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The benefits of continuous epidural infusion of ropivacaine in acute pancreatitis

Submission date 27/09/2023	**Recruitment status** No longer recruiting	[X] Prospectively registered [_] Protocol
Registration date 29/09/2023	**Overall study status** Completed	[X] Statistical analysis plan [_] Results
Last Edited 14/01/2025	**Condition category** Digestive System	[_] Individual participant data [_] Record updated in last year

Plain English summary of protocol

Background and study aims
Acute pancreatitis (AP) is an inflammatory condition of the pancreas that can cause severe abdominal pain and other symptoms. Managing this pain effectively is crucial for patient comfort and recovery. Moreover, 20% of AP patients will develop a severe form with a mortality rate of 13 to 35%. Multiple organ failure is known to be the deadly complication of severe AP, such as respiratory failure, acute kidney injury and especially gastrointestinal failure. Epidural anesthesia (EA) is often used to control pain during surgery, and it has also been used to relieve pain in patients with AP. Furthermore, EA increased perfusion of the pancreas and improved the clinical outcome of patients with AP. The aim of this research is to test the effect of EA on multiple organ failure improvement and pain reduction in severe and predicted severe AP.

Who can participate?
Patients aged 18 years old and over with a diagnosis of AP

What does the study involve?
Participants will be required to attend 5 visits in the first 5 days in the Center for Critical Care Medicine – Bach Mai Hospital, with the remaining 2 visits being remote and taking place either over the telephone or by using information from your medical records (7 visits in total). The 2 remote visits will take place on the 30th day and the 60th day. Participants will not be required to visit the hospital any more than they normally would.

What are the possible benefits and risks of participating?
The possible benefit of participation is effective pain management following epidural analgesia with ropivacaine, which is a local anesthetic that is often used for epidural analgesia. Ropivacaine is safe and effective.

The possible risks from participation include:
1. Procedure-related risks: complications of epidural catheter insert (bleeding complications)
2. Ropivacaine-related risks: anaphylaxis, local anesthetic systemic toxicity

Minimizing Risks:
1. Procedure-related risks: The procedure is performed by anesthesiologists and a coagulation

test will be performed before inserting epidural catheter.
2. Ropivacaine-related risks: exclude patients who have history of anaphylaxis and local anesthetic systemic toxicity. All patients will be followed in the Center for Critical Care Medicine – Bach Mai Hospital for at least 5 days.
3. Unknown risks: All patients will be followed to the Center for Critical Care Medicine – Bach Mai Hospital for at least 5 days.

Informed Consent:
1. The decision to participate in the clinical trial begins with informed consent.
2. All potential participants will be explained the risks and benefits of participating in study before to providing initial consent.

Where is the study run from?
Hanoi Medical University (Viet Nam)

When is the study starting and how long is it expected to run for?
December 2022 to December 2025

Who is funding the study?
Bch Mai Hospital (Viet Nam)

Who is the main contact?
Dr Van Huy Nguyen, nguyenhuy@hmu.edu.vn (Viet Nam)

Contact information

Type(s)
Public, Scientific, Principal investigator

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Additional identifiers

Clinical Trials Information System (CTIS)
Nil known

Protocol serial number
1.0

Study information

Scientific Title
Evaluating the effectiveness for pain reduction and organ failure improvement of continuous ropivacaine infusion via epidural catheter in acute pancreatitis

Acronym
VNEPIPAN-HMUIRB869

Study objectives
Continuous epidural infusion of ropivacaine in acute pancreatitis reduces pain and organs failure more than intravenous of fentanyl.

Ethics approval required
Ethics approval required

Ethics approval(s)
approved 01/08/2023, Hanoi Medical University Institutional Ethical Review Board (HMU IRB) (No 1, Ton That Tung Street, Dong Da, Hanoi, 100000, Viet Nam; +84 24 388 527 622; irb@hmu.edu.vn), ref: 869

Study design
Single-center interventional open-label randomized controlled trial

Primary study design
Interventional

Study type(s)
Treatment

Health condition(s) or problem(s) studied
Severe and predicted severe acute pancreatitis

Interventions
VNEPIPAN-HMUIBR968 (The benefits of continuous EPIdural infusion of ropivacaine in acute PANcreatitis) study
In the interventional group, thoracic epidural analgesia will be performed using ropivacaine 0,1% with a continuous infusion rate of 5 to 10 mL/h, through continuous infusion via thoracic catheter. It is placed in an intervertebral space between the 8th and the 11th thoracic vertebra. In both groups, conventional analgesia will be included in enteral and/or parenteral administration according to the WHO analgesics ladder (including paracetamol, nefopam, tramadol, and opioids). The route, dose, and frequency of analgesic administrations will be based on clinical doctors of the Center for Critical Care Medicine – Bach Mai Hospital. Analgesia goals are the same in the two groups, with regular evaluation of pain every 4 hours and during routine daily nursing care.
The other treatments will be managed by attending physicians, which include fluid resuscitation, correction of electrolyte balance and acid-base balance, etiological treatment, early enteral nutrition and early mobilization, when possible, diagnosis and treatment of complications. Continuous epidural infusion of ropivacaine in acute pancreatitis may result in pain reduction and organ failure improvement, which may lead to improvement in the outcome of acute pancreatitis.
The intervention group received a continuous epidural infusion of ropivacaine during the first 3 - 5 days at the Center for Critical Care Medicine – Bach Mai Hospital (CCCM-BMH). All other care will be usual practice. Precise details of both intervention content and the training program can be found at (https://1drv.ms/f/s!AjNnyA_Zx7A3g8Zku986BWbogLc0rw? e=ChXr3h, Password: VNEPIPANIRB968)
Epidural catheter placement is a routine in CCCM-BMH, using existing skills. Anaesthetists who are trained will do it during the study to recruit to the study.
The study was designed to be inclusive of 5 visits (daily in CCCM-BMH) and 1 summative assessment (medical reports and/or telephone call).
The continuous epidural infusion of the ropivacaine technique can be performed in the CCCM-BMH.
The continuous epidural infusion of the ropivacaine technique can be performed during the first 3 days. After that, If the patient is still in moderate or severe pain, the intervention will continue for 2 more days.

Adherence to trial protocol was assessed by the number of days the patient received intervention. These data were categorized as incomplete (< 3 days) and complete (at least 3 days).

Intervention Type
Procedure/Surgery

Primary outcome(s)
1. Pain is measured using the Behavioral Pain Scale (BPS) at admission, 0.5, 4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 44, 48, 52, 56, 60, 64, 68, 72, 76, 80, 84, 88, 92, 96, 100, 104, 108, 112, 116, and 120 hours
2. ICU mortality measured using the Sequential Organ Failure Assessment (SOFA) Scores at admission day 1 (D1), day 2 (D2), day 3 (D3), day 4 (D4), day 5 (D5): mean and maximum SOFA score of first 5 days in Center for Critical Care Medicine
3. Gastrointestinal failure during the ICU stay measured using the Gastrointestinal Failure Score (GIF) at admission day 1 (D1), day 2 (D2), day 3 (D3), day 4 (D4), day 5 (D5): mean GIF scores for the first 5 days

Key secondary outcome(s))
1. Pain is measured using a Visual Analogue Scale (VAS) at admission, 0.5, 4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 44, 48, 52, 56, 60, 64, 68, 72, 76, 80, 84, 88, 92, 96, 100, 104, 108, 112, 116, and 120 hours
2. Mortality rate measured using patient records at day 60
3. Intubation rate measured using patient records at day 30
4. Number of ventilator-free days measured using patient records from randomization to day 30
5. CT Severity Index (CTSI) measured using enhanced CT scanning at 72 hours after Center for Critical Care Medicine admission.

Completion date
09/12/2025

Eligibility

Key inclusion criteria
1. Aged ≥ 18 years.
2. Diagnosis of acute pancreatitis required two of the following three features, as per the revised Atlanta definition: abdominal pain consistent with acute pancreatitis, serum lipase activity at least three times greater than the upper limit of normal, and characteristic findings of acute pancreatitis on contrast-enhanced computed tomography.
3. Onset ≤ 72 h.
4. Pain moderate or severe with visual analog pain scale (VAS) ≥ 4 in consciousness patients or behavioral pain scale (BPS) ≥ 7 in unconsciousness patients.
5. Classification is severe acute pancreatitis (modified Marshall score ≥ 2 on admission) OR predicted severe (at least one of criteria: (1) Ranson's Criteria ≥ 2 points; (2) CRP level > 100 mg /L; (3) Pancreatic necrosis on contrast-enhanced computed tomography.

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Mixed

Lower age limit
18 years

Sex
All

Key exclusion criteria
Patients fulfilling one or more of the following criteria were not included:
1. Prothrombin time<60%, platelet count<75 G/L, curative anticoagulant therapy with heparin interrupted for less than 8 h
2. Local infection
3. Failed procedure
4. Anaphylaxis history with ropivacaine, lidocaine, ropivacaine
5. Local anesthetic systemic toxicity history
6. Pregnancy

Date of first enrolment
01/10/2023

Date of final enrolment
01/08/2025

Locations

Countries of recruitment
Viet Nam

Study participating centre
Bach Mai Hospital
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Sponsor information

Organisation
Bch Mai Hospital

ROR
https://ror.org/05ecec111

Funder(s)

Funder type
Hospital/treatment centre

Funder Name
Bch Mai Hospital

Results and Publications

Individual participant data (IPD) sharing plan
The datasets generated and/or analyzed during the study will be published as a supplement to the results publication.

IPD sharing plan summary
Published as a supplement to the results publication, Not expected to be made available

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Statistical Analysis Plan		16/10/2023	16/10/2023	No	No