Title : FENTANYL VS. ENFLURANE IN OUTPATIENT ANESTHESIA

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Introduction. Fentanyl 500 µg IV followed by thiopental-nitrous oxide-oxygen-muscle relaxant results in excellent narcosis and anesthesia lasting approximately 60 minutes with remarkable stabilization of blood pressure and pulse. If anesthesia is terminated before 60 minutes, naloxone readily reverses the narcosis without renarcotization. Clinical experience with this technique suggests that it may be useful in outpatient surgery permitting a short recovery time before safe discharge from the hospital. The purpose of the present study was to compare the recovery time following fentanyl-thiopental-nitrous oxide-oxygen-muscle relaxant technique with that of thiopental-nitrous oxide-oxygen-enflurane-muscle relaxant sequence in outpatients surgical procedures.

Methods. Informed consent was obtained from 30 unpremedicated ASA I outpatients ages 20-38 weighing 50-84 kg scheduled for laparoscopic tubal ligation. Prior to anesthesia they performed the Trieger's diagram and Bender test. Patients were randomly divided into two groups: Group I had anesthesia induced with thiopental 3 mg/kg, succinylcholine 1 mg/kg IV to facilitate tracheal intubation and anesthesia maintained with nitrous oxide 66% enflurane 2% and succinylcholine 0.2% IV infusion; Group II had fentanyl 500 µg IV, thiopental 3 mg/kg, succinylcholine 1 mg/kg IV, nitrous oxide 70% and succinylcholine 0.2% IV infusion. Ventilation in both groups was controlled: tidal volume 15 cc/kg, rate 14/minute. Both groups received atropine 1.2 mg IV prior to the injection of succinylcholine. At the termination of anesthesia Group II received naloxone 0.2 mg IV, 0.4 mg IM. Recovery from anesthesia was assessed by a nurse, who was unaware of the anesthetic procedure, upon arrival in the recovery room and every 30 minutes thereafter according to the following scheme: Consciousness: fully awake, conversing, oriented to person, place and time, 4; light sleep, i.e. eyes open intermittently, 3; eyes open on command or in response to name, 2; responding to ear pinching, 1; not responding, 0. Coordination: raising one arm on command, 2; nonpurposeful movement, 1; not moving, 0; performance of the Trieger diagram and Bender test. Airway: opening mouth or coughing on command, 3; no voluntary cough but airway clear without support, 2; airway obstructed on neck flexion but clear without support on extension, 1; airway obstructing without support,0. Patients were discharged from the recovery room to home providing they were alert, oriented to time, place and person, had normal stable vital signs, showed no signs of orthostatic hypotension, had a negative Rhomberg test, a normal gait, and their performance on the Trieger's diagram and Bender test were the same as prior to anesthesia.

Results. 15 patients received enflurane (Group I) and 15 received fentanyl (Group II). Neither group exhibited hypo- or hypertension during anesthesia. Duration of anesthesia was 17-35 minutes for Group I and 13-45 minutes for Group II. All Group I patients were slow to awaken. In contrast, Group II patients were awake within 1-2 minutes after naloxone and moved themselves from the operating room table to the stretcher with minimal assistance. On arrival in the recovery room, Group II was significantly more awake and coordinated and had less problems with their airway than Group I. This difference, although not as marked, was still present at the end of 30 minutes in the recovery room. By the end of 60 minutes there was minimal difference in the consciousness, coordination and airway scores and performance on Trieger diagram and Bender test between Groups I and II. No patients in either group had orthostatic hypotension. By the end of 150 minutes 60% of Group I and 100% of Group II patients had a negative Rhomberg test and normal gait. Group I patients stayed in the recovery room an average of 144 $\pm$ 9.64 (SEM) minutes and Group II remained 111 $\pm$ 9.69 minutes ($p < 0.01$). Post operative vital signs were stable and within normal limits for both groups. No signs of renarcotization was observed in Group II. Vomiting did not occur in either group. Unelicited complaints not exceeding 13% in either group included nausea, headache, dizziness and thirst.

Conclusions: The recovery time following the administration of the fentanyl regimen is significantly shorter than the enflurane technique. Based on the ease of administration, smoothness of the anesthetic course and the uneventfulness of recovery the fentanyl regimen described here represents a good alternative for outpatient general anesthesia.