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Title: IS DESFLURANE (I-653) REALLY FASTER THAN HALOTHANE?
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Desflurane, a potent agent with a gas partition coefficient similar to nitrous oxide, should provide a very rapid wake up, which may be advantageous in outpatients. This report compares the wake up time after halothane and desflurane anesthesia in pediatric patients.

Methods: After IRB approval and written consent, patients were randomly assigned to receive either halothane or desflurane in N₂O (60%) and O₂ (40%). No patients were premedicated, all were outpatients, and none received narcotics or sedatives. All patients were induced with either halothane or desflurane. Some patients were first induced with halothane and switched to desflurane for maintenance and wake-up. All patients were intubated. At the end of surgery, the expired halothane and desflurane concentrations were allowed to fall to 0.2% or 2% respectively (0.25 MAC). From this point in time, we quantitated the time it took patients to develop return of disconjugate gaze, corneal reflex, eyelash reflex, and to respond to verbal command while breathing 100% oxygen. The times to discharge from the recovery room and the hospital were also recorded.

Results: 36 outpatients were studied; groups were matched for age, weight, and duration of anesthesia. Not all data points were available for all patients (Table - mean ± SE). There was a shorter time for return of corneal reflex, conjugate gaze, lash reflex, opening eyes, and response to verbal command in the desflurane group. Discharge time from recovery and to home was not significantly different.

Discussion: Although faster return of reflexes, response to verbal command and eye opening were observed with desflurane, the actual time to discharge was not different between the groups. This suggests that desflurane may be of greater value in long inpatient cases, since with brief cases the clinical importance of the slightly more rapid wake up appears marginal.

| | Halothane (n) | | Desflurane (n) | |
|-----------------------------|---------------|----|----------------|----|
| Age (months) | 50.6±10 | 14 | 53.7±11 | 22 |
| Duration (min) | 39.4±7.3 | 14 | 32.6±3.8 | 22 |
| Disconjugate Gaze (sec) | 148±42 | 10 | 84±20 | 18 |
| Corneal Reflex (sec) | 405±65 | 6 | 197±48* | 9 |
| Light Reflex (sec) | 120±63 | 6 | 114±24 | 10 |
| Return Conjugate Gaze (sec) | 513±71 | 11 | 275±42* | 16 |
| Return Lash Reflex (sec) | 947±140 | 5 | 361±60* | 10 |
| Open Eyes (min) | 11.1±1.1 | 14 | 6.4±0.8* | 22 |
| Response (min) | 15.2±1.1 | 14 | 8.4±1.0* | 22 |
| Discharge Recovery (min) | 33.4±3.0 | 14 | 29.2±2.3 | 22 |
| Discharge Home (min) | 115±16 | 14 | 101±9 | 22 |

* P < 0.05.

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TITLE: DESFLURANE WITH OR WITHOUT N₂O VS PROPOFOL FOR OUTPATIENT LAPAROSCOPY
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Desflurane (DES) is a new inhalation anesthetic agent which produces a rapid uptake and elimination. This study was designed to evaluate the safety, efficacy and recovery from anesthesia using propofol or DES, with or without N₂O, for outpatient laparoscopy.

After institutional ethical approval, 60 ASA I females undergoing laparoscopy were randomly assigned to 4 groups. In groups I and II, anesthesia was induced with propofol (1.5 mg/Kg), and in group III and IV, with 0.5 MAC of DES, followed by incremental doses every 3-5 breaths, with 60% N₂O in group III and without N₂O in group IV. Intubation was performed after fentanyl (2 µg/Kg), vecuronium (0.1 mg/Kg) and succinylcholine (1.5 mg/kg). Maintenance of anesthesia consisted of 6-7.25% end-tidal (ET) DES in 60% N₂O in groups I and III, DES without N₂O in group IV, and propofol (9 mg/Kg/h during 15 min, then 6 mg/Kg/h) in group II. The times and ET DES for loss of eyelash reflex and consciousness from the start of anesthesia were recorded. Postoperatively, the times to eye opening, squeezing hands and telling name, ability to sit and drink were determined. P-deletion (p-del) and digit symbol substitution (DSS) tests were obtained preoperatively, and at 30, 60, 90 and 120 min after the end of anesthesia. The incidence of analgesic use, nausea and vomiting was determined. Continuous variables were analyzed using ANOVA, and discontinuous variables by Chi-square.

The 4 groups were comparable with respect to demographic data and length of surgery (32 ± 15 min; mean ± sd). The incidence of nausea and vomiting was not different between the 4 groups. Additional doses of fentanyl were more frequently administered in group II than in groups III and IV (p < 0.05).

| GROUP | I | II | III | IV |
|--------------------------------------|-------------|-------------|-------------|-------------|
| Time to loss of consciousness (min) | 1.1 ± 0.4 | 1.1 ± 0.4 | 1.9 ± 0.5 | 1.6 ± 0.4 |
| ET DES for loss of consciousness (%) | — | — | 6.5 ± 1.6 | 6.1 ± 1.7 |
| Duration of anesthesia (min) | 44.2 ± 20.6 | 50.5 ± 18.7 | 36.4 ± 12.0 | 43.3 ± 16.0 |
| ET DES at the end of anesthesia (%) | 6.5 ± 0.6 | — | 6.5 ± 0.6 | 6.8 ± 1.3 |
| Time to eye opening (min) | 8.0 ± 3.6 | 13.0 ± 5.3* | 7.1 ± 1.9 | 5.3 ± 1.9 |
| Time to "squeezing hands" (min) | 8.8 ± 4.1 | 15.0 ± 6.7* | 7.8 ± 2.1 | 5.5 ± 1.6 |
| Time to "telling name" (min) | 10.0 ± 4.8 | 16.0 ± 6.6* | 8.5 ± 2.1 | 6.8 ± 2.1 |
| P-del at 30 min (%) | 68 ± 25 | 14 ± 52* | 70 ± 32 | 68 ± 33 |
| DSS at 30 min (%) | 77 ± 28 | 66 ± 25 | 54 ± 24 | 71 ± 21 |

mean ± sd. * p < 0.05, when compared to other groups. Results of P-del and DSS are presented as percent of baseline scores.

This study shows that desflurane anesthesia is accompanied by a more rapid recovery and a faster return to baseline cognitive functions than propofol anesthesia.