Title: EFFICACY OF EPIDURAL NALBUPHINE IN POSTOPERATIVE PAIN CONTROL

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INTRODUCTION: Epidural administration of Morphine has been employed to provide prolonged post-op analgesia, but being a narcotic agonist it also causes adverse side effects such as pruritis, protracted vomiting and at times delayed respiratory depression.[1] Nalbuphine hydrochloride, a potent partial agonist-antagonist narcotic analgesic when administered parenterally has been shown to provide pain relief in a variety of clinical conditions with its potency being similar to morphine and yet less pronounced respiratory depression than morphine.[2] A recent report has shown that intrathecal nalbuphine 0.4mg provided significant reduction of post-op pain comparable to that of an equipotent dose of morphine and meperidine.[3] In a recently reported open study, Wang and co-workers showed that epidural administration of nalbuphine 5mg in N.S. provided prolonged pain relief with minimal side effects in 30 post-surgical patients.[4] The present study was undertaken to evaluate the analgesic effect and safety of epidural nalbuphine in a double-blind controlled design.

METHOD: The study was conducted at the Veteran General Hospital after institutional approval and informed consents were obtained from all the patients prior to their entry into the study. Forty adult patients scheduled for elective abdominal surgeries were enrolled in this study. On the day of surgery, prior to induction of anesthesia, an indwelling #18 gauge epidural catheter was inserted through the low thoracic or high lumbar vertebral interspaces and taped securely in place. All the patients were then given general anesthesia with either halothane or enflurane in N_2O-O_2 without any narcotic analgesic agents being used. In the post-op period, when the patients had fully recovered from the effect of anesthesia and complained of severe pain, they were divided into 2 equal groups in a randomized, double-blind fashion. Group A received,epidurally,nalbuphine 10mg in 10ml N.S. and group B, serving as control, received 10ml N.S. epidurally. Any patient who did not obtain adequate pain relief after one hour post-drug was given a "rescue" medication of meperidine 50-75mg I.M. Patient's pain intensities were evaluated by visual analogue scores and the number of I.M. analgesics needed were recorded through the 48 hour observation period.

RESULTS: In the first 6 hours no patient in group A, whereas 65% (13/20) of the patients in group B, required I.M. analgesics. There is a statistically significant difference ($p < 0.05$) in pain scores between the two groups (Figure). Most of the patients in group B received I.M. analgesics after 6 hours. Therefore, the pain intensity score was reduced and approached that of the group A from then on. At the 15th hour observation only 35% (7/20) of the patients in group A required I.M. analgesics while all the patients in group B required one or more doses of such medications. Onset of pain relief with epidural nalbuphine appeared at 15 minutes, peaked between 30-60 minutes with a duration of action ranging from 7-21 hours, (average 13.6±4.2 hrs). No evidence of sensory, motor or autonomic blockade were observed in any patient. Incidences of adverse effects were quite similar in both groups with no pruritis or respiratory depression being observed in any of the patients (Table 1).

DISCUSSION: Epidural administration of nalbuphine appears to provide efficacious and prolonged pain relief in postsurgical patients. The duration of analgesia averaged 13.6 hours which is less than that reported in most studies of epidural morphine. However, there is a remarkable low incidence of adverse effects associated with epidural nalbuphine when compared with those reported with epidural morphine. Observation of minimal adverse effect was also reported with epidural administration of pentazocaine, another partial agonist-antagonist narcotic.[5] In our search for means to provide prolonged effective and safe postoperative pain control, epidural nalbuphine appears to be a very promising alternative for morphine and its role for this clinical application warrants further investigation.

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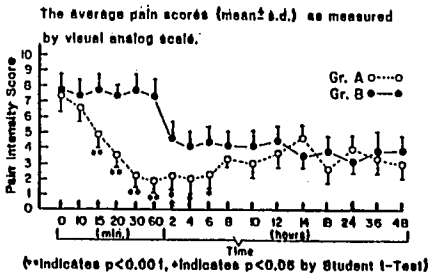

TABLE 1: SIDE EFFECTS

	Group A	Group B
Nausea & Vomiting	3/20	7/20
Pruritus/Urticaria	0	0
Urinary Retention	2/20	3/20
Respiratory Depression	0	0
Drowsiness	14/20	12/20