Cardiology Corner: Clinical Conundrums

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- Clinical Question 1: How do we prioritize care in a patient who presents with both an ischemic stroke and an ST elevation myocardial infarction (STEMI)?
  - Case: 56-year-old woman with left-sided weakness and slurred speech starting 45 minutes ago. She also complains of chest pain.
    - ECG shows ST elevations in I, aVL, and V5-6.
    - Noncontrast head computed tomography (CT) scan is unremarkable.
  - It is important to rule out aortic dissection as you have the classic "chest pain plus" syndrome (in this case, chest pain + stroke). CT angiogram (CTA) is unremarkable in this patient.
  - Challenges in this scenario:
    - Acute cardiac syndrome can induce stroke symptoms secondary to malperfusion of the brain.
    - Acute ischemic stroke (and other intracranial processes) can induce ST elevation changes in the ECG.
    - Patients can also rarely have simultaneous thrombotic occlusion of a coronary vessel and cerebral vessel (true acute coronary occlusion and ischemic stroke). This is what happened in the example patient.
  - Option 1: Treat MI first.
    - The challenge here is that antiplatelet and anticoagulant agents increase the risk of hemorrhagic conversion.
    - Thrombolytics: the dose for MI is larger than that for stroke. A larger dose may increase the risk of hemorrhagic conversion. With a smaller dose, reperfusion of coronary occlusion is more likely to fail.
  - Option 2 (American Heart Association and American Stroke Association [AHA/ASA] recommendation): Give stroke-dose lytics followed by percutaneous cardiac intervention (PCI).
  - Best approach is to consult the neurology/stroke team and cardiology to help guide management. In the absence of those teams, the AHA/ASA approach is reasonable.
- Clinical Question 2: In a patient with STEMI pattern on ECG and symptoms concerning for dissection, should we get a CTA of the aorta before going to the cath lab?
  - Challenge: CTA will delay PCI (time is heart) and you will be giving the patient an extra load of contrast.
  - It is well established that dissections can cause ST elevations via dissection proximally into the coronary vessels (right coronary artery [RCA] is most common).

        - Rare: For every 1,400-1,500 cases of ST elevation on ECG, 1 case will be due to dissection.
    - If the patient has symptoms that are significantly concerning for dissection (severe/maximal/abrupt onset of pain, “chest pain plus” syndrome, physical exam finding), obtaining a CTA first is reasonable. Otherwise, proceed to PCI.
    - Another option is to discuss with your interventional cardiology team that you are concerned about dissection and hold the antiplatelet agents; the cardiologist can perform an aortogram before PCI.

Critical Care Mailbag: Neurocritical Intubation

Anand Swaminathan and Scott Weingart

- The true neurocritical intubation is not designed for the patient presenting with acute head trauma and obtundation. That patient needs immediate airway intervention that shouldn’t be delayed.
- The true neurocritical intubation approach is designed for the patient with intracranial pathology and increased intracranial pressure (ICP) who is now deteriorating (eg, aneurysmal subarachnoid hemorrhage, hemorrhagic stroke).
- The challenge: Spiking the ICP in a patient with increased ICP can lead to a rapid decline and death. The intubation approach is designed to minimize elevations in ICP.
- Nonpharmacologic considerations:
    - The longer the intubation, the more likely it is that ICP will spike.
    - Minimize pressure on the posterior pharyngeal structures (pressure to this area causes reflex spikes in ICP).
    - Weingart recommends a skilled laryngoscopist with a video laryngoscope (minimizes lifting + thus pressure on the posterior structures).
    - Maximally pre-oxygenate as even mild hypoxia can be deleterious.
- Blood pressure control
    - Target a systolic BP <140 mm Hg before attempts at intubation.
    - Ideal agents are clevidipine or nicardipine.
    - If the patient is normotensive before laryngoscopy, have antihypertensives ready in case BP spikes during intubation.
- Premedication for laryngoscopy:
    - Parenteral lidocaine is unlikely to have any significant effect in mitigating or blunting the reflex response to laryngoscopy. Topical lidocaine may blunt the reflex response but will often cause coughing during application, which can spike ICP.
    - Fentanyl