Minnesota Tube Nursing Care Bundle

An intervention to enhance nursing comfort and patient safety.

Introduction

- Esophageal and gastric bleeds can be massive.
- There are many techniques to stabilize the patient.
  - Medications
  - Endoscopy
  - IR
  - Minnesota Tube

Pathophysiology

- Portal vein feeds the liver
- Hepatic vein carries blood from the liver to the inferior vena cava
- ETOH damages the liver causing cirrhosis
- Collateral circulation is formed to compensate for the liver disease
- Portal HTN causes varices
- Varices develop in esophagus, stomach, rectum and umbilical regions
- Hemorrhage of varices

The big bleed

- Treatments
  - Pharmaceuticals
    - Octreotide
    - Vasopressin
    - Nexium
  - Endoscopy
  - Banding
  - Injections
  - Surgery
    - IR
    - TIPS procedure

- When all else fails
  - Tamponade
  - Minnesota tube
  - Sengstaken Blakemore tube
Indications and Contraindications

• **Indications**
  ▫ Esophageal varices
  ▫ Gastric varices

• **Contra Indications**
  ▫ **Absolutes**
    ▪ Bleeding has stopped
    ▪ Recent surgery of EG junction
    ▪ Known esophageal stricture
  ▫ **Relatives**
    ▪ Inadequately prepared staff
    ▪ Improper equipment
    ▪ CHF
    ▪ Hiatal hernia
    ▪ Unidentified source of bleeding

Minnesota vs Sengstaken Blakemore

• **Minnesota**
  ▫ 4 lumens
  ▫ Radiograph-opaque rubber
  ▫ 41 inches long
  ▫ #8F
  ▫ Fairly stiff and strong material

Minnesote vs Sengstaken Blakemore

• **Sengstaken Blakemore**
  ▫ Does not have esophageal suction port
  ▫ Must insert OGT to suction esophagus
  ▫ Not as stiff as MN tube
  ▫ More delicate for clamps

Side by side comparison

Supply needed

• **Minnesota Tube**
• Intubation tray (if not already intubated)
• 2 wall suction setups
• Yankauer
• Manometer
• 60cc cath tip syringe
• 4 way stopcock
• 2-4 hemostats – padded
• Topical anesthetic
• Water soluble lubricant
• Football helmet or over bed traction
• Tape
• Permanent Marker
• Scissors
• Catheter Adapter for manometer set up
• Ice bath (basin or graduated cylinder full of ice and water)

Minnesota tube GRAB BAG

• All supplies needed
• Laminated card with diagrams
• Laminated copy of P&P
• Laminated card with supplies needed to replenish bag
Prior to insertion

- Gather and prepare all supplies
- Record pressure of inflated balloons
- Ensure suction is adequate
- Tape scissors to head of bed
- Prepare football helmet or over bed traction

Tube Placement
performed by GI MD or skilled Internist
assisted by RN

- Pass tube through nare or mouth to 50cm mark
- Inflated gastric balloon with 50-100ml air
- Check X-ray to confirm placement
- Apply suction to gastric and esophageal ports
- Inflate to 300-500ml air once placement is confirmed
- Secure tube to football helmet or traction
- Consider a second X-ray if placement is uncertain

RN Role

- Assist with preparation and insertion
- Record all pressures and position
- Monitor patient
- Assess skin: insertion site and around football helmet
- Monitor suction
- Correctly label ports
- Irrigate often to maintain patency
- Watch for signs of migration
- Monitor for continued bleeding

Continued bleeding despite gastric balloon inflation - what next?

- Consider filling esophageal balloon
  - Balloon can increase risk of esophageal rupture
- Inflate to lowest pressure needed to stop bleeding to max of 45mmHg
- Confirm placement again with X-ray
- Titrate down pressure once hemostasis occurs
- Maintain 25mmHg for 12-24hrs

RN role

- Monitor for bleeding
- Monitor esophageal balloon pressure every 2 hrs
- Oral care
- Keep HOB>30 degrees
- Monitor mucous membranes for necrosis
Documentation

- Pressures of gastric balloon from 100ml air to 500ml air in 100ml increments prior to insertion
- Date and time of tube insertion
- Amount of air used to fill gastric balloon
- Pressure of esophageal balloon and any titration of pressure
- Placement marking of tube

Complications

- Aspiration PNA
- Airway obstruction
- Esophageal ulceration or rupture
- Mucosal membrane breakdown
- Inflation of balloon outside of stomach

In case of emergency...

- Tube migration is considered an emergency
  - It is imperative that tube is removed immediately if it has migrated
  - Grasp tube at mouth and cut below ports – this will deflate all balloons immediately so tube can be removed
- This is the reason we keep scissors at the HOB

When to discontinue tube?

- Gastric balloon deflated 24-48hrs after hemostasis
- Monitor for signs of rebleed then discontinue tube
- Ensure balloons are completely deflated prior to discontinuation
- MD to consider endoscopy after tube removal

What are your resources?

- Policy and Procedure
- GI MD
- Grab Bag
- Education Material in the Charge Nurse Book

Bibliography

Bibliography of Images and videos


