Stroke & Sepsis

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B.E.F.A.S.T.

Recognizing Signs & Symptoms of a Stroke

B.E.

Balance- Look for sudden loss of balance or coordination

Eyes- Check for vision loss in one or both eyes

F.A.S.T.

Facial Drooping- Is one side of the face drooping or numb? Ask the person to smile, is it equal?

Arm Weakness- Is one arm weak/numb? Ask the person to lift their arms. Does one drift downward?

Speech Difficulty- Is their speech slurred? Is the person difficult to understand. Ask the person to repeat a simple phrase like, "the sky is blue"

Time to Call- **9-1-1** or **Code Stroke**

B Balance
Watch for sudden loss of balance or coordination.

E Eyes
Check for vision loss in one or both eyes.

F Face Drooping
Does one side of the face droop or is it numb? Ask the person to smile.

A Arm Weakness
Is one arm weak/numb? Ask the person to raise both arms. Does one drift downward?

S Speech Difficulty
Is speech slurred? Is the person unable to speak or hard to understand? Ask him/her to repeat a simple phrase like, "the sky is blue."

T Time to CALL 911
If the person shows any of these symptoms, even if they go away, call 911 and get to the hospital immediately.

Other symptoms to look for: Sudden weakness of the leg | confusion or trouble understanding | trouble walking | severe headache with no known cause.

Stroke
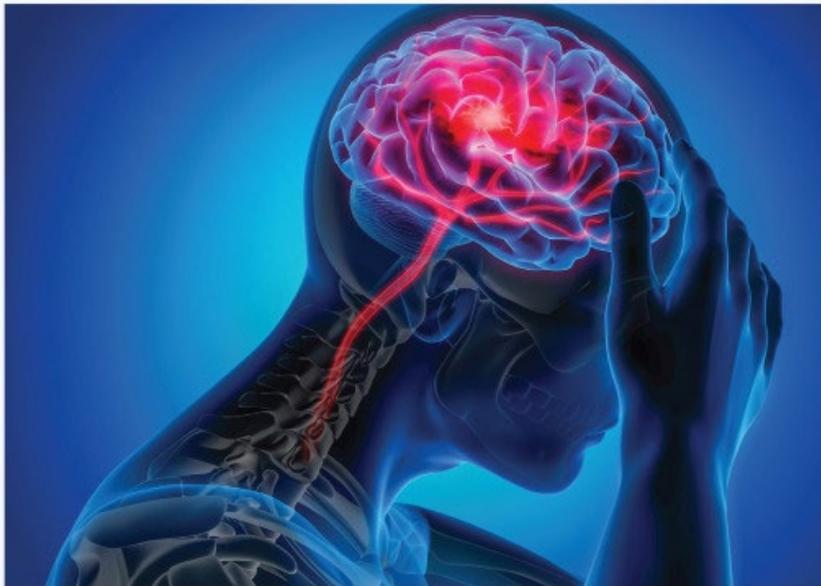
Objectives

- Identify stroke signs and symptoms
- Be able to provide high level stroke care
- Identify interventions for acute stroke

What is a stroke?

- Occurs when a blood vessel that carries oxygen and nutrients to the brain is either blocked by a clot or bursts
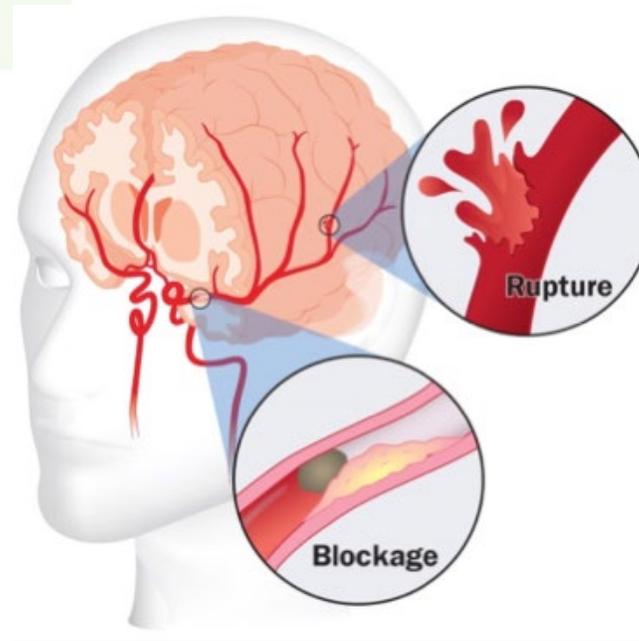
Facts

- Someone in the United States has a stroke every **40 seconds**. Every **4 minutes**, someone dies of stroke.

- Every year, more than **795,000 people** in the United States have a stroke.

- Approximately 87% of all strokes are ischemic strokes

TIME IS BRAIN

- For every one minute a stroke is untreated 1.9 million neurons are lost

Signs & Symptoms

- Difficulty walking
- Paralysis
- Coordination difficulty
- Blurry vision
- Vision loss
- Difficulty speaking
- Slurred speech

- Fatigue
- Dizziness
- Facial abnormalities
- Confusion
- Headache
- Altered sensation
- Numbness/weakness

Risk Factors

Within control

- Hyperlipidemia
- Hypertension
- Diabetes
- Obesity
- Sedentary lifestyle
- Smoking
- Artery disease
- Atrial fibrillation
- Sickle Cell

Not within control

- Age
- Family history
- Race
- Gender
  - Women are at higher risk
- History of TIA, Stroke, Heart Attack

Stroke Types

- *Ischemic*- clot obstructs the blood flow to the brain

- *Hemorrhagic*- blood vessel ruptures, doesn't allow blood flow to the brain

- *TIA (transient ischemic attack)*- aka "mini-stroke", temporary clot

Ischemic Stroke

anoxia
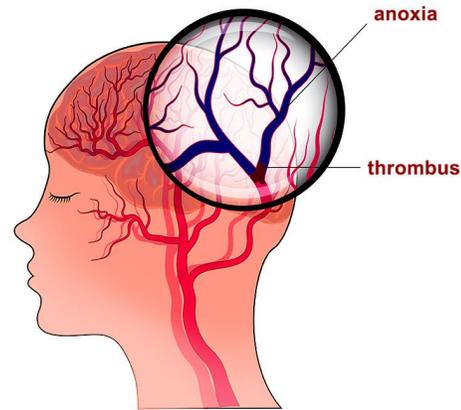
thrombus

Hemorrhagic Stroke

hemorrhage

a rupture of the vessel
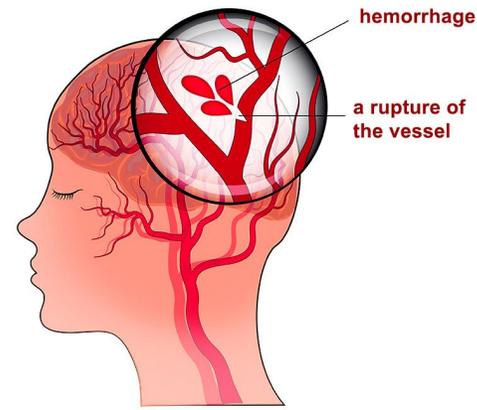
Ischemic Stroke Treatment

- Medications
  - r-tPA (Alteplase)- dissolves the clot
  - Must be given within 3 hours of symptom onset up to 4 ½ hours
- Mechanical
  - Endovascular procedure/mechanical thrombectomy
  - Ideal for patients with large vessel occlusion (LVO)
  - Should be done within six hours of the onset of acute stroke symptoms.
  - Can benefit patients under certain conditions if done within 24 hours of onset.
  - Should include Alteplase IV r-tPA treatment in eligible patients
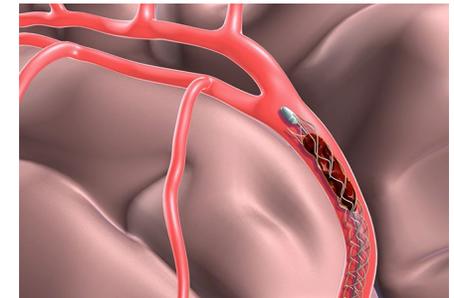
Hemorrhagic Stroke

- Identified by location
  - Intracerebral hemorrhage
  - Subarachnoid hemorrhage

Last Known Well

- The time the individual was last seen 'normal' for themselves
- If the individual awoke with symptoms, the last known well is considered the time they went to sleep

CODE STROKE

- Call #1234
  - Code stroke, patients room number
- CT Scan on cardiac monitor
  - **Do NOT** delay CT
- NIH Stroke Scale
- Fingerstick
- IV/Labs/EKG
- Consult Neurology
- NPO until dysphagia screening

Any individual at MHMC is empowered to initiate a Code Stroke regardless of professional discipline

Patient/Family Education

- Stroke education from EMR on discharge
- Medications
- Signs & Symptoms
  - Warning signs, what to watch for at home, and when to call 9-1-1
- Follow up appointment

Stroke Mimics

- ETOH Intoxication
- Infection
- Drug overdose
- Hypoglycemia
- Migraines
- Seizure
- Tumors

SEPSIS

Learning Objectives

- Identify sepsis in a patient to prevent progression
- Identify each person's role in the care of a septic patient
- Identify why clear and concise documentation is important

What is sepsis?

- A medical emergency

- *SIRS*- non-specific inflammatory response that activates the bodies immune system

- SIRS Criteria
  - Temperature >38.2 or <36.0
  - Heart rate >90
  - Respiratory rate >20
  - WBC >12 or <4
  - Bands >10%

Sepsis

- *Sepsis*- normal response to infection, the inflammatory response localized to the site of infection as the body attempts to eliminate the cause

- 2 SIRS + Infection

Organg Dysfunction

- Systolic blood pressure <90
- MAP <65

Vital Signs		☑
SBP/DBP Cuff	mmHg	120/80
Mean Blood Pressure	mmHg	93

- Decrease in systolic blood pressure (SBP) >40 mmHg
- Acute respiratory failure
- Creatinine >2.0
- Total Bilirubin >2mg/dL
- Platelet Count <100 or aPtt >60 sec
- Lactate >2 mmol/L

Severe Sepsis

- *Severe Sepsis*- life threatening organ dysfunction caused by a response to infection characterized by symptoms of SIRS and organ dysfunction

- Infection + 2 SIRS + Organ Dysfunction

Septic Shock

- *Septic Shock*- severe sepsis with signs and symptoms of hypo-perfusion, persistent hypotension and need for life saving interventions

- Infection + 2 SIRS + Organ Dysfunction + Hypotension (after fluids)

    OR

- Infection + 2 SIRS + Organ Dysfunction + Lactate >4

Multiple Organ Dysfunction Syndrome (MODS)

- *MODS*- abnormal organ function that requires medical intervention to maintain homeostasis

- No organ system is immune
  - Respiratory failure
  - Liver failure
  - Renal failure
  - Heart failure

Treatment

- Blood cultures (prior to antibiotics)
  - 2 sets. 2 sites.
  - **LABEL ALL** specimens with Cerner ID/Time
- Broad spectrum antibiotics
- Initial lactate
  - Repeat lactate (if initial was >2) within 4 hours
- In the presence of hypotension/ lactate >4 (30ml/kg crystalloid fluid)

Role of the Provider

- Hold nurse accountable for identification and management of severe sepsis/shock
  - Labs, vital signs, physical assessment
- Effective, concise team communication for better patient outcomes
- Timely initiation of the 3 and 6 hour bundle components
- Documentation

Ideal Body Weight

- Documentation of weight being used for fluids is required
    - Is it actual weight or ideal body weight?
- Ideal body weight can be used **IF** it is documented, **and** patient is documented as obese (BMI >30)

- Frequently assess the patient for sepsis
  - Has the patient met SIRS criteria?
  - Do I suspect a new or worsening infection?
  - Any new or worsening signs of organ dysfunction?

CODE SEPSIS

- Patient meets sepsis criteria, or you suspect sepsis
- Initiate Code Sepsis
  - Brings appropriate team to the bedside to facilitate sepsis bundles
    - Phlebotomy, House Supervisor, Primary RN, Charge RN
  - Obtain Lactate level, two sets of blood cultures
  - Administer antibiotics.
  - Administer fluids in the presence of hypotension or elevated lactate level

- Purpose of Code Sepsis is to heighten the awareness of a time sensitive medical emergency and aids in delivering the best care possible for the patient

Key Points

- Sepsis is a medical emergency
- Early identification and treatment are crucial
- Accountability for entire care team
- If it is not documented, it is not done

- Any questions
- Please don't hesitate to reach out
  - bishop@monhealthsys.org
  - Office # 304-285-2802

CODE STROKE

1. Patient presents with stroke like symptoms.
   - Determine Last Known Well
   - NIHSS STAT
   - CA/RN obtains fingerstick glucose
2. Clinical Manager/Charge Nurse will call #1234 for overhead page of CODE STROKE
3. Order STAT CT HEAD **(Do not delay for any reason)**
   - CT is to clear the table
4. Primary RN/Rapid Response team to place patient on cardiac monitor and accompany to CT.
   a. For inpatients, they will go to ICU from CT
5. Consult Neurology
   - Call the phone number on the base of the iPad for consult or use SPOK for the direct line to the neurologist on call.
   - Monday through Friday 8am – 5pm, a neurologist should be in house. Exception: Holidays.
   - Staff will acquire the Stroke iPad (located in the ED) for tele-stroke evaluation (if needed).
6. If t-PA is needed, place order in Cerner, and notify pharmacy #1444.
   - Pharmacy will prepare t-PA.
   - Staff to obtain from pharmacy.
   - NIHSS Q15 minutes while t-PA infusing.
7. Dysphagia screening
   a. Must be documented in Cerner
   b. Patient is to be NPO until screening completed