June 2020 Issue 1

STROKE AWARENESS MONTH

The Inpatient Code Stroke

A code as urgent as any other!

6.5-15% of all strokes occur in patients already admitted to hospital. Numerous studies indicate greater delay in treatment when compared to outpatient code strokes. The mortality rate of inpatient code strokes is up to **54%**.

Why does hospitalization increase the risk for stroke?

- Cardiac surgery
- Carotid endarterectomy
- High diastolic pressure or unstable BP
- Fever
- Dehydration
- Co-morbid medical conditions
- Highest risk includes those with a history of prior stroke

Stroke mechanisms unique to inpatient strokes:

- Embolism occurring during/after cardiac or neurosurgery
- Hypoperfusion
- Medication adjustments including withdrawal of antiplatelet and anticoagulants
- Procoagulant inflammatory factors can precipitate thrombotic stroke
- Anticoagulants may increase risk of hemorrhagic stroke
- Iatrogenic causes (e.g. arterial injury, catheters, etc.)

What can I do to make a difference?

1. Know the signs of stroke
2. Know how to activate a code stroke
3. Be familiar with the your inpatient code stroke policy, if you have one.

References

1. Kassardjian, C., Willems, J., Skrabka, K., Nisenbaum, R, Barnaby, J, Kostyrko, P., Selchen, D., & Saposnik, G. (2017).In-Patient Code Stroke: A Quality Improvement Strategy to Overcome Knowledge-to-Action Gaps in Response Time Stroke 48(8). 2176-2183.
2. Blacker DJ. In-hospital stroke. Lancet Neurol. 2003; 2:741–746.
3. Cumbler, E., Simpson, J. (2014). Code Stroke: Mulitcentre experience with in-hospital stroke alerts. Journal of hospital medicine, 10(3), 179-183.

Clinical Case Example

Day 1: Ms. Smith arrived to St. Michael's Hospital as a trauma patient. She is a 72-year-old, with a past medical history of hypertension. She had been drinking alcohol and fell down 2 flights of stairs. On arrival to hospital she was alert, oriented, and had leg and chest pain. Her heart rate was 150 and blood pressure 153/127. She was assessed and diagnosed with right fractured ribs (8-11th). She was admitted to the hospital for observation.

Day 2: Patient seen by her care team at **0957**. Her vital signs had normalized, though she remained hypertensive. At **1010** she developed a new onset of aphasia and right sided weakness (arm and leg). A **CODE STROKE** was activated immediately. At **1030** the patient was in CT imaging suite. She had a large vessel ischemic stroke in the left middle cerebral artery. Given her recent trauma she was ineligible for tPA; a “clot-busting” drug. However, she was immediately transferred to the interventional radiology department for an endovascular thrombectomy (EVT), where the team was able to remove the clot from her artery.

Ms. Smith regained her speech and her unilateral deficits resolved.