

## NEUROLOGY

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NOVEMBER 2022 PHILIPPINE NURSE LICENSURE EXAMINATION

### THE CENTRAL NERVOUS SYSTEM

#### A. Brain

**Cerebellum** – for balance and posture

**Cerebrum** – knowledge, movement, and emotions

#### Diencephalon

- Epithalamus (secretes melatonin)
- Thalamus (for alertness)
- Hypothalamus

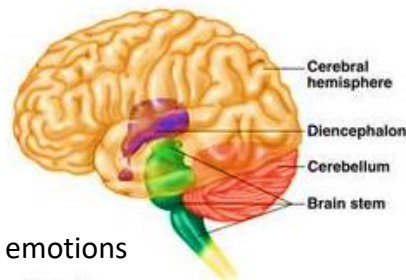
#### LIMBIC SYSTEM:

Hippocampus (memory)

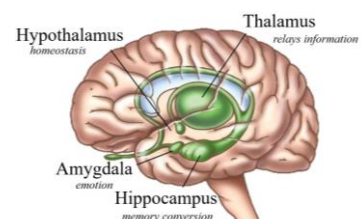
Amygdala (aggression, emotions, sex)

#### Brain stem

- Midbrain (postural reflexes)
- Pons (pneumotaxic center)
- Medulla (vomiting, coughing, breathing, gagging)



#### The Limbic System



### LOBES OF THE BRAIN

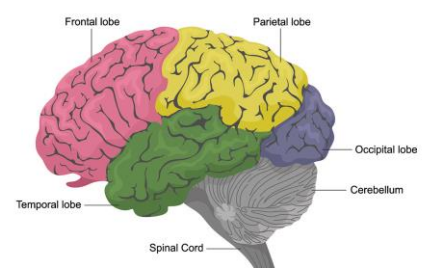
Frontal

Parietal

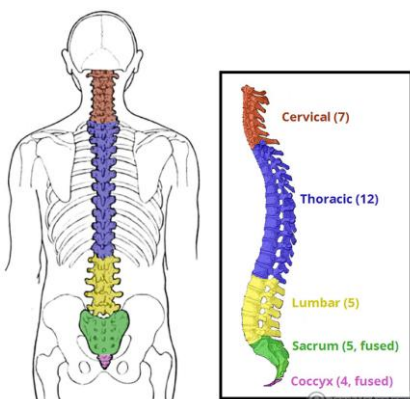
Occipital

Temporal

#### Human Brain Anatomy



#### B. Vertebral Column (protects the spinal cord – for transmission of impulses)



Cervical

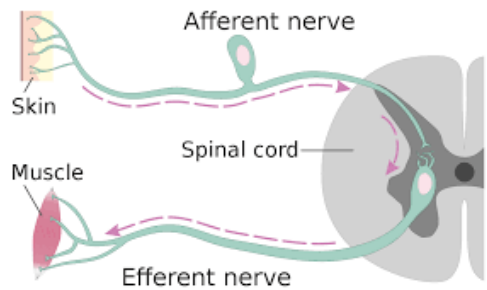
Thoracic

Lumbar

Sacrum

Coccyx

THE AUTONOMIC NERVOUS SYSTEM (Peripheral Nervous System)



CRANIAL NERVES

- I      Olfactory
- II     Optic
- III    Oculomotor
- IV    Trochlear
- V      **Trigeminal**
- VI    Abducens
- VII    **Facial**
- VIII   Auditory
- IX    Glossopharyngeal
- X      **Vagus**
- XI    Accessory
- XII   Hypoglossal

INTRACRANIAL PRESSURE

Normal Intracranial Pressure (ICP): \_\_\_\_\_

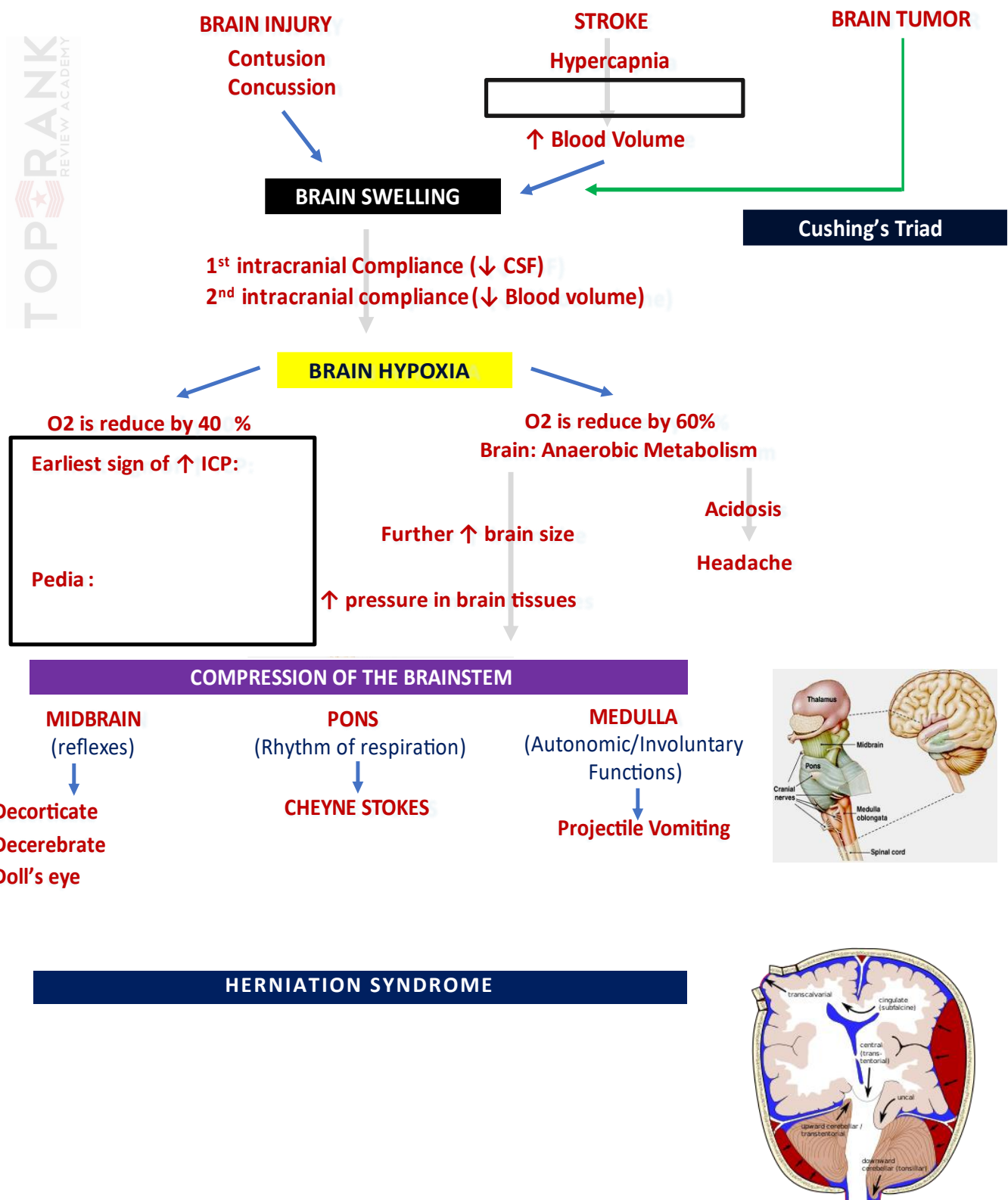
Mean Arterial Pressure (MAP):

Cerebral Perfusion Pressure (CPP): amount of pressure needed to supply adequate oxygen to the brain.

CPP = MAP – ICP  
Normal CPP: \_\_\_\_\_

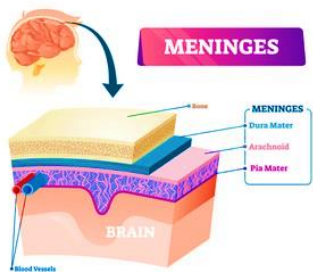
If: MAP = ICP (NO CPP)

**Kellie Monro Hypothesis:** If one of the contents of the cranium increase in size, the other 2 will decrease to maintain equilibrium”



**Intracranial Cranial Pressure Monitoring:**

- Equipment:
- Technique:
- Complication:
- Tubing:
- Prevent:



- SUBDURAL BOLT:**
- EPIDURAL BOLT:**
- SUBARACHNOID BOLT:**
- VENTRICULOSTOMY:**

Mangement for Increased Intracranial Pressure:

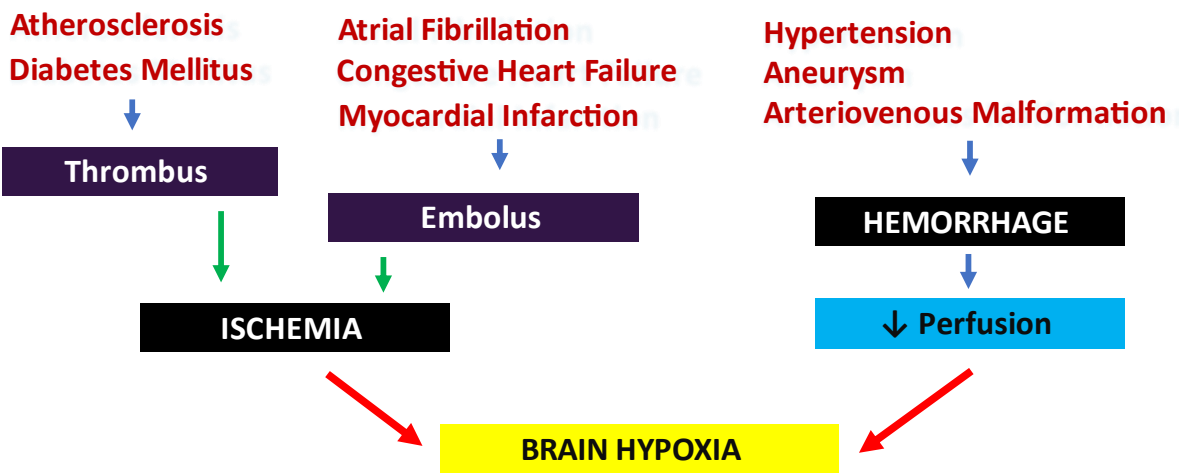
- 1. To decrease CSF:
- 2. To decrease blood volume:
- 3. To decrease brain size:
- 4. To decrease blood pressure:
- 5. Diet:

AVOID!

- 1.
- 2.
- 3.
- 4.
- 5.

CEREBROVASCULAR ACCIDENT

- Sudden neurologic deficit due to insufficient blood supply to the brain.



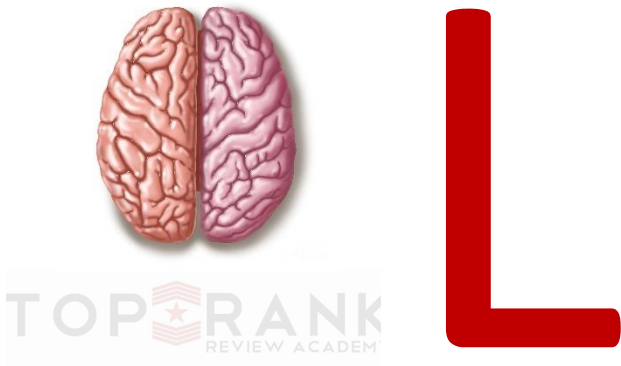
Transient Ischemic Attack (TIA)  
Reversible Ischemic Neurologic Deficit (RIND)

Associated Lab:

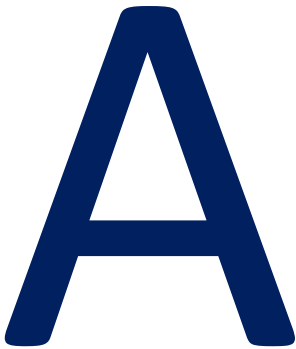
Signs and Symptoms of Cerebrovascular Accident:

1. BRAIN

C  
R  
E  
A  
T  
I  
V  
E

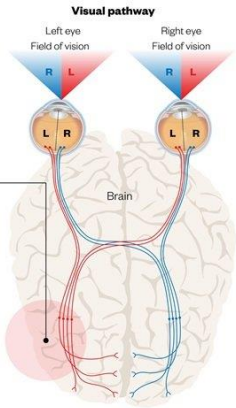
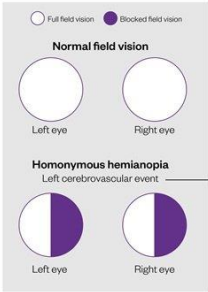


A  
B  
C  
D  
E



2. EYES

- a. Horner’s Syndrome
- Ptosis of the upper lid
  - Elevation of the lower lid
  - Pupil constriction
  - Lack of tearing



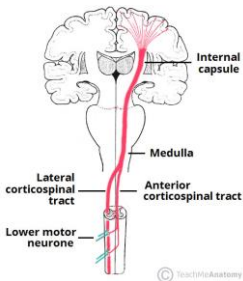
- b. Homonymous Hemianopia (loss of one half of the visual field)
- c. Amaurosis Fugax – temporary brief period of blindness

3. MOUTH

Dysarthria, Dysphagia, Drooling of Saliva

4. BODY

Contralateral Paralysis  
Cause: DECUSSATION – crossing of nerve fibers at the level of medulla



5. BOWEL and BLADDER (Incontinence)

DIAGNOSTIC TEST

STRUCTURE

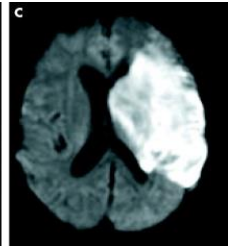
- 1. CT Scan
- 2. MRI

remove all jewelries  
NO to pacemakers  
NO to TATTO  
NO to PREGNANCY

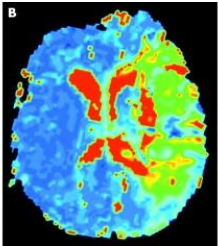
Assess for  
CLAUSTROPHOBIA

PHYSIOLOGY

Nuclear Scanning



PET Scan



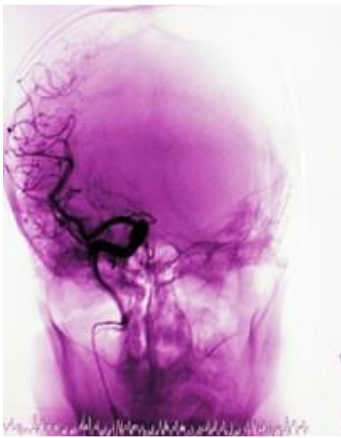
CEREBRAL ANGIOGRAPHY

Pre-Procedure:

Hydrate Patient to prevent vessel shrinking  
Mark peripheral pulses  
Void before the procedure

Post-Procedure

POSITION: \_\_\_\_\_  
Increase oral fluid intake  
ICE PACK for HEMATOMA



Management:

Anticoagulants

Thrombolytics

Increased ICP: \_\_\_\_\_

◀Hemianopia: Priority – SAFETY

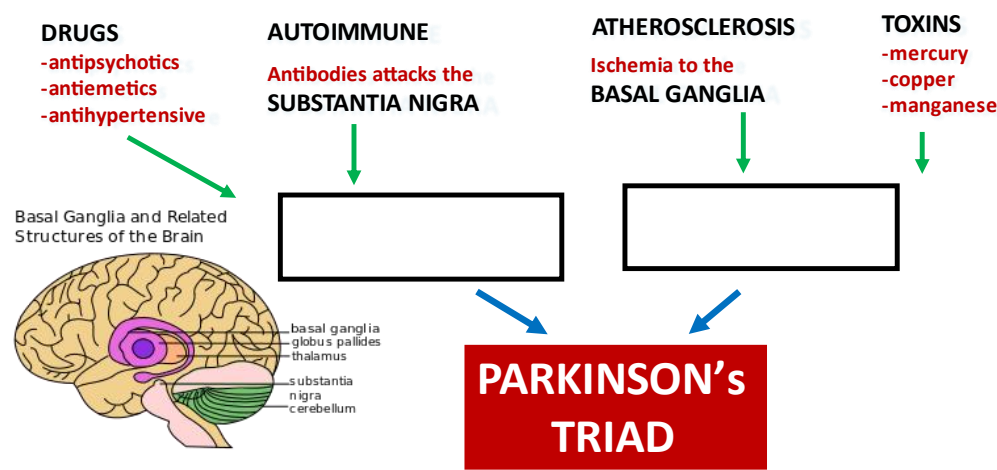
Approaching the client: \_\_\_\_\_  
Serving food: \_\_\_\_\_

Hemiplegia:

Diet: \_\_\_\_\_

Communication: Picture board

PARKINSON's DISEASE



Signs and Symptoms:

- 1. \_\_\_\_\_ tremors
- 2. Cogwheel Rigidity
- 3. Shuffling, Propulsive, and Fistingating gait
- 4. Mask like facial appearance
- 5. Dysarthria
- 6. Dysphagia and Drooling of Saliva
- 7. Microphonia and Micrographia
- 8. Constipation

NON-PHARMACOLOGIC MANAGEMENT:

**TREMORS:** Squeeze a rubber ball/hold hands in the pocket  
Use both hands to accomplish tasks  
Sleep on the side with tremors (flat firm surface)

**SHUFFLING GAIT:** Walk in an imaginary line  
Throw object in front of him

**DYSARTHRIA:** Pause in between words  
Exaggerate pronunciation of words

**DYSPHAGIA:** \_\_\_\_\_ with small frequent feedings  
Assess swallowing ability before feeding

**MACROPHONIA:** Ask the client to speak loud

Parkinson's Disease Symptoms



PHARMACOLOGIC MANAGEMENT:

A. DOPAMINE AGONIST

B. DOPAMINERGIGS

Precursor:  
Converted by:

AVOID -



C. CATHELCO-O-METHYLTRANSFERASE

D. ANTICHOLINERGIC DRUGS

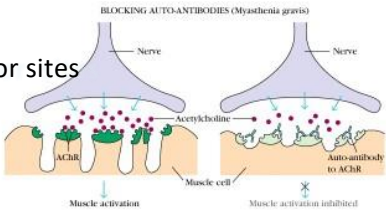
P  
A  
T  
C  
H



MYASTHENIA GRAVIS

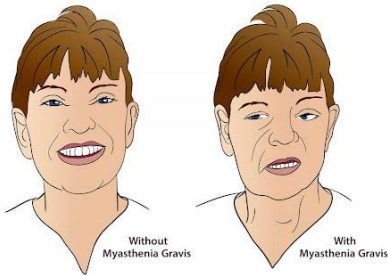
Autoimmune

Antibodies attacks the \_\_\_\_\_ receptor sites



PARALYSIS

- PTOSIS
- Mouth is always open
- Dysphagia
- Drooling
- INEFFECTIVE BREATHING PATTERN
- Bowel and Bladder incontinence
- Weakness of the legs



CONFIRMATORY TEST: \_\_\_\_\_ TEST



MANAGEMENT: \_\_\_\_\_

Best time to give: \_\_\_\_\_

Myasthenic Crisis  
Cause :

Cholinergic Crisis  
Cause :



GUILLAIN BARRE SYNDROME

Autoimmune: Antibodies attacks the \_\_\_\_\_ on the \_\_\_\_\_.

Triggering factor:



\_\_\_\_\_ Paralysis

Initial sign: \_\_\_\_\_

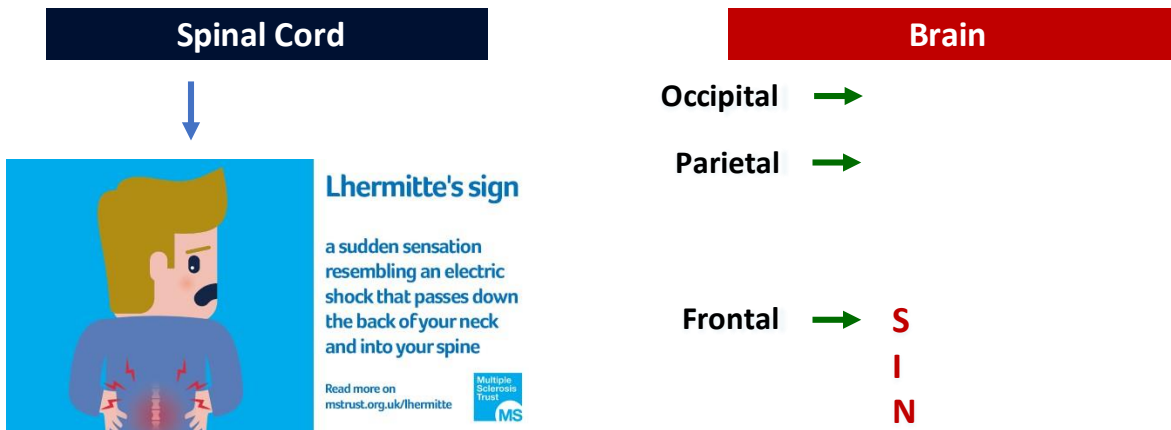
- Paralysis of the lower extremity
- Loss of deep tendon reflex
- Bowel and bladder incontinence
- Ineffective breathing
- Dysphagia and drooling of saliva



NOTE: (for Myasthenia and Guillain Barre Syndrome)

MULTIPLE SCLEROSIS

Autoimmune  
Antibodies attacks the \_\_\_\_\_ on the \_\_\_\_\_.



DRUG OF CHOICE:  
For spasticity:

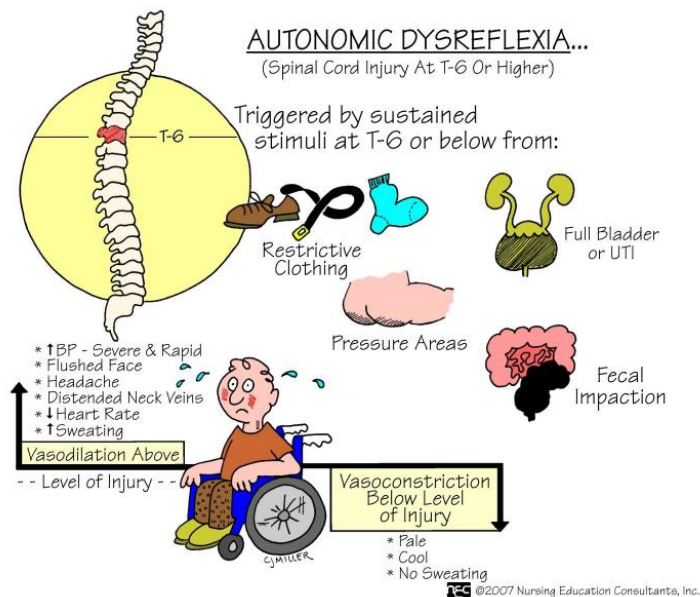
For Paresthesia  
For Ataxia

AVOID! \_\_\_\_\_

NOTE: PLAMAPHERESIS – removal of antibodies



# AUTONOMIC DYSREFLEXIA



## Priority Nursing Actions:

- 
- **Loose tight clothing on the client**
- **Check for bladder distention and other noxious stimulus**
- **Administer an antihypertensive medication**

# ALZHEIMER'S DISEASE

## Causes:

- **Low** \_\_\_\_\_
- **Neurofibrillary tangles**
- **Amyloid plaques**

## Manifestations:

Amnesia  
Apraxia  
Agnosia  
Aphasia  
Anomia

## STAGES:

- Stage 1** – Normal outward behavior
- Stage 2** – VERY MILD Decline
- Stage 3** – MILD Decline
- Stage 4** – MODERATE Decline
- Stage 5** – MODERATELY SEVERE Decline
- Stage 6** – SEVERE Decline
- Stage 7** – VERY SEVERE Decline

## Management:

**Priority:** \_\_\_\_\_

**Environment:**

**CARE GIVER:**

## Therapy:

**Medical Management:** Cholinesterase Inhibitors

- Donepezil
- Galantamine
- Rivastigmine

## **SEIZURE** – presence of abnormal impulses in the brain

**Risk factors:** Hypoxia, Hyponatremia, Hypoglycemia

**AURA (unusual sensation):** epigastric pain, flashes of light

**Priority:** Safety

### **Nursing Responsibilities before seizure:**

- a.
- b.

### **2 major types:**

1. **Generalized Seizures** (affects both side of the brain)
  - **Absence / Petit Mal** – rapid blinking / staring (5-10 seconds)
  - **Tonic-Clonic / Grand Mal** – stiffness followed by jerking

**NOTE: Patient becomes exhausted and disoriented after seizure**

2. **Focal Seizures** (affects one area of the brain)
  - **Simple** – twitching with strange taste or smell
  - **Complex** – confusion and dazing
  - **Secondary generalized seizures** - begins with one area of the brain then spread to both sides (focal followed by a generalized)

### **Nursing Responsibilities after seizure:**

- a.
- b.
- c.

## **STATUS EPILEPTICUS:**

### **Main causes:**

Children – fever

Adult – stroke, hypoglycemia, alcohol withdrawal

### **Management: ANTICONVULSANTS**

Phenytoin (Dilantin)

Therapeutic Level:

Side effects:

Adverse effect:

**GLAGOW COMA SCALE**

**EYE OPENING**

- 4
- 3
- 2
- 1

**VERBAL RESPONSE**

- 5
- 4
- 3
- 2
- 1

**MOTOR RESPONSE**

- 6
- 5
- 4
- 3
- 2
- 1

Mild head injury:  
Moderate head injury:  
Severe Head injury:

Unresponsive:

**UPDATES: GCS-40**

Thank you. – *Sir Ken*