BALANCING RISK AND RELIEF: THORACIC EPIDURAL USE IN LIVER TRANSPLANTATION

HENRY FORD HEALTH

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BACKGROUND

Patients usually spend one to three days in the intensive care unit following liver transplantion. Post-operative pain is typically described as moderate to severe in the first few days, particularly around the large incision site.

Targeted pain relief options after liver transplantation:
- Transversus abdominis plane block
- Abdominal wound catheter
- Thoracic epidural

Benefits of thoracic epidural:
- Superior pain control
- Helps in avoiding sedation and reducing pulmonary complications

Risks of thoracic epidural:
- Developing epidural hematoma in cirrhotic patients with impaired coagulation
- Higher rates of abscess and nerve injury are associated with chronic liver disease
- High risk of bleeding with liver transplant surgery which leads to coagulation factors loss and a decrease in platelets. This process further increases the possibility of epidural hematoma.

Risk of spinal hematoma following lumbar puncture among patients without coagulopathy	Risk of spinal hematoma following lumbar puncture among patients with coagulopathy
0.20%	0.23%

Bodilsen, et al (2020) JAMA (14):1419–1428

CASE PRESENTATION

- 21 years old male received a liver transplant due to liver disease.
- Past medical history is significant for X-linked erythropoietic protoporphyria complicated by hepatic cirrhosis and ascites as well as anemia, leukopenia, and thrombocytopenia.
- Other comorbidities included acute pancreatitis, dysuria, chronic and neuropathic pain.
- Patient is non-English speaking.



Spinal hematoma. Image supplied by nysora.inc

	Before Liver Transplant	Before Epidural Placement
Prothrombin Time	22.3 (normal: 11.5 – 14.5 sec)	15.8 (normal: 11.5 – 14.5 sec)
INR	1.97	1.26
PTT	31 (normal: 22 - 36 sec)	26 (normal: 22 -36 sec)

DISCUSSION

Three days after the surgery patient underwent an epidural catheter placement for post-operative pain management. Midline approach was used. Location was at T7-8.

Medications administered: 0.125% bupivacaine at 8 ml every 1 hour, then the rate was increased to 10 ml every 1 hour.

After the rate increase to 10 ml per hour, patient was satisfied with the pain level and was able to eat and ambulate.

Epidural was removed 6 days later. No epidural hematoma was noted.

CONCLUSIONS

- Thoracic epidural analgesia can be effectively used for postoperative pain management after liver transplantation. Research has shown that an epidural containing a local anesthetic, with or without the addition of an opioid, decreases pain after a major abdominal surgery and accelerates the return of gastrointestinal transit. The benefits of the epidural: it provides superior pain control compared to intravenous opioids, reduces the need for systemic opioids and helps in avoiding sedation and reducing pulmonary complications.
- An important consideration in liver transplant patients is hepatic coagulopathy-related increased risk of inducing epidural hematoma. Coagulation profile should be checked before epidural placement.
- Another consideration is that epidurals might cause urinary retention and a decreased urge to urinate, so a patient requires a urinary catheter while epidural is in place.

REFERENCES

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ACKNOWLEDGEMENTS

We thank Henry Ford Hospital Department of Anesthesiology for their guidance and support.