

TITLE: RECTAL KETAMINE VS INTRANASAL KETAMINE AS PREMEDICANTS IN CHILDREN
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Premedication by injection is very distressful to the pediatric patient and means of a non-invasive route of administering premedication is deemed highly desirable. Both rectal and nasal mucosa are highly vascularized and a number of drugs have been shown to be absorbed effectively by either route. The present study evaluates the effectiveness and safety of both rectal and intranasal administration of ketamine in children undergoing outpatient surgery.

After obtaining informed consents from the parents and with institutional approval, 75 pediatric patients (pts.) aged 6 mos-6 yrs scheduled for outpatient surgery were enrolled in this study. The pts. were divided into 3 equal groups of 25 each in a randomized, double blind fashion with group 1 receiving ketamine (3mg/kg) intranasally, group 2 receiving ketamine (6mg/kg) rectally, and group 3 (control) receiving no premedication. All drugs were given thirty minutes before anesthesia. The effect of the premedicants were evaluated preoperatively, during induction and during emergence by: a) Pt's willingness to separate from parents; b) pt's acceptance to face mask; c) activity score by a 4 point scale of 4=awake and active, 3=awake and calm, 2=drowsy but arousable, 1=asleep; maximal halothane concentration during maintenance; d) time to awakening at the end of anesthesia.

sia. Anesthesia was induced with halothane in N₂O/O₂.
TABLE 1.

	CONTROL (n=25)	RECTAL KETAMINE (n=25)	NASAL KETAMINE (n=25)
Willing to separate from parent	35%	85%*	70%**
Accept face mask for induction	17%	77%*	50%**
Activity score at induction	3.3±0.2	1.6±0.2*	2.4±0.3**
Activity score at emergence	3.7±0.12	2.4±0.3*	2.1±0.3**
Time to awaken from anesthesia (min)	20±2.6	36±1.4*	31±2.0**
Maximal halothane concentration	2.0±0.2%	1.3±0.2%*	1.7±0.3%
Laryngospasm	0	0	0
Vomiting after drug administration	0	0	20%**
Vomiting in PACU	30%	33%	35%
Crying in PACU	92%	24%*	25%**

*p < 0.05 vs control
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As shown in Table 1, rectally or nasally administered ketamine both facilitates separation of children from parents with a calming effect during induction and emergence, thereby decreasing inhalation anesthetic requirements. However, rectal ketamine appears to be a more desirable means of premedication than nasal ketamine in that it is easier to administer without inducing vomiting. It also produces more profound sedation in children. This of course could be attributed to the higher dose administered rectally which is not feasible by the nasal route due to the large volume of medication needed.

A1095

TITLE: EMERGENCE RESPIRATORY COMPLICATIONS IN CHILDREN: A COMPARISON BETWEEN HALOTHANE AND ISOFLURANE IN CHILDREN EXTUBATED DEEP OR AWAKE
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INTRODUCTION: Respiratory complications during and following general anaesthesia may be serious, particularly in paediatric patients, in whom dangerous hypoxemia rapidly develops.

During induction of anaesthesia in children, isoflurane is associated with a higher incidence of coughing, breath holding, airway obstruction and arterial desaturation than halothane (1). We have performed a prospective, randomized and observer blinded comparison of the two agents during emergence from anaesthesia.

METHOD: Following ethical review, 80 patients aged 12 to 48 months undergoing minor urologic surgery were studied. Anaesthesia was induced with sodium pentothal 5mg/kg, atropine 0.02mg/kg with succinylcholine 1.5mg/kg for endotracheal intubation, and maintained with N₂O/O₂ 2:1 using a Mapleson D circuit with spontaneous ventilation. All patients received a regional block for postoperative analgesia.

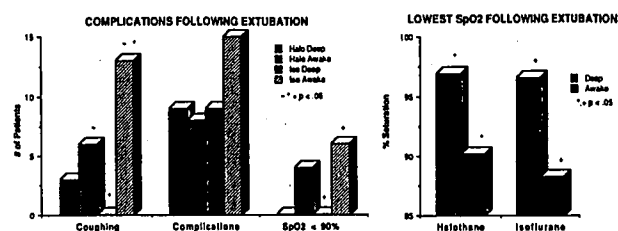
PHASE ONE: Forty patients were randomized to receive either halothane or isoflurane. After surgery, the selected volatile agent was given at 2MAC (adjusted for age) in 100% O₂ for five minutes. They were then turned to the lateral position and extubated. A blinded observer scored respiratory complications over the next 15 mins, and saturation was continuously measured using a Nellcor N-10 pulse oximeter.

PHASE TWO: Another forty patients were randomized and received 1.3MAC of the selected volatile agent during the case, then received 100% O₂ and extubated "awake". Respiratory complications and pulse oximetry were monitored as before.

Patients were excluded from the study if they had recent

URTI, chronic respiratory or cardiac disease or if they had a contraindication to deep extubation. Age, weight, duration of anaesthesia were compared using the unpaired Students t-test. Lowest SpO₂ was compared using the Mann-Whitney U-test. Frequency of complications and incidence of critical desaturation (below 90%) were compared using Fisher's exact test.

RESULTS: There was no significant difference between the 4 groups with respect to age, weight or duration of anaesthesia. 1) Awake extubation resulted in a lower SpO₂ than deep extubation (90.2%vs96.9% for halothane and 88.3%vs96.6% for isoflurane) (p<.05). 2) Awake extubation resulted in more coughing with isoflurane than with halothane (13/20vs6/20) (p<.05). 3) After isoflurane, awake extubation was associated with more coughing than deep extubation (13/20vs0/20) (p<.05). 4) The incidence of a critical desaturation was increased in children anaesthetized with isoflurane and extubated awake (6/20vs0/20) (p<.05).



CONCLUSIONS: Saturation fell to lower levels following awake extubation than after deep extubation. Coughing and desaturation occurred more frequently with awake extubation after isoflurane than after halothane.

REFERENCE: 1. Anaesthesia 43:927-929, 1988