our anesthetic practice concurrently with completion of the hospital anesthetic record. Patient information entered into a computerized database included: Patient age, sex, weight, vascular access, drugs and dosages administered, concurrent chemotherapeutic agents, anesthesia-related problems and their time of occurrence. Post-procedure problems were recorded by a pediatric recovery room nurse. Statistical comparisons were performed using Fisher's Exact test: $P < .05$ was regarded as significant.

RESULTS: During a 6-month period, 645 anesthetics were administered. The table in-

cludes data from patients who did not receive barbiturates or N_2O in addition to primary agents. 38% of these cases were associated with some anesthesia-related "occurrence," although none resulted in long-term morbidity. There was no anesthesia-related mortality

1° AGENT	KETAMINE	ETOMIDATE	PROPOFOL
# Cases:	292	109	236
Pt Age:	4.7 yr	11.8 yr	7.4 yr
Dose:	2.6 mg/kg	0.4 mg/kg	3.4 mg/kg
O ₂ Sat<94%	1%*	6%	23%*
Myoclonus:	0%	18%*	0%
Agitation:	14%*	5%	2%
Vomiting:	15%	11%	0%*
Tachycardia:	19%*	3%	2%
Awaken Late:	1%	0%	2%

* = $P < .05$ vs other anesthetics

DISCUSSION: The most striking finding is the absence of vomiting in patients receiving propofol as their primary anesthetic. This is particularly unusual considering that many patients were simultaneously receiving chemotherapeutic agents. The only problem identified with use of propofol was a higher incidence of decreased O₂ saturation, which can be easily remedied by prophylactic administration of oxygen. We conclude that propofol is the agent of choice for these procedures in our patient population.

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TITLE: SUFENTANIL AND FENTANYL ANESTHESIA FOR ADENOTONSILLECTOMY IN PEDIATRIC PATIENTS

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Rapid return of airway reflexes in the presence of adequate analgesia are two desirable aims of anesthesia for adenotonsillectomy. In the following study we compare the recovery and analgesic characteristics of three techniques as supplements to N_2O/O_2 anesthesia for adenotonsillectomy.

Following institutional ethical approval and parental consent, 60 ASA PS 1 and 2 children, 3 to 12 years of age scheduled for tonsillectomy ± adenoidectomy were randomly assigned to one of three groups. IV induction of anesthesia in all three groups included atropine 0.01 mg/kg, methohexital 1.0 mg/kg and vecuronium 0.1 mg/kg. Patients in groups S (n=21) and F (n=19) received sufentanil 0.7 µg/kg or fentanyl 5.0 µg/kg by IV bolus respectively, followed by an IV infusion of 0.2 µg/kg/h of sufentanil or 1.4 µg/kg/h of fentanyl respectively. Patients in group P (n=20) received a saline bolus and infusion and codeine 1.5 mg/kg IM 15 min prior to the end of surgery. All patients received 70% N_2O in O₂ and isoflurane was administered as required to maintain systolic BP within 20% of baseline. A blinded observer recorded intra- and postoperative events. All children remained in hospital the first night postoperatively. On the second postoperative day parents were asked about their child's course at home.

Duration of the procedure and time from the end of surgery until patients were awake and extubation of the trachea could be performed was similar for all groups (table). There were more patients in group F with a skin-surface $PCO_2 > 50$ mmHg on arrival in the PARR. Analgesic requirement during the first hour was significantly lower in patients from groups S and F. More children in group S vomited in the PARR but the incidence of severe vomiting (>2 episodes) was not

different between the three groups. All patients were discharged on time the day following surgery.

Patients in this study who received sufentanil or fentanyl during anesthesia for adenotonsillectomy had decreased analgesic requirements during the first hour postoperatively. This benefit of superior analgesia must be weighed against the risks of respiratory depression and increased incidence of vomiting.

Table. Comparison of patients receiving sufentanil, fentanyl or placebo and codeine during anesthesia for adenotonsillectomy. Data are reported as mean ± SD or percent.

	Sufentanil	Fentanyl	Placebo
Duration procedure (min)	36.3±8.8	39.6±13.7	33.4±11.3
Time to extubation (min)	3.7±3.8	3.1±2.2	4.4±2.3
Pskin CO ₂ >50 mmHg	29	53*	20
Analgesic in first hour	48*	58*	95
Vomiting in PARR	90*	58	50
Vomiting in PARR (severe)	43	26	15
Vomiting days 1 and 2 postoperatively	29	26	30
Alert days 1 and 2 postoperatively	67	37	60

*Different from placebo by Chi-square analysis ($p < 0.05$).