Chapter 15 Neurological Emergencies

Stroke (1 of 2)

- Stroke is the ________________________ leading cause of death in the United States.
  - After heart disease and cancer
- It is common in geriatric patients.
- More ________________________ than women have strokes.
  - Strokes are more likely fatal in ________________________.

Stroke (2 of 2)

- Other contributing factors include family history and ________________________.
- Revolutionary treatments are available for stroke.
  - Many hospitals are certified stroke ________________________.
  - Rapid transport is vital.
- Seizures and altered mental status (AMS) may also occur.

Seizures

Seizures may occur as a result of:
- A recent or an old ________________________ injury
- A brain tumor
- A metabolic problem
- A ________________________ disposition

Altered Mental Status (AMS)

Possible causes of AMS include:
- ________________________
- Head injury
• Hypoxia
• _______________________
• Metabolic disturbances
• Treatment varies widely.

6 Brain Structure and Function

7 The Spinal Cord

8 Common Causes of Brain Disorder (1 of 2)
• Many different disorders can cause brain dysfunction and can affect LOC, speech, and muscle control.
• If problem is caused by heart and lungs, ______________________ brain will be affected.
• If problem is in the brain, only that portion of ______________________ will be affected.

9 Common Causes of Brain Disorder (2 of 2)
• ______________________ is a common cause of brain disorder and is treatable.
• ______________________ and altered mental status are other causes of brain disorder.

10 Headache (1 of 6)
• One of the most common complaints
• Can be a ______________________ of another condition or a neurologic condition on its own
• Most headaches are ______________________ and do not require emergency medical care.

11 Headache (2 of 6)
• Sudden, severe headache requires ______________________ and transport.
  - If more than one patient reports headache, consider carbon monoxide poisoning.
• _________________________ headaches, migraines, and sinus headaches are the most common.
  - Not medical emergencies

12 **Headache (3 of 6)**
• _________________________ headaches are the most common:
  • Caused by muscle contractions in the head and neck
  • Attributed to stress
  • Pain is usually described as _______________________, dull, or as an ache.

13 **Headache (4 of 6)**
• _________________________ headaches are the second most common:
  • Thought to be caused by changes in the blood vessel size in the base of the brain
  • Pain is usually described as _______________________, throbbing, and pulsating.
  • Often associated with visual changes
  • Can last for several _______________________

14 **Headache (5 of 6)**
Sinus headaches:
• Caused by _________________________ that is the result of fluid accumulation in the sinus cavities
• Patients may also have _________________________ symptoms of nasal congestion, cough, and fever.
• Prehospital emergency care is not required.

15 **Headache (6 of 6)**
• Serious conditions that include headache as a symptom are hemorrhagic stroke, brain _________________________, and meningitis.
● You should be concerned if the patient complains of a _______________ -onset, severe headache or a sudden headache that has associated symptoms.

16 **Emergency Medical Care: Headache**
● Most headaches are _______________ and do not require emergency medical care.
● You should be concerned if the patient complains of:
  - A sudden-onset, severe headache
  - A sudden headache with _______________ , seizures, AMS, or following trauma

17 **Emergency Medical Care: Migraine**
● Always assess the patient for other signs and symptoms that might indicate a more serious condition.
● Apply high-flow _______________ , if tolerated.
● Provide a darkened, _______________ environment.
● Do not use lights and sirens during transport.

18 **Cerebrovascular Accident and Stroke**
● Cerebrovascular accident (CVA)
  - Interruption of blood flow to the brain that results in the loss of _______________ function
  - _______________ - The loss of brain function that results from a CVA

19 **3 Causes of a CVA**
● _______________ : Blockage of a vessel by a thrombus (blood clot) which forms at a narrow area.
● _______________ : Rupture of a blood vessel.
● _______________ : Blood clot or plaque travels through a blood vessel until it lodges in the brain,
Thrombosis Caused CVA

Embolism Caused CVA

Hemorrhage Caused CVA

Hemorrhage Caused CVA

Hemorrhagic Stroke (1 of 2)

- Accounts for ___________% to ____________% of strokes
- People at high risk include those experiencing stress or exertion.
- People at highest risk are those who have very high blood ________________.
- Results from ____________________ in the brain
  - Arterial rupture

Hemorrhagic Stroke (2 of 2)

- Cerebral hemorrhages are often ________________.
- An ____________________ is a swelling or enlargement of an artery due to weakening of the arterial wall.
- Some people are born with aneurysms.

Ischemic Stroke (1 of 2)

- Most common, accounting for more than __________ % of strokes
- Results from an embolism or thrombosis
- Results when blood flow to a particular part of the brain is cut off by a blockage inside a blood vessel
- ____________________
  - Clotting of the cerebral arteries
Cerebral embolism
- Blockage by a clot formed ______________________ in the body

Ischemic Stroke (2 of 2)
- Symptoms may range from nothing at all to complete ______________________.
- Atherosclerosis in the blood vessels is often the cause.
- Plaque forms inside the walls of the blood vessels and may obstruct blood flow.
- Eventually, it causes complete ______________________ of an artery.

Signs and Symptoms of Stroke
- Left Hemisphere
  - ______________________: Inability to speak or understand speech
  - Receptive aphasia: Ability to speak, but unable to understand speech
  - Expressive aphasia: Inability to speak correctly, but able to understand speech
- Right Hemisphere
  - ______________________: Able to understand, but hard to be understood

Other S/ S of CVA
1. Alterations in consciousness
2. Paralysis
3. Loss of speech or slurred speech
4. Unilateral blindness
5. ______________________
6. Seizures
- Unequal Pupils
- High blood pressure
- Dizziness
- Other S/S of increased intracranial

Stroke Mimics:
- Postictal state
- Subdural or epidural bleeding

Assessing the Stroke Patient
- Primary assessment
  - Check and care for ABCs.
  - Obtain history if possible.
  - Administer _______________________ and manage airway.
- Focused history and physical exam
  - Perform _______________________ exam.
  - Check all 4 extremities for movement and strength
  - Utilize the _______________________ Stroke Scale

Cincinnati Stroke Scale (1 of 2)
- _______________________ droop
  - Ask patient to show teeth or smile
  - Abnormal if asymmetrical
- _______________________ drift
  - Ask pt to close eyes and hold both arms out with palms up
  - Abnormal if arms do not move equally

Cincinnati Stroke Scale (2 of 2)
- Ask patient to say “the sky is blue in Cincinnati or something similar
- Abnormal if words are slurred or

34 Emergency Medical Care for Stroke
- Patient needs to be evaluated by computed
  __________________________ (CT).
- Recognizing the signs and symptoms of stroke can shorten the delay to CT.
- Treatment needs to start within ___________ to ___________ hours of onset.
  - Use of “___________________________ buster” medications
  - Document times carefully
- Careful what you say

35 Baseline Vital Signs
- Excessive bleeding in the brain may
  __________________________ pulse and cause erratic respirations.
- Blood pressure is usually __________________________ .
- Excessive bleeding in the brain may cause changes in
  __________________________ size and reactivity.

36 Transport Considerations
- Place the patient in a comfortable position.
  - Usually on one __________________________
  - __________________________ side down and well protected
- Elevate patient’s head about 6”.
- Continue giving __________________________ and monitor vitals.
**Transient Ischemic Attack (TIA)**
- A TIA is a “mini-_______________________ .”
- Stroke symptoms go away within 24 hours.
- Every TIA is an emergency.
- TIA may be a warning sign of a larger __________________________.
- Patients with possible TIA should be evaluated by a physician.

**Seizures**
- ________________: episodes of uncoordinated electrical activity in the brain.
- A seizure, or convulsion, is a temporary alteration in consciousness.
- Account for up to ________% of EMS calls
- In the United States, it is estimated that 4 million people have epilepsy.
- __________________________: Tendency to have repeated episodes of seizure activity.

**Types of Seizures**
- Generalized (_________________________ Mal) seizure
- Absence (Petit Mal) seizure
- __________________________ seizure

**Generalized Seizure**
- AKA: Major Motor or __________________________ Mal Seizure
- Affects all parts of body
- Aura: sensation before convulsion
- Convulsion
  - loss of consciousness
  - __________________________ phase (rigidity)
- _______________________ phase (rhythmic jerking)
  ● incontinence
  ● ineffective breathing
  ● Post-ictal phase-exhaustion, drowsiness

41 Partial Seizure (1 of 2)
Simple partial seizure:
● No _______________________ in the patient’s level of consciousness
● May have numbness, weakness, dizziness, visual changes, or unusual smells/tastes
● May have some _______________________ or brief paralysis

42 Partial Seizure (2 of 2)
Complex partial seizure:
● Altered _______________________ status
● Results from abnormal discharges from the temporal lobe of the brain
● Lip smacking, eye blinking, isolated
  _______________________  _______________________
● Uncontrollable _______________________

43 Absence (Petit Mal) Seizure
● Loss of consciousness without loss of _______________________ tone.
● Brief lapse of attention manifested by staring and no apparent response to anyone
● Most common in _______________________
● Last for seconds
● Patient fully recovers with a brief lapse of _______________________  

44 Characteristic of Seizures
May occur on one side or spread throughout the whole body (generalized)

Usually last ___________ to ___________ minutes, followed by period of unconsciousness known as postictal state

Patient may experience an _________________.

Seizures recurring every few minutes are known as status _________________.

**Causes of Seizures**

- Congenital (epilepsy)
- High ________________
- Structural problems in the brain
- ________________ disorders
- Chemical disorders (poison, drugs)
- Sudden high fever
- ________________ (Low blood sugar)

**Recognizing Seizures**

- ________________
- Abnormal or absence of ________________
- Possible head injury
- Loss of bowel and ________________ control
- Severe muscle twitching
- Post seizure state of unresponsiveness with deep and labored respirations

**Postictal State**

- Patient may have labored breathing.
- May have ________________ : weakness on one side of the body.
- Patient may be lethargic, confused or combative.
- Consider underlying conditions.
- Infection

Management of Seizures (1 of 2)

- Remove from harm. Protect from _______________________.
- Don’t forcibly restrain the patient.
- Roll patient on side.
- After seizure:
  - Assess ABC’s
  - Clear airway
  - _______________________.
  - Assist ventilations as needed
- Lower body temperature if _______________________. seizure

Management of Seizures (2 of 2)

- Never insert anything in patient’s _______________________.!
- Obtain History
  - ask about seizure history and
    - Phenobarbital, Depakote, Tegretol, Topamax and Dilantin most common
- Obtain blood glucose level if authorized
- Physical exam
  - Look for _______________________. caused by seizure
- Monitor N/V and vital signs

When to Encourage Treatment and Transport

- If patient’s _______________________. seizure.
- If patient has not taken meds recently.
● If seizures are prolonged or __________________ from usual.
● If patient had ______________________ seizures.
● Any signs of trauma, hypoxia, aspiration, or other serious condition

51 Status Epilepticus
● Defined as __________ or more seizures without intervening periods of consciousness.
● Immediate life threat.
● Assist breathing.
● Rapid ____________________.
● Request __________________ backup.

52 Coma
● ____________________ -state of unconsciousness from which patient cannot be aroused
● Coma=Immediate Life Threat
● Management
  - __________________ before investigating
  - Control c-spine if trauma known or suspected
  - Look for __________________________

53 Investigating Cause of Coma
● After ABC’s, investigate cause using DERM
  ● D=________________________ of coma
  ● E=________________________
  ● R=________________________ Pattern
  ● M=________________________ function

54 Investigating Cause of Coma
● Vital Signs
  - ____________________________ ?
  - Increased ICP?
- Arrhythmias
- Head to Toe Exam
  - Injuries?
  - Snake bites? Insect stings?
  - Drug “_______________________”
- Examine _______________________ for clues

55 Altered Mental Status (AMS)

1. _______________________  
   - Hypoxemia  
   - Intoxication  
   - Drug overdose  
   - Unrecognized head injury  

2. Brain infection  
   - Body temperature abnormalities  
   - Brain _______________________  
   - Glandular abnormalities  

Assessing a Patient With AMS (1 of 2)

- Same _______________________ process  
- Patient cannot tell you reliably what is wrong.  
- Obtain blood _______________________ level if allowed  
- Be vigilant in _______________________ .  
- Monitor for changes or deterioration.

Assessing a Patient With AMS (2 of 2)

- Use _______________________ scale to classify severity.  
- Consider underlying conditions.  
- Monitor for depressed _______________________ .  
- Ensure that basic airway maneuvers are followed.  
- Provide prompt transport to hospital while monitoring the
Patient.

58 Signs and Symptoms of Brain Disorders
- Many different disorders can affect:
  - Level of ______________________
  - ______________________
  - Voluntary muscle control

59 Geriatric Needs
- Brain ______________________ with age.
- Always consider underlying conditions.
- ______________________ are at higher risk for central nervous system illnesses and injuries.

60 Pediatric Needs
- Children can have AMS caused by:
  - ______________________
  - Seizure
  - Other brain emergencies
- Treat in the same way as adults.
- Seizures are often ______________________.
- Transport to the hospital.