OhioHealth Emergency Medical Services Podcast Series
September 2020 Episode: Strokes

Objectives:

1. Review types of strokes and how they are categorized.
2. Describe prehospital stroke recognition and assessment.
3. Discuss essential steps in prehospital stroke management.
4. Describe definitive care for ischemic strokes.
5. Review important considerations for determining most appropriate destinations for stroke patients.

Podcasters

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Session 1

- Case Presentation: 53 YF with Right Arm and Leg Weakness, and Slurred Speech
- Think of a stroke as a brain attack. An area of brain is not receiving appropriate blood flow which leads to ischemia and dysfunction.
- Stroke Classifications
    - Ischemia (most common) vs. Hemorrhage
        - Ischemic strokes are caused by clots in brain blood vessels
        - Hemorrhagic strokes are caused by bleeding around or in brain tissue
    - Large Vessel vs. Small Vessel
        - Large: big artery, big clot, big deficit
    - Anterior vs. Posterior
        - Different areas of the brain control different functions for the body
        - The anterior (front) part of the brain has a different blood supply than the posterior (back) part of the brain
    - Transient Ischemia Attacks
        - The is a stroke but symptoms resolve
        - A TIA is just as serious as a stroke
    - Bottom Line: stroke occurs when an area of the brain is injured
- Consider several stroke mimics. Obtain a blood glucose level on all potential stroke patients. Error on the side of caution; ruling out a stroke typically requires an extensive work up
- Prehospital Stroke Assessment
    - Perform a stroke screen to assist in picking up strokes
    - It is becoming more common to perform a prehospital stroke severity score which may increase early detection of large vessel occlusion strokes
- Prehospital Stroke Interventions

- Scene management is important. Try to limit scene time as much as possible. This helps reduce time to definitive care.
- Notify the receiving facility as soon as possible. This helps mobilize hospital resources.
- Support airway, breathing and circulation. Not all stroke patients need oxygen.
- Check blood glucose level and manage accordingly
- Record past medical history, medications and time when last seen normal
    - In some circumstances, intervention may be performed up to 24 hours after symptom onset

Session 2

- Typical ED Process for Assessing and Managing Strokes
    - A rapid head CT helps differentiate hemorrhagic strokes from ischemic strokes
    - A rapid assessment with the NIH Stroke scale and other diagnostic will help make the diagnosis of a stroke
- Definitive Therapy for Strokes
    - Thrombolysis is a treatment option for some patients with stroke
        - Not all patients with stroke will receive thrombolysis
        - Patients must meet certain criteria to receive thrombolysis
        - One of the most common reasons for patients not receiving thrombolysis is that the time of last know well is not within the past 3 – 4.5 hours
    - Another option for large vessel occlusion strokes is mechanical thrombectomy
        - Rather than lysing the clot with medicine, some larger clots can be mechanically removed from the cerebral artery
        - Patients are rigorously screened before receiving thrombectomy
        - Thrombectomy may be considered up to 24 hours after last know well
- Destination Decisions
    - Most hospitals can administer thrombolysis.
    - Thrombectomy can only be performed at certain hospitals
    - Hospitals are classified as one of the following:
        - Stroke-Ready Hospital
        - Primary Stroke Center
        - Comprehensive Stroke Center
    - Destination decisions are multi-factorial and should balance the benefits of regionalization, patient autonomy and local needs
    - Two strategies have emerged as options in destination decisions
        - Bypass Strategy
            - EMS performs a stroke severity score
            - If a large vessel occlusion is suggested, EMS transports directly to a center capable of performing thrombectomy
            - The benefit of this strategy is that time to thrombectomy is likely reduced

        - Potential drawbacks include overtriage and decreasing time to thrombolysis
    - Drip and Ship Strategy
        - EMS transport to the closest stroke center
        - If a large vessel occlusion is identified, the patient is then secondarily transported for thrombectomy
        - The benefit of this strategy is that time to thrombolysis is reduced and the patient may stay closer to home
        - The drawback to this strategy is that time to thrombectomy may be increased
- Several communities across the country have incorporated mobile stroke units into dispatch and EMS operations
    - Some literature suggests that mobile stroke units can decrease time to thrombolysis
- Case Resolution
    - The patient was rapidly assessed on scene. A prehospital stroke screen suggested the patient was having a stroke. The LAMS score was utilized as a stroke severity score and was 4, which suggested the presence of a large vessel occlusion. Scene time was limited to less than 10 minutes, and a prehospital stroke alert was called. The patient was taken for thrombectomy, had perfusion restored and walked out of the hospital.