



## May 28 – Interprofessional SIM Clinical Debrief

### Case 1- Massive Variceal Bleed Secondary to Liver Cirrhosis

- Call for massive transfusion protocol as early as possible
- Rapid infuser/Ranger
  - o Cannot use tibial IO
  - o Need to use at least an 18-gauge catheter
  - o Can use humeral IO
  - o Optimal line is a Cordis (large central line)
- Resuscitate before intubate if time permits
- Target PERMISSIVE HYPOTENSION (MAP 50, Systolic 90)
- When intubating, consider 45-degree angle to minimize pooling of blood in oropharynx
- Ready push dose vasopressors prior to intubation for possible post-induction hypotension. However, ensure LIMITED use of vasopressors and discontinue them ASAP as blood is more important in this case
- Consider Blakemore if patient is rapidly decompensating despite blood transfusions and/or if there will be delay to general surgery arrival
- Blakemore Technique...

### **“50-50-CXR-250-Traction-CXR”- Dr. Nick Federman**

- 1) Insert the tube through the mouth to a depth of 50 cm
- 2) Confirm that tube is in the stomach (e.g. gastric contents via gastric port).
- 3) Inflate the gastric balloon with 50 ml of air.
- 4) Confirm placement within the stomach using X-ray
- 5) Inflate the gastric balloon with 200 ml of additional air for a total volume of 250 ml
- 6) Put traction on the tube (using either a pulley system plus a liter bag of saline or by attaching it to the ETT securement device)

7) Start by inflating *only* the gastric balloon to avoid esophageal ischemia. With traction, this may occlude veins which are feeding the esophageal varices.

8) If bleeding persists, inflate the esophageal balloon to 30 mm. If bleeding is controlled, try gradually reducing pressure in the esophageal balloon promptly to avoid esophageal necrosis.

- Additional points

- Ceftriaxone- very important in cirrhotic patients with GI bleeding as this has mortality benefit
- Octreotide- evidence is scarce but no harm
- Give calcium for each “round” of massive transfusion protocol (per 4 PRBC’s)
- Manage temperature—AVOID hyper and hypothermia especially in bleeding patients
- TXA- trial shows no benefit, possibly some signal of harm with increased pulmonary embolisms
- CONSIDER NG placement prior to intubation

## Case 2- Calcium Channel Blocker Overdose

- There are two types of calcium channel blockers
  - o Non-dihydropyridines (i.e. diltiazem) – have significant negative inotropic effect (causing reduced cardiac output) IN ADDITION to peripheral vasodilation
  - o Dihydropyridines (i.e. amlodipine)—have little negative inotropic effects and more peripheral vasodilatory effects
- Consider activated charcoal 1-2 hours after ANY ingestion, especially of this. Only time this does not work is with heavy metals, inorganic ions (lithium, potassium, sodium, etc), hydrocarbons, toxic alcohols and organophosphates
- Consider whole-bowel irrigation as well for this case
- Gastric lavage is an option however DO NOT intubate patient JUST TO PERFORM THIS. In some circles gastric lavage in general is discouraged as vagal stimulation during lavage of the stomach may worsen bradycardia and hypotension.
- Appropriate approach to calcium channel blocker overdose
  - o There are multiple suggestions (as per pre-reading)
  - o Primary approach is...
    - Calcium administration (Ca Gluconate better, as Chloride can cause necrosis if given peripherally)
    - 20 cc/kg bolus of fluids
    - Atropine and potentially pacer – though these are often not successful
    - Vasopressors (depending on type of shock – i.e. cardiogenic vs distributive). However, norepinephrine still recommended as first line as does have alpha and beta agonism. This is followed by epinephrine. REMEMBER, THERE IS NO MAX DOSE. If significant hypotension, don't be afraid to start these at 10 mcg/min or higher
    - If STILL hemodynamically unstable, give high dose insulin
- High-dose insulin
  - Acts as a positive inotrope at high doses
  - 1 u/kg bolus followed by 0.5 u/kg/hr titrated to hemodynamic targets every 30 minutes OR LESS, to a maximum of 10 u/kg/hr
    - Hemodynamic targets are systolic BP of > 90, HR > 60, improvement in mental status
  - General suggestion is to give 1 amp of D50 or D25 before initiation, unless glucose is > 22
  - Varied suggestions around glucose infusion → some say glucose infusion is not needed, some say give 2-3x maintenance dose of D10. Generally, glucose checks every 20-30 minutes for the first hour. Potassium checks every 1 hour or so
  - Don't forget to call poison control!
- Appropriate RSI technique for hemodynamically unstable patient

- RESUSCITATE BEFORE INTUBATE
  - Use HALF dose induction agent, ideally ketamine, with high dose rocuronium given poor perfusion. Even at half doses of ketamine (which is a relatively hemodynamically neutral drug at baseline), sympathetic drive will be blunted and cause worsened hemodynamics
  - Prepare PUSH DOSE vasopressors prior to intubation, such as phenylephrine or epinephrine. HOWEVER, be cautious with phenylephrine it is a pure alpha agonist and MAY CAUSE REFLEX BRADYCARDIA in this case. Push dose epinephrine is likely better here as it will have alpha and beta-1 agonism
- How do you make push-dose epinephrine?
- Take 1 cc of crash cart epi (1:10000) which is 100 mcg/ml, and mix with 9 cc of N/S in a 10 cc syringe
    - You now have 10 mcg/ml
- Other treatments to consider include
- ECMO → consider just giving UH a cardiothoracic surgery call if patient already requiring vasopressors.
  - Intralipid → this is another option but would wait until poison control gives the go-ahead