Acute Bleeding

OB Lecture 9/30/2015
By: Jim
What is Truth

How do “I” approach this topic

- What is evidence-based medicine? What is the evidence for evidence-based medicine?
- Are we trained differently?
- What has changed over the years?
  - Transfusion Trigger – Thank you Jehovah Witness
  - Plt usage – what are safe levels
  - Pre and post-op management
Case Study

- A 32 yo G1P0 presents at 39 weeks gestation to the Labor and Delivery Unit for a scheduled induction. She is 5'6” and weighs 181 lbs.
- PMH: none
- Meds: prenatal vitamin
- PSH: none
- Airway: MP II, 2 finger breaths, good neck ROM
- Labs: Hemoglobin 11.0, platelets 187
- Lines: 18g PIV
- Her pregnancy has been complicated by polyhydramnios. She had an epidural placed early in labor and is functioning well. Oxytocin was used to augment labor. 24 hours after patient arrival, the obstetrician makes the decision to proceed with a cesarean section.
Back to the Shark!!!

Is this patient at risk for post partum hemorrhage?
- Should she have been Typed and Screened or Typed and Crossed?
- How long should you wait?
- Who/What should be Crossed?
Perfusion of Tissue Issue

- How does the parturient handle these issues?
- Anemia, hypovolemia, or good quality anesthesia causes vital sign abnormality
- Acute or Chronic Anemia: how should we treat
- Oxygen Consumption: what can we do to lower this
First Set of Labs

BP 65/30 HR 135
HGB 9
PLT 120
Fib 150
INR 1.0

BP 80/45 HR 110
HGB 6
PLT 55
Fib 50
INR 1.6
Shark!

Resuscitation

- Colloid (Solution with high molecular weight)
  - Higher incidence of anaphylactic/toid and coagulopathy
  - Human Albumin
  - Dextran
  - Starches

- Crystalloid
  - Normal Saline – Isotonic, but large quantities cause hyperchloremic metabolic acidosis
  - Lactated Ringers – Liver converts Lactate to Bicarb/glycogen
  - Hypertonic Saline?
  - Hypotonic solutions - NOOOOOoooooo
Chum

“Get the French out of your mouth and tell me what to do!”

What do I transfuse?

- **PRBC** – 1 unit = 300 ml with a HCT of 70%
- **PLT** – 1 unit increases plt count by about 10,000
  - Single unit is from a single-donor whole-blood unit so multiple units will increase exposure
  - Six pack is derived from a single donor via apheresis, so one six pack is a single-donor exposure
- **FFP** – contains all factors especially labile F V and VIII
- **Cryoprecipitate** – F VIII, vonWillebrand, fibrinogen, F XIII
We’re gonna need a bigger boat!
Risks of Transfusion

- Human Error
- Infection:
  - HIV: 1 in 2 million
  - Hep B: 1 in 205,000
  - Hep C: 1 in 2 million
- Hemolytic: Acute or Delayed
- Allergic: mild or (rarely) serious
- Febrile transfusion reaction
- Transfusion-related acute lung injury
  - Usually develops 1 – 6 hrs later
How to Avoid Risks

- Change your trigger
- Volume resuscitate
- Antifibrinolytic
  - TXA
  - Aminocaproic acid
- Cell Saver
  - Risk/Benefit
    - Separate suction required
    - Requires a large amount of blood to be filtered
- IV Iron/erythropoietin
- Hemodilution (This has already been done with normal pregnancy)
- Autologous donation
Hemorrhagic Shock

- Shocker, it’s all about tissue Perfusion and Oxygenation!
- Leads to acidosis and cell death
- Release of inflammatory agents leads to SIRS/ARDS
## Stages of Hemorrhagic Shock

<table>
<thead>
<tr>
<th>Stage</th>
<th>Compensated</th>
<th>Mild</th>
<th>Moderate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood Loss</td>
<td>&lt; 1000</td>
<td>1000-1500</td>
<td>1500-2000</td>
</tr>
<tr>
<td>Heart Rate</td>
<td>&gt; 100</td>
<td>&gt; 100</td>
<td>&gt; 120</td>
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<tr>
<td>BP</td>
<td>Orthostatic</td>
<td>Marked Fall</td>
<td>Profound Fall</td>
</tr>
<tr>
<td>UOP</td>
<td>&gt; 30</td>
<td>20-30</td>
<td>5-20</td>
</tr>
<tr>
<td>Respiration</td>
<td>NL</td>
<td>Mild Increase</td>
<td>Tachypnea</td>
</tr>
<tr>
<td>Mental Status</td>
<td>NL</td>
<td>agitated</td>
<td>Confused</td>
</tr>
<tr>
<td>Lethargic/Obtunded</td>
<td></td>
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</tbody>
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Pearls of Wisdom

- HGB values in acute bleeding will be normal until you volume resuscitate
- Volume resuscitate!!!!!!!!!!!!
- Don’t forget about Calcium replacement when blood pressures don’t respond to medication
- Consider what is a safe level for each individual scenario
- Get to know your local blood bank and work as a team