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POSTER SESSION IV

A29

Title: KETOROLAC SUPERIOR TO SUFENTANIL, GIVING LONGER PAIN RELIEF WITH LESS NAUSEA AND LESS RECOVERY TIME AFTER LAPAROSCOPY

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Introduction: Ibuprofen given preoperatively (preop), has recently been shown to decrease but not eliminate the need for postoperative (postop) IV narcotics.[1] Likewise, nausea, in the recovery room (RR) and on the ride home was reduced but still problematic. Ketorolac (KET), an injectable nonsteroidal anti-inflammatory drug, has been shown to have analgesic effectiveness comparable to morphine in relieving postop. pain.[2] It's use preop allows avoidance of the oral administration route and the side effects associated with narcotics.

Methods: The postop course of 34 females who had undergone laparoscopy for gynecologic laser surgery was reviewed. This IRB approved review, consisted of ASA I and II outpatients. There was no significant difference in pt age or length of procedure between groups. All pts had a standardized IV preop consisting of midazolam 1mg, metoclopromide 10mg, and droperidol 0.5mg 15-30 min. prior to induction. All pts received a standardized induction of general anesthesia with propofol and vecuronium. Anesthetic maintenance consisted of N2O/O2 (2:1) and low concentration isoflurane (ISF). Sixteen (16) pts received sufentanil (SUF) 0.3mcg/kg (15-20 mcgs.) at the time of induction. Eighteen (18) pts received KET 60mg IV at the same time the other preop medications were given and no narcotic for induction or maintenance of anesthesia. Pain in the RR was treated with IV morphine, or hydrocodone if pt tolerating oral liquids. Results were analyzed using Chi-square analysis; P<0.05 indicated significance.

Results: The pts receiving SUF more frequently required narcotics in the RR for pain; SUF=44% vs KET=28% (P=ns). No KET pt required IV morphine vs 19% (2) in SUF group. Pts in the SUF group had significantly more nausea in the RR and after getting home; KET=0 vs SUF=25%(4) (P=.025) and KET=0 vs SUF=38% (6) (P<.005) respectively. Pts requiring antiemetics in the RR: KET=0 vs SUF=19% (3). Time spent in the RR was also shorter for pts in the KET group; average 82 min vs 102 min for SUF pts.

Discussion: The addition of SUF has been shown to provide a better anesthetic technique for laparoscopy than ISF alone.[3] However, like other narcotics, it can cause postop nausea and slow recovery. We have shown IV KET to be a superior drug in this setting resulting in: 1) less need for supplemental narcotics in the RR; 2) significantly less nausea in the RR and at home and; 3) reduced time for discharge from the RR.

References:
1-Rosenblum M, et al. Anesthesiology 73: A778, 1990
2-O'Hara D, et al. Clin Pharm Ther 41:556-561, 1987
3-Wasudev G, et al. Anesth Analg 66: S186, 1987

A30

TITLE: EFFICACY OF ADDITIONAL FLUMAZENIL (> 1 MG) AFTER AMBULATORY GENERAL ANESTHESIA WITH MIDAZOLAM INDUCTION

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Introduction. Midazolam is an effective induction agent for general anesthesia but its use in ambulatory surgery may be limited by protracted postoperative somnolence. Flumazenil, a specific competitive benzodiazepine antagonist, has been shown to reverse the effects of midazolam. Most but not all patients awaken after less than 1 mg of flumazenil.[1] This study investigated whether additional flumazenil would further reverse the residual sedative effects of midazolam after general anesthesia in ambulatory surgery patients.

Methods. Institutional approval and individual written consents were obtained. The study consisted of an open label flumazenil segment and a randomized double-blind segment. Sixty-eight ASA I-II patients completed the study. Preoperatively, patients underwent psychodiagnostic testing: visual analog scale for sedation (VAS), Trieger dot, p deletion, and digit symbol substitution. Anesthesia was induced with midazolam 0.2 mg/kg, succinylcholine 100 mg and maintained with N20/02 2:1, isoflurane 0.5% or enflurane 0.75%, succinylcholine, fentanyl 2 µg/kg and intermittent boluses of midazolam 0.05 mg/kg. Psychodiagnostic testing was repeated in the recovery room before and after flumazenil. Patients who failed to awaken fully after ≤ 1 mg flumazenil were given additional flumazenil [F] or placebo [P] in a double-blind randomized fashion up to 8 mg. Observer's Assessment of Alertness/Sedation scale was used to determine wakefulness.[2]

Results. Age, height, weight, mean doses of midazolam (16.96 ± 0.45 mg), and preoperative and postoperative baseline test scores were not different between the two groups. 74% of patients responded to ≤ 1 mg of flumazenil (0.9 ± 0.23 mg). The 18 nonresponders entered the double blind segment. 13 received additional F (4.31 ± 2.63 mg = 43.1 ± 26.3 ml); 5 received P (35.0 ± 28.1 ml). Psychodiagnostic scores during recovery were not significantly different between the F and P groups. VAS results are shown in Figure 1. No significant adverse effects were seen.

Discussion. Previous studies have shown that 0.4-0.8 mg are usually adequate to reverse residual sedation after induction of general anesthesia with midazolam in ambulatory surgery patients.[1,3] However, not all patients respond adequately to 1 mg or less. In our study, additional flumazenil given to nonresponders did not improve recovery when compared to administration of additional volume of placebo.

Based on these data, there is no advantage in giving additional flumazenil (> 1 mg) to patients who do not respond to ≤ 1 mg after midazolam-induced ambulatory general anesthesia.

References. 1. Anesth Analg 1990;71:371-6.
2. J Clin Psychopharmacol 1990; 10: 244-51.
3. Anaesthesia 1986; 41: 1001-6.

Figure 1. VAS mean scores, flumazenil [▲] versus placebo [◊] groups