

TITLE: INTRAPLEURAL BUPIVACAINE VERSUS SALINE PLACEBO AFTER THORACOTOMY
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Intrapleural bupivacaine is a recently introduced method of providing analgesia in patients following thoracic and upper abdominal surgery and trauma.¹⁻² Respiratory depression and hypotension are less common than with other techniques and systemic "toxic" concentrations of bupivacaine have not been reported. However despite these obvious advantages doubt still remains about its efficacy for pain relief following thoracotomy. The objectives of this double blind, randomised study were to determine patient analgesia following intrapleural bupivacaine or normal saline administration in post-thoracotomy patients.

PATIENTS AND METHODS

Following institutional ethical approval and informed consent, 22 adult patients scheduled for elective thoracotomy under general anesthesia were studied. An intrapleural catheter was placed intraoperatively at the level of the fifth thoracic vertebra with the tip posterior and secured to the posterior parietal pleura. Following reversal of neuromuscular blockade and extubation all patients were admitted to the Intensive Care Unit, where intravenous morphine was given on patient demand. Patient controlled analgesia

(PCA) with morphine was commenced on the first post-operative morning. The degree of postoperative pain was assessed hourly using PCA requirements, visual analog pain scores (VAS) and Prince Henry pain scores (PH), for 6 hours prior to and 6 hours following intrapleural injection. Following randomisation 30 mL bupivacaine 0.5% with adrenaline 1:200000 or 30 mL normal saline was injected intrapleurally over 5 min. Chest drains were clamped for 30 min following injection. Statistical analysis was performed with paired data t-test and two-way analysis of variance. RESULTS. The two groups were comparable with regard to age, sex, height and weight. The difference in mean morphine use for the 5 hr period after intrapleural injection between groups was not statistically significant. The same was true for hourly morphine requirements one hour before and five hours after intrapleural injection and for VAS and PH scores.

DISCUSSION. In this study we have demonstrated that pain relief following intrapleural bupivacaine is not superior to intrapleural saline in post-thoracotomy patients. Whereas previous studies have used intravenous morphine on demand and VAS as pain score changes, we used PCA requirements, VAS and PH pain scores as objective methods of pain assessment following IP injection. In conclusion we cannot recommend the use of intrapleural bupivacaine for the relief of pain in post-thoracotomy patients.

References

1. Reg. Anesthesia 11:89-91, 1986
2. Anesthesiology 69:A367, 1988.

TITLE: PATIENTS WITH A SUBSTANCE ABUSE HISTORY CAN EFFECTIVELY USE PCA
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Relatively few contraindications exist to the use of Patient Controlled Analgesia (PCA) for postoperative analgesia in the alert and cooperative patient. However, some have suggested that a past or current history of substance abuse represents a contraindication to PCA use.¹⁻³ Having cared for numerous such patients on our Acute Pain Service (APS), we hypothesized that they would be able to safely and effectively utilize PCA, but would require more narcotic.

We retrospectively examined the medical records of 30 patients with identified substance abuse histories who used PCA between May, 1989 and Feb, 1990. Data regarding prior substance abuse history, postoperative narcotic consumption, number of days on the APS, effectiveness of analgesia, presence of withdrawal symptoms, use of adjuvant medications, type of surgery, suspected PCA misuse, and demographics were collected. Similar data were collected for 30 control patients matched for sex, age, and type of procedure. Data were compared with Fisher exact analyses and t tests.

Of the 30 patients, 21 abused alcohol alone, 5 abused alcohol and other substances, and 4 abused IV narcotics or cocaine. 22 of them were actively abusing psychoactive substances upon admission. The remainder of the data are summarized in the table below. There were no intergroup differences in demographics, adequacy of pain control, or the number of days that PCA was utilized. The only difference between groups was in the average dose of narcotic per 8 hour shift in milligrams of morphine (or equivalent), with the abuse patients averaging 23.5 mg. (13.9 s.d.)

vs. 15.7 mg.(4.9 s.d.) for the control patients. Although the number of abuse patients requiring supplemental infusions did not reach statistical difference, this may be a function of sample size, as our clinical impression suggests that a basal narcotic infusion is often required in this population. Two of the abuse patients were changed from PCA to time contingent narcotic dosing as they were felt to be using PCA inappropriately. Four of the abuse patients experienced withdrawal symptoms (all ETOH) requiring treatment during their hospitalization.

These findings suggest that substance abuse patients require larger doses of narcotics to achieve adequate postoperative analgesia, but their PCA use is not prolonged and they can effectively and safely use PCA. As substance abuse involves the interaction of environment, circumstance and personality, increased narcotic requirement for acute pain in a hospitalized patient does not reflect abuse; rather, a combination of factors including tolerance, habituation and patients' dependent or avoidance coping strategies. When caring for these patients, one must be aware of the potential for withdrawal and the increased narcotic requirement.

References: 1. J Pain Symptom Management, 3:21, 1988. 2. J Pain Symptom Management, 3:159, 1988. 3. Postgraduate Medicine, Aug 28, 1986, Special Report, 42.

group	# of males	age (S.D.)	pain controlled	ave dose ^a	days PCA	# of CI
abuse pts	24	40.8 (13.0)	27	23.5 (13.9) *	3.9 (2.5)	5
controls	23	37.8 (14.5)	29	15.7 (4.9)	3.3 (1.1)	1

a=mg morphine equivalent per 8 hrs. *p=0.05