

- **For CTA, you need to give iodinated contrast.** Our knowledge of the safety of a single dose of IV contrast comes from the pulmonary embolism literature.
- Bourjeily, G et al. **Neonatal thyroid function: effect of a single exposure to iodinated contrast medium in utero.** *Radiology*. 2010 Sep;256(3):744-50.
- Among several hundred infants exposed to a single dose of contrast in utero, there was only one infant that had transiently abnormal thyroid function tests and normalized within a week.

#### CASE

**A woman who is 6 months pregnant presents with new onset hemiparesis. CT and CTA does not show abnormalities such as bleed, dissection, large vessel occlusion, or visible stroke. It has been two hours since symptom onset. What do you do? Do you give tPA?**

- **There are no guidelines.** There is some data available. We need to counsel patients on theoretical risks.
- **Does tPA cross the placenta?** No. tPA is a large molecule that does not cross the placenta.
- Depending on the stage of pregnancy, there is a lot of blood going to the placenta. There are case reports of uterine bleeding or rupture with thrombolytics. This data includes tPA for all indications not just stroke. The major bleeding risk is a little lower for stroke than these other disorders.
- We need to consider the risks and severity of symptoms. tPA will be out of the system in 24 hours but hemiparesis has high morbidity. Shared decision making should occur.
- **What if there was a large vessel occlusion on CT?** Should you proceed straight to IR? There is less data than thrombolytics. There are a handful of case reports. Interventionalists often have to give heparin or IIb/IIIa inhibitors to prevent peri-procedural thrombosis. There is a risk of vessel perforation or rupture. We need to consider all of these factors.

#### CASE

**A pregnant patient with stroke was taken for mechanical thrombectomy that was unsuccessful so they placed a stent. The patient did well and had full neurologic recovery. She had to take clopidogrel subsequently but developed an allergy. She then had to start a IIb/IIIa inhibitor. What do you do for delivery?**

- The OB/GYN, maternal fetal medicine, anesthesia, and neurology services all worked together to develop a plan. They used a short-acting blood thinner at the time of delivery. Although you are focused on the patient at the time of treat-

ment, you need to consider the future course as well.

#### CASE

**A patient who is 6 months pregnant presents with non-dominant hand clumsiness. CT and CTA are negative. Everyone decides not to proceed with tPA after an assessment of risks and benefits. How is the patient treated?**

- **Full dose aspirin is contraindicated in pregnancy but 81 mg of aspirin is often used.** 81 mg is often used as prevention in patients who are at high risk for preeclampsia.
- **Anticoagulation.** Outside of pregnancy, anticoagulation is usually only used as secondary stroke prevention in patients with atrial fibrillation, mechanical valves or venous stroke. Anticoagulation is used for both arterial and venous thromboembolic disease in pregnancy. Dr. Roth and her neurology colleagues are more likely to anticoagulate a pregnant patient, but most patients are given baby aspirin for secondary stroke prevention, and this is what is supported by most practice guidelines.

#### Related Material

[EM:RAP 2015 January: The LIN Session: tPA in Pregnancy](#)

## No Spleen, Big Problems

Anand Swaminathan, MD and Isaac Bogoch, MD

#### Take Home Points

- **Asplenic patients are at higher risk of bacterial infections with encapsulated organisms.**
- **Ask about vaccination status in asplenic patients.**
- **Have a low threshold to admit febrile asplenic patients and make sure they have very close follow-up if discharged.**
- **In the March 2018 introduction, we discussed a patient who was diagnosed with pneumonia and discharged home on appropriate antibiotics.** The patient returned a day later and was much sicker. The patient had a history of surgical splenectomy.
- **Asplenic patients are at a higher risk of certain bacterial infections such as encapsulated organisms like *Pneumococcus*, *Meningococcus* and *Hemophilus influenzae* type B. Thus they can decompensate quickly.** This is because the spleen contains macrophages which remove bacteria.
- **Recommendations for vaccinations differ for asplenic patients.** Patients should receive the 13-valent conjugated pneumococcal vaccine followed by the 23-valent polysaccharide pneumococcal vaccine approximately 8 weeks later. Patients

should receive the quadrivalent meningococcal vaccine covering strains A, C, W and Y. They should also receive the meningococcal serogroup B vaccine, as well as the Hemophilus influenzae type B vaccine.

- **How often do asplenic patients need to update their vaccines?** They should receive the 23-valent polysaccharide vaccine and the quadrivalent vaccine for meningococcus every 5 years. There may be some variation in these recommendations depending on the country.
- **Ask the patient if they have had the appropriate vaccinations within the last 5 years.**
- **Prophylactic antibiotics.** There is a wide range of practice regarding prophylactic antibiotics. It depends on risk to the individual for infection, practice patterns, and comfort level of the practitioner. Some patients may have a pill-in-pocket approach with recommendations to take the antibiotic if they have a fever or feel unwell.
- **The patient in the case was non-toxic and febrile with a right lower lobe infiltrate. They were discharged on levofloxacin.** The patient decompensated rapidly and returned with severe sepsis. What was missed?
  - They had the right diagnosis, the right antibiotic was given, and the right tests were performed. The case just highlights the significance of asplenia. Even if the patient appears fine, they have the ability to deteriorate rapidly.
- **Rubin, Lorry et al. Clinical practice. Care of the asplenic patient.** N Engl J Med. 2014 Jul 24;371(4):349-56.
  - The article recommended obtaining cultures and starting broad-spectrum antibiotics. This recommendation generated a lot of listener feedback. Have a low threshold to admit these patients. Respect asplenia.
- **What should you do if you cannot find a source?** You will still get cultures and start broad-spectrum antibiotics and keep them until there is a clear indication that they aren't deteriorating.
- **We see patients with surgical splenectomy such as after trauma. Patients with sickle cell disease may have auto-splenectomy. Does the management of these patients differ?** No. They still have the same risk of developing severe infection due to encapsulated organisms.
- **Education of asplenic patients is important.** Remind them that the need for vaccination is lifelong and find out when their last vaccinations were. They should have a medic-alert bracelet or card in their wallet in case of emergency.

## Related Material

[EM:RAP 2018 April: Pediatric Pearls: Sickle Cell in Kids: An Update](#)

[EM:RAP 2016 November: Paper Chase 3: Respecting the Spleen](#)

## Rick's Rants: Crisis Standards of Care

Rick Bukata, MD

### Take Home Points

- **An overwhelmed healthcare system may lead to rationing care and crisis standards of care.**
- **We need an evidence-based and consistent federal and state-based approach to future pandemics.**
- **An article entitled "Arizona's plan to ration care was avoidable" was published in the July 1 issue of the Los Angeles Times.** Wasn't flattening the curve supposed to eliminate rationing of care? It appeared that flattening the curve only delayed the inevitable. The majority of the citizenry has determined that we have been on lockdown long enough despite cases of COVID skyrocketing. Lines stretch around the block for Disneyland, restaurants are packed in some areas, and cars are filling the streets.
- **In July, hospitals were close to maximum capacity and numbers continue increasing.**
- **The article reported that the state of Arizona had activated a rule book for rationing care.** It indicated that hospitals could deny critical healthcare resources such as ventilators to patients based on medical judgment about likelihood of survival. Under the rules, doctors making triage decisions that deprive patients of necessary care will be immune from legal liability.
- **Crisis standards of care are not isolated to Arizona.** Many states allowed premature opening of bars and restaurants or half-heartedly supported mask wearing. This is a respiratory virus. Aren't masks reasonable? What is the big deal about wearing a mask when in proximity to others in public?
- **The push to re-open the economy prevailed and resulted in a flare of new viral cases.** Bukata's SOFA score isn't likely to be great by the time he hits the ED. The richest country on the planet that spends the most on healthcare is at a point where we can't care for some patients. Most likely, it will be the oldest, most vulnerable patients.
- **What about the frontline workers?** Being in the ED day after day, shuffling around in stifling masks and clothing. It wears you down. How did this happen?
- **This crisis called for enlightened leadership and plenty of resources.** Instead, state governors are calling the shots on closures. Some were assiduous and cautious in mandates, others were clueless. Some had strict stay-at-home orders and others opened non-essential businesses. Our response was inconsistent and often half-hearted.