TITLE: POSTOPERATIVE PAIN MANAGEMENT AND PULMONARY FUNCTION AFTER THORACOTOMY: A PROSPECTIVE RANDOMIZED STUDY

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Management of postoperative thoracotomy pain varies widely and includes cryoanalgesia, intrapleural analgesia, epidural analgesia, and parenteral narcotics. We studied these four commonly recommended methods for the control of postthoracotomy pain to determine the relative efficacy of each technique.

After IRB approval, consenting ASA class II to III patients, 36 to 74 years old, scheduled to undergo antero- or posterolateral thoracotomy were randomly assigned to one of the four groups. Cryoanalgesia was given to nine patients with a 30-second freeze of the intercostal nerve trunks at the costovertebral angle. Intercostal nerves at the level of incision, the one above, and the one below were frozen. Five patients received intrapleural analgesia with a catheter inserted percutaneously at the operative level and threaded 5 cm cephalad under direct vision. Twenty ml of a 0.5% bupivacaine with 1:200,000 epinephrine was given through the intrapleural catheter every six hours. Five mg of morphine sulfate (MS) was given twenty minutes before the end of the operation to patients who were to receive intravenous MS or cryoanalgesia. Epidural analgesia consisted of 5 mg of MS given every 6 h on request. After the initial doses, patients assigned to receive intravenous MS, cryoanalgesia, or intrapleural analgesia were given 2 to 4 mg of MS on request to relieve pain. If patients receiving epidural analgesia complained of pain, 50 μg of fentanyl was given. Patients with pain after six hours received a repeat dose of epidural MS. Forced vital capacity (FVC) and forced expiratory volume in 1 s (FEV_1) were measured preoperatively and on postoperative days one, two, and five. The intensity of pain was quantitated using the 0 to 100 mm visual analog scale (VAS) on the day of the operation and on postoperative days one, two, and five. Data are summarized as mean ± SD and were evaluated with an analysis of variance.

Pain intensity on the day of operation was significantly lower in patients who received epidural analgesia (EA), compared with patients who received cryoanalgesia (CA), intrapleural analgesia (IA), or parenteral analgesia (PA) (Table). No differences in the intensity of pain were noted among the groups thereafter. No differences were noted among the groups in postoperative FVC and FEV_1.

Table: Visual analog scores (mm).

	Day 0	Day 1	Day 2	Day 5
EA	5±5	31±30	15±24	20±25
CA	48±24	29±18	20±22	26±22
IP	47±32	39±26	27±11	37±15
PA	62±31	44±26	26±14	4±8
p=	0.04	0.62	0.26	0.06

We conclude that epidural morphine provided better relief of postoperative thoracotomy pain on the operative day compared with parenteral MS, intrapleural analgesia, or cryoanalgesia. However, no difference was found in the intensity of pain between groups thereafter. No technique was superior to the others in preventing deterioration of pulmonary function.

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Title: IBUPROFEN PROVIDES BETTER ANALGESIA THAN FENTANYL FOLLOWING LAPAROSCOPIC SURGERY

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Introduction: Because ibuprofen (IBU) provides analgesia without narcotic side effects, it may be especially useful for same day surgery (SDS). We performed the present, double-blind study to compare IBU and fentanyl (FENT) in outpatients.

Methods: Thirty consenting female laparoscopy outpatients, ASA I and II, participated in this IRB-approved study. Patients randomly assigned to the IBU group received 800 mg orally 1 h before surgery and an i.v. placebo 30 min before the end of surgery. FENT patients received an oral placebo 1 h before surgery, and FENT 75 μg i.v. 30 min before the end of surgery. All patients received thiopental, vecuronium, N_2O and isoflurane. In recovery room (RR), all patients received FENT (25 μg increments) p.r.n. pain and droperidol (0.625 mg increments) p.r.n. nausea. Patients assessed their degree of pain (10 cm visual-analog scale) and nausea (0-3 subjective rating) 15, 30, 60, and 90 min after arrival in the RR as well as in the SDS unit, on the way home, and after arrival at home. We analyzed data using 2-way ANOVA and Tukey tests for individual times; P<0.05 indicated significance.

Results: Postoperative FENT and droperidol doses did not differ between groups (table). IBU patients had significantly less pain (fig 1, P<0.005) and nausea (fig 2, P<0.001) than FENT patients. These differences became more pronounced at later times.

Discussion: Our observation that IBU provided longer-lasting analgesia than FENT is consistent with the pharmacokinetics of the two drugs. By reducing the *total* perioperative dose of FENT, IBU reduced postoperative nausea in the SDS unit, where patients first ambulated and took oral fluids.

	Ibuprofen	Fentanyl
Postop Fentanyl (μg)	37±9	27±7
Total Fentanyl (μg)	37±9	102±7*
Droperidol dose (mg)	0.08±0.05	0.25±0.08

*P<0.05, means ± SEM

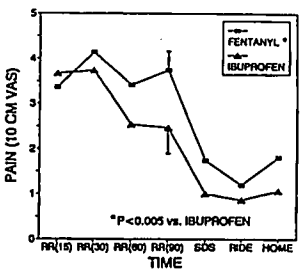

Figure 1

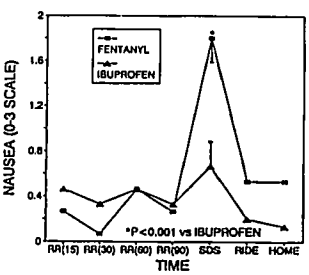

Figure 2