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Title: PSYCHOMOTOR FUNCTION FOLLOWING BALANCED, ENFLURANE, AND ISOFLURANE ANESTHESIA IN AMBULATORY SURGICAL PATIENTS

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Introduction: Ambulatory surgery has become popular and patients are being discharged and sent home within a few hours of anesthesia and surgery. A major concern to the anesthesiologist is the psychomotor function of the patient before discharge. Isoflurane has a low blood/gas partition coefficient and it produces rapid induction of anesthesia with quick recovery (1). Theoretically it could become the agent of choice for ambulatory surgery. This study compares the rate of recovery of psychomotor function in ambulatory surgical patients following balanced, enflurane, or isoflurane anesthesia.

Method: Informed consent was obtained from 57 ASA class I patients scheduled for ambulatory surgery. Premedication consisted of diazepam 5 mg iv 15 minutes prior to induction with sodium thiopental 4 mg/Kg iv. Each patient was then assigned to Balanced (B), Enflurane (E), or Isoflurane (I) group. In the B group the patients received fentanyl 0.1 mg iv before induction and anesthesia was maintained with N2O 70% in oxygen. In the E and I groups the patients received initially 2 MAC (3.4% and 2.6%, respectively) inspiratory concentration of the volatile agent in N2O 50%. The end tidal concentration of the volatile agent was monitored continuously by an Engstrom EMMA quartz crystal transducer and when it reached 1 MAC (1.7% for enflurane and 1.3% for isoflurane) the inspiratory concentration was reduced and maintained at one MAC. All patients received intermittent doses of 20-30 mg of succinylcholine in order to facilitate ventilation and maintain the arterial PCO2 at the normal range. An investigator who was unaware of the anesthetic management carried out three well established psychmotor tests: visualization, response time, and a modified tapping test (2) before and at one and two hours after termination of anesthesia. The results were analyzed by Student's t-test and p values less than 0.05 were considered significant.

Results: The results are shown in the Table. Mean anesthesia times for the B, E, and I groups were 18.2, 17.5, and 18.0 minutes, respectively. There were no statistical differences in psychomotor function scores between the B and E groups. The I group scored better than the E group in the visualization and modified tapping tests two hours after anesthesia. The I group also scored better than the B group in the visualization test two hours after anesthesia. However, the differences were small and not clinically significant

		One Hour after Anesthesia		
Group	n	VT	RT	TT
B	25	76±33	111±10	88±11
E	13	73±19	112±12	83± 9
I	17	78±35	113±15	88±13

		Two Hours after Anesthesia		
Group	n	VT	RT	TT
B	25	95±13	104±11	97±11
E	13	95±17	103± 5	96±10
I	17	109±15*#	100± 7	101± 3*

Table: Psychomotor Function Testing Scores (mean SD) one and two hours after termination of anesthesia expressed as percent of the preanesthesia values. B - Balanced, E - Enflurane, I - Isoflurane, VT - Visualization Test, RT - Response Time Test, TT - Tapping Test. *$p<0.05$ when I is compared to E. #$p<0.025$ when I is compared to B.

References:
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2. Edwards H, Rose EA, Schorow M, King TC: Post operative deterioration in psychomotor function. JAMA 245:1342-1343, 1981