



Effectiveness of epidural analgesia during post operative period in the patients undergoing hepatobiliary and pancreatic surgery

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ABSTRACT

Nowdays epidural analgesia is becoming more and more popular in surgery for their better post operative pain control. Hepatobiliary and pancreatic surgeries are considered most difficult among abdominal surgeries in terms of both surgical and anaesthetical aspects. In these cases epidural analgesia should be given with precautions because of associated bleeding problems. We tried to apply epidural analgesia in Hepatobiliary and pancreatic surgeries and compared them with the effect of intravenous general anaesthesia with post operative administration of diclofenac and tramadol. We found per operative epidural analgesia with its postoperative controlled application gives excellent pain relief with early ambulation and early discharge of patients.

KEYWORDS

epidural analgesia; hepatobiliary and pancreatic surgery; pain management.

Introduction:

Surgical injury leads to an endocrine-metabolic and inflammatory response with protein catabolism, increased cardiovascular demands, hypercoagulability, impaired pulmonary function and paralytic ileus, the most important release mechanisms being afferent neural stimuli and inflammatory mediators (1,2,3). Epidural local anaesthetic plus opioid blockade of afferent stimuli reduces endocrine metabolic responses, and improve postoperative catabolism. Furthermore, dynamic pain relief is achieved with improved pulmonary function (4,5) and a pronounced reduction of postoperative ileus(6), thereby providing optimal conditions for improved mobilization and oral nutrition, and preservation of body composition and muscle function (1,3,7). Epidural local anaesthetics should be used in all major surgical procedures in order to facilitate oral nutrition, improve recovery and reduce morbidity.

Aims and objective:

Hepatobiliary and pancreatic diseases are often associated with deranged coagulation function. Surgical procedures for these diseases are invariably time consuming and technically more demanding. Application of epidural analgesia in a patient with abnormal coagulation profile is not advocated. But judicious application of epidural analgesia in selected patients of Hepatobiliary and pancreatic diseases can be beneficial in terms of pain management, early feeding and ambulation and lesser days of hospital stay.

We carried out a combined prospective study on 30 ASA physical status I & II patients who were comparable in terms of base line vital parameters (heart rate, blood Pressure, respiratory rate) and having different hepatobiliary and pancreatic diseases for which they were undergone elective surgery. The patients were randomized into 2 groups of 15 each. The first group (Gr. E) underwent operation with application of Thoracic epidural (at T 7-8 inter space) (5) analgesia (10ml of 0.1% Bupivacaine + Morphine 3mg as a bolus dose 12 hourly) (6) continued for 3 days post operatively. The second group (Gr. NE) received inj diclofenac (75mg) i.m. b.i.d + inj tramadol (50mg) i.v. t.i.d postoperatively for the same duration. These two groups of patient were compared in terms of pulse rate, BP, respiratory rate (at 12hrs , 24 hrs , 36 hrs , 48 hrs and 72 hrs) , initiation of ambulation, oral feeding and duration of post operative hospital stay. Different complications were also noted.

The exclusion criteria were : i) P –time > 5seconds than that of control, ii) INR > 1.5, iii) APTT value > 1.5 times than that of control, iv) Platelet count < 75,000/ cmm.

The results were analyzed statistically with the help of Chi – Square Test. A ‘p’ value of < 0.05 considered as statistically significant.

Table:1

Pulse Rate (per minute)	12 hrs		24 hrs		36 hrs		48 hrs		72 hrs	
	<100	>100	<100	>100	<100	>100	<100	>100	<100	>100
epidural	12	3	13	2	13	2	12	3	14	1
Non epidural	4	11	6	9	7	8	10	5	13	2

Table: 2
Systolic Blood Pressure (SBP)

SBP (mm of Hg)	12 hrs		24 hrs		36 hrs		48 hrs		72 hrs	
	<140	>140	<140	>140	<140	>140	<140	>140	<140	>140
epidural	10	5	11	4	9	6	10	5	13	2
Non epidural	4	11	5	10	6	9	10	5	14	1

Table: 3
Respiratory Rate (RR)

RR (per minute)	12 hrs		24 hrs		36 hrs		48 hrs		72 hrs	
	<14	>14	<14	>14	<14	>14	<14	>14	<14	>14
epidural	12	3	12	3	13	2	15	0	15	0
Non epidural	4	11	4	11	9	6	13	2	14	1

Table:4
Oral feeding

Oral feeding	24 - 48 hrs	48 – 72 hrs	>72 hrs
	Y N	Y N	Y N
epidural	1 14	13 2	15 0
Non epidural	1 14	7 8	15 0

Table: 5
Ambulation

Ambulation	24 - 48 hrs	48 – 72 hrs	>72 hrs
	Y N	Y N	Y N
epidural	1 14	13 2	15 0
Non epidural	0 15	6 9	14 1

Table: 6
Post op discharge

Post op stay	AT 7 TH DAY		8- 10 DAY		>10 DAY	
	Y	N	Y	N	Y	N
epidural	8	7	14	1	15	0
Non epidural	2 13		9 6		15	0

Results :

In present study it is found that there is statistically significant lower Pulse rate in Gr. E patients than Gr. NE patients at 12hrs, 24hrs (p < 0.01) and 36hrs (p < 0.05) post operative period. We did not find any statistically significant difference in pulse rate at 48 hrs & 72hrs between two groups.

We found statistically significant lower Systolic Blood Pressure in Gr. E than Gr. NE at 12hrs and 24hrs (p < 0.05) but no significant change was found at 36hrs, 48hrs & 72hrs between them.

In terms of Respiratory rate we found that at 12hrs & 24hrs post operative period there was statistically significant lower Respiratory rate (p < 0.01) in Gr. E than Gr. NE.

Statistically significant difference exists between Gr. E and Gr. NE (p < 0.05) in the terms of oral feeding between 48-72hrs. We did not find any significant difference in oral feeding in 24-48hrs & > 72hrs between two groups.

We did able to ambulate much more patients of Gr. E than Gr. NE between 48-72 hrs and the difference is statistically significant (p < 0.01).

We able to discharge more number of patients from Gr. E than Gr. NE at 7th day & between 8-10 days and the difference is statistically significant (p < 0.01).

Discussion:

Surgery for hepatobiliary and pancreatic diseases are invariably time consuming, technically more demanding and associated with lots of morbidity in terms of pain, respiratory complications, ambulation , initiation of oral feeding and hospital stay.

The present clinical study was carried out to evaluate the effectiveness of epidural analgesia during post operative period in the patients undergoing hepatobiliary and pancreatic surgery and to detect untoward side effects if any.

In present study Gr. E patients received Thoracic epidural (at T 7-8 inter space) analgesia (10ml of 0.1% Bupivacaine + Morphine 3mg as a bolus dose 12 hourly) continued for 3days post operatively. The second group (Gr. NE) received inj diclofenac b.i.d + inj tramadol t.i.d postoperatively for the same duration.

There was a significant increased pulse rate in Gr. NE patients than Gr. E patients at 12hrs, 24hrs and 36hrs post operative period and also significantly increased Systolic blood pressure at 12hrs & 24hrs post operative period. This finding reflects that there was better pain control in Gr. E patients than that of Gr. NE patients. This finding corroborates with the finding of G. BARZOI, S. CARLUCCIO, B. BIANCHI, S. VASSIA, G. COLUCCI and G. L. MANGIANTE (10) who concluded that epidural anaesthesia is superior than i.v. morphine in hepatobiliary surgery.

Regarding respiratory function it was found that Gr. E patients having significantly lower respiratory rate than that of Gr. NE patients at 12hrs and 24hrs post operative period. Pneumonic changes in basal lung field in chest x-ray occurred in 2 patients in Gr. E and 10 patients in Gr. NE and the difference is statistically significant (p< 0.05). This finding corroborates with the findings of G. BARZOI, S. CARLUCCIO, B. BIANCHI, S. VASSIA, G. COLUCCI and G. L. MANGIANTE (10) who concluded that Epidural anaesthesia provides better respiratory function than perenteral analgesics during post operative period.

With regard to oral feeding and ambulation significantly more number of patients of Gr. E than Gr. NE started oral feeding and ambulation between 48-72hrs. This finding corroborates with the findings of G. Barzoi, S. Carluccio, B. Bianchi, S. Vassia, G. Colucci, and G. L. Mangiante (10); K. HOLTE, H. KEHLET(11) who conclude that epidural anesthesia provide early enteral feeding.

In the matter of number of days in hospital stay this study showed that significantly more numbers of patients of Gr. E than Gr. NE were discharged from hospital in first 10 days post operative period.

Conclusion:

This study revealed that Epidural anaesthesia in hepatobiliary surgery provides better outcome than parenteral analgesics in terms of pain control, respiratory functions, early institution of oral feeding and ambulation and lesser days of hospital stay.

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