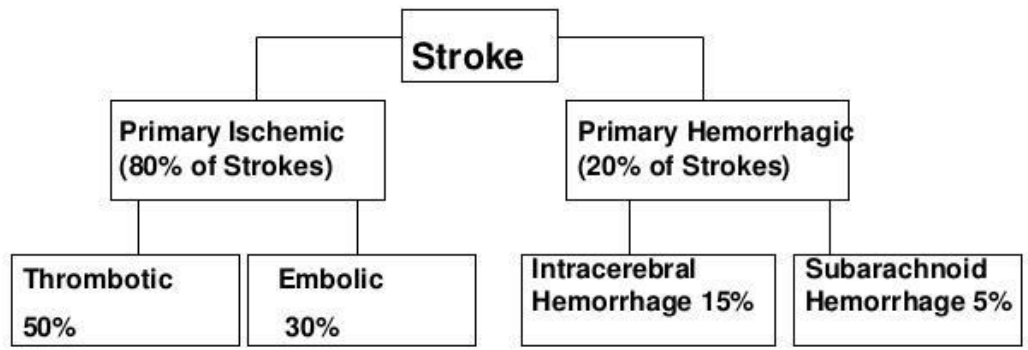
NEUROLOGICAL CONDITIONS
by Rosaline

STROKE

DEFINITION: Occurs when blood supply to a part of the brain is interrupted or severely reduced ,depriving brain tissue off oxygen and glucose with minutes, brain cells begin to die.

CLASSIFICATION OF STROKE



ISCHEMIC STROKE

Most common type of stroke and is caused by blockage of blood vessels supplying the brain .

This may due to hardening and narrowing of the arteries . (atherosclerosis) or by blood clot blocking a blood vessel.

Hemorrhagic Stroke

- Rupture of blood vessel in brain causing bleeding into brain tissue or subarachnoid space

Nursing considerations:

Patient is on seizure precautions because of risk of increased ICP

- They may develop dysphagia so NPO for these patients until swallow function test is performed
- Frequent neuro checks ie GCS monitoring /reflexes
- The nurse should prevent activities that increase ICP

How to decrease ICP:

- reduce stimulation
- maintain quiet and dim environment
  limit visitors
- stool softeners to reduce straining
  strict bed rest,
- assist with ADLs
- maintain head in midline position to improve jugular venous return to the heart
- NO anticoagulants

Diagnostics

- ct scan –a special xray machine uses a computer to tak picture of the brain .it may be used to look bones , muscles , muscles ,brain , brain tissu and blood vessels
- magnetic resonance imaging-uses magnetic waves .its called MRI.MRI may show the cause of cva
- carotid ultrasound
- Arteiography

MED MX FOR IS

Anticoagulant medication –treatment for an ischemic stroke include anticoagulant medicines which are also called blood thinners. They keeps clots from forming in the blood. EG **heparin, aspirin**

Antiplatelet aggregating medicine-they interact with platelets to prevent blood clots from forming .eg **Clopidogrel, Ticagrelor**

Thrombolytic agents – breaks part of clot and restore blood flow.

eg ALCTEPLASEImmediate

Thrombolytic therapy within 4.5 hours (contraindicated in bleeding, hypertensive, aneurysm)

- Neuro assessment

haemorrhagic stroke ..surgical intervention is required.

MENINGITIS

Inflammation of the meninges covering the brain and spinal cord

Clinical manifestations:

- **N/V**
- **Fever**
- **Severe headache Nuchal rigidity**
- **Photophobia**

ctn

- ❖ **AMS (altered mental status) IICP**
- ❖ **Stiff neck**
- ❖ **Pain with flexion**
- **Patient should be put on droplet precautions**
- **No negative pressure room**
-

BELL'S PALSY

- Peripheral, unilateral facial paralysis characterized by inflammation of the facial nerve (CN7) in the absence of a stroke or other diseases
- Flaccidity of affected side

Clinical manifestations:

❖ Inability to close eyes of affected side

❖ Cannot smile symmetrically

❖ Lacrimation of the eye is decreased on affected side Flattening of the nasal labial fold

❖ Facial drop

❖Cannot close eye correctly

Aphasia Syndrome

- Broca

Expressive , Impaired speech and writing

Aphasia Syndrome

- ❖ May be able to speak short phrases but has difficulty with word choice
- ❖The nurse should listen and give time for patient to speak
- ❖ Easily frustrated when attempting to speak
- ❖Clients speech is limited to short phrases that require effort Wernicke.
- ❖Receptive Impaired comprehension of speech and writing
- ❖May speak full sentences but the words do not make sense Ask simple yes or no questions

Apraxia

- Loss of the ability to perform a movement due to neurological impairment

AMYOTROPHIC LATERAL SCLEROSIS(ALS)

- Neurodegenerative disease with no cure

Degeneration of motor neurons in the brain and spinal cord

Clinical manifestations

❖Fatigue

❖Muscle weakness that is progressive Twitching and muscle spasms

❖Difficulty swallowing, difficulty speaking

❖Respiratory failure

❖Clients usually survive 3-5 years and there is no cure

Romberg Test

- Part of a focused neurological exam assessing vestibular function and body in space Used to determine the reason for loss of coordination
- Clients are asked to stand with the feet together and eyes closed If loss of balance occurs then ataxia is considered to be sensory
- These patients will have loss of balance and need assistance with ambulation

GUI-LLAINE BARRE SYNDROME

- Guillain-Barre Syndrome (GBS) is a rare disorder that occurs when the body's immune system attacks the Peripheral Nervous System (PNS)

- This leads to nerve inflammation that causes muscle weakness

- it is believed to be a result of cell mediated autoimmune mechanism

RISK FACTORS

- Viral infection e.g. CMV, EBV, HIV, herpes simplex, hepatitis A, B or C, Epstein Barr virus (EBV)
- Viral immunizations e.g. tetanus, rabies, influenza. **NOTE: GBS may occur hours, days or 3-4 weeks post surgery or vaccination**
- Neoplasm e.g. Hodgkin's lymphoma
- Pregnancy
- Surgery
- Trauma

SYMPTOMS

- Broadly classified into:
  - Muscle weakness
  - Pain
  - Autonomic dysfunction Eg. incontinence,constipation,incomplete bladder emptying
  - Changes in sensation and numbness

- **Muscle weakness:**
- Occurs in an ascending fashion from the legs to all other extremities
- Weakness occurs symmetrically
- Patient may need ventilation in case of respiratory paralysis
- During recovery phase, muscle weakness subsides in a slow and descending manner

DIAGNOSIS

- Physical examination
  - Muscle strength
  - Reflexes
- Lumbar puncture
- Nerve conduction velocity (NCV)
- Electromyography (EMG)
- ECG to rule out cvs disorders

Treatment

- There is no known cure, but therapies can lessen the severity of the illness and accelerate the recovery in most patients.
- **Treatment options:**
  - Plasmapheresis
  - IVIG (High dose immunoglobulin therapy)
  - Supportive treatment aimed at preventing complications

TETANUS

- WHO Def:Tetanus is a serious illness contracted through exposure to the **spores of the bacterium, clostridium tetani** which live in soil, saliva, dust and manure. It's also known as **‘Lockjaw”.**

Diagnosis

- Entirely clinical and does not depend on bacterial confirmation
- Clinically confirmed by:

1. **Trismus or lockjaw is a common sign**
2. **Risus sardonicus (“devil’s grin”)or fixed Sneer**

3. Opisthosonos (extension of lower extremities, flexion of upper extremities and arching of the back. The examiners hand can be passed under the back of the patient when he lies on the bed in supine position.

4. Neck rigidity

- Tetanus is clinical syndrome without confirmatory lab tests.

Treatment

- NB/: If TIG is unavailable ,Immune Globulin Intravenous (IGIV) may be used.
- A patent airway should be maintained, and depending on the severity of the disease, endotracheal intubation or tracheostomy and Mechanically assisted respiration may save life.
- Use sedatives and muscle relaxants as indicated to control muscle spasms.
- Agents to control autonomic nervous system instability may be required
- Initiate active immunization concurrently with treatment.

Myasthenia Gravis

- Autoimmune disease involving a decreased number of acetylcholine receptors and leads to skeletal muscle weakness

Clinical Manifestations:

- ptosis/ diplopia
- Bulbar signs (difficulty speaking or swallowing) Difficulty breathing
- Muscles are stronger in the morning and weaker in the evening

Treatment:

- anticholinesterase drugs before meals
- Semi solid foods

- Need to teach about the importance of the flu vaccine (anyone with an autoimmune disease)

Testing Cerebellar Function

Involved in coordinating voluntary movement and balance and posture
Assessed with gate testing (heel to toe),Finger tapping, touching nose with finger I

PARKINSON DISEASE

- chronic , progressive, neurodegenerative disease of the dopamine producing neurons

C/M

- ❖ Slow movement (bradykinesia)
- ❖ Increase muscle tone (rigidity)
- ❖ Resting tremor
- ❖ Shuffling gait Short steps
- ❖ Stooped posture,
- ❖ Masked facial expression

CTN

Caused by low levels of dopamine in the brain

- **Levodopa Carbidopa** (Sinemet) is a medication that can help in treating bradykinesia
- Once this medication is started, it should never be stopped because it can lead to complete loss of movement
- This medication takes several weeks to reach effect
- The client's urine and saliva may turn a reddish-brown color but this is not harmful

ALZHEIMER'S DISEASE

- Engaging in regular exercise decreases the risk of AD Genetic, lifestyle, and environmental factors
- Family history is a risk factor
- Trauma to head is a risk factor
- Usually over 65
- Healthy lifestyle to reduce the risk of AD Caring for clients with AD
- Use distraction and redirecting to manage agitation (go for a walk) Speak slowly, simple words, yes or no questions
- No open ended questions
- Break down complex activities into steps with simple instructions Decrease client's anxiety by limiting number of choices

TRIGEMINAL NEURALGIA

- Sharp pain along trigeminal nerve
- Primary prevention is consistent pain control
- RX: Carbamazepine is the drug of choice
- This is a seizure medication and is highly effective in controlling neurological pain
- This medication is associated with infection risk and leukopenia so the patient should report any fever or sore throat

EPILEPSY

Chronic seizure activity

Seizure triggers include:

alcohol in excess, sleep deprivation and stress

MX

Practice relaxation techniques

- Medical alert bracelet
- Phenytoin may decrease oral contraceptive effectiveness so use non hormonal birth control
- Phenytoin may cause fetal abnormalities
- Do not stop medication abruptly

Basal skull fracture

- CSF fluid leak from nose and ears, racoon eyes, Battle's sign (bruising around the ears)
- Dextrose testing can be done on the fluid to confirm it is CSF This CSF leak puts the client at risk for infection
- No NG or oral tubes should be placed unless with fluoroscopic guidance
- Coagulated blood surrounded by halo ring of CSF can be a positive sign (halo ring sign)

Hydrocephalus

- Increased ICP
- Increased head circumference, sunset eyes, bulging fontanelles

Types

- **Communicating hydrocephalus**

It is a non-obstructive hydrocephalus caused by impaired CSF reabsorption in the absence of any CSF-flow obstruction between the ventricles and subarachnoid space.

types

- **Non-communicating hydrocephalus**

- This is caused by CSF flow obstruction in the ventricles or in the subarachnoid space.

- **Hydrocephalus can also be classified as:**
- **Congenital hydrocephalus**

It results from congenital malformations that block the outflow of CSF in the ventricles or in the subarachnoid space over the brain. This condition is present at birth and is usually caused by genetic and environmental factors during fetal development.

➢ Acquired hydrocephalus

- Occurs as a consequence of CNS conditions that result in obstruction and accumulation of CSF, such as; infections, meningitis, brain tumors, head injury, toxoplasmosis and intracranial hemorrhage.

mx of Hydrocephalus

Insertion of a shunt
EVD insertion(External Ventricular Drain)
Endoscopic ventriculostomy
Drugs e.g acetazolamide
surgical intervention to remove obstruction

Medical Management

Diuretics- Acetazolamide frusemide are used to decrease secretion of CSF at the choroid plexus.

Anticonvulsants- Helps to interfere with impulse transmission of cerebral cortex and prevent seizures.

Antibiotics

Surgical Management

Hydrocephalus is generally treated with use of various types of cerebral shunts.

- **Myelomeningocele**
- Open spina bifida
- Open area in lumbar spine
- Risk for infection
- Priority intervention it to cover with a sterile, moist dressing

Seizures

Absence Seizures

- Usually occurs in children
- Daydreaming like episodes, usually 10 seconds and staring No memory of the seizure

Seizures

- During seizure activity, priority is client safety
- Assist to lie down from a chair or whatever they are doing Loosen restrictive clothing
- Administer oxygen as needed
- Never restrain and never insert anything into the mouth

- During seizure activity need to stop, administer IV or rectal benzos (**diazepam, lorazepa**m)

Homonymous Hemianopsia

- Loss of half of the visual field on the same side May lose left side of visual field in both eyes
- High risk for self neglect

Concussion

- Change in LOC Amnesia
- Headache
- Rest and light diet are encouraged No strenuous activities for 1-2 days

DIAGNOSTICS

EEG

- Evaluate brain electrical activity
- Hair needs to be washed before procedure
- Avoid caffeine, stimulants, and CNS depressants
- The test is not painful and no analgesia is required
- No chocolate before
- Foods and liquids are not restricted before test
- Not painful and not sedated

Lumbar Puncture

- The patient with be in the lateral recumbent position or sitting upright, these positions allow for widening of the space inbetween the spinal vertebrae
- Before the Procedure: Client will be asked to empty the bladder Needle will be inserted between L3/L4 or L4/L5
- Pain may be felt radiating down the leg, temporary
- After the Procedure: Lie flat with no pillow for at least 4 hours to reduce the chance of spinal fluid leak and resulting headache Increase fluid intake for the next 24 hour to reduce dehydration

DECORTICATE

Causes your legs to become rigid and straight while arms flex upward and hold tensely to your chest.

- A sign of brain damage /disrupted brain activity

c/m

❖Extended and rigid legs

❖Toes pointed away from the body and turned slightly inward

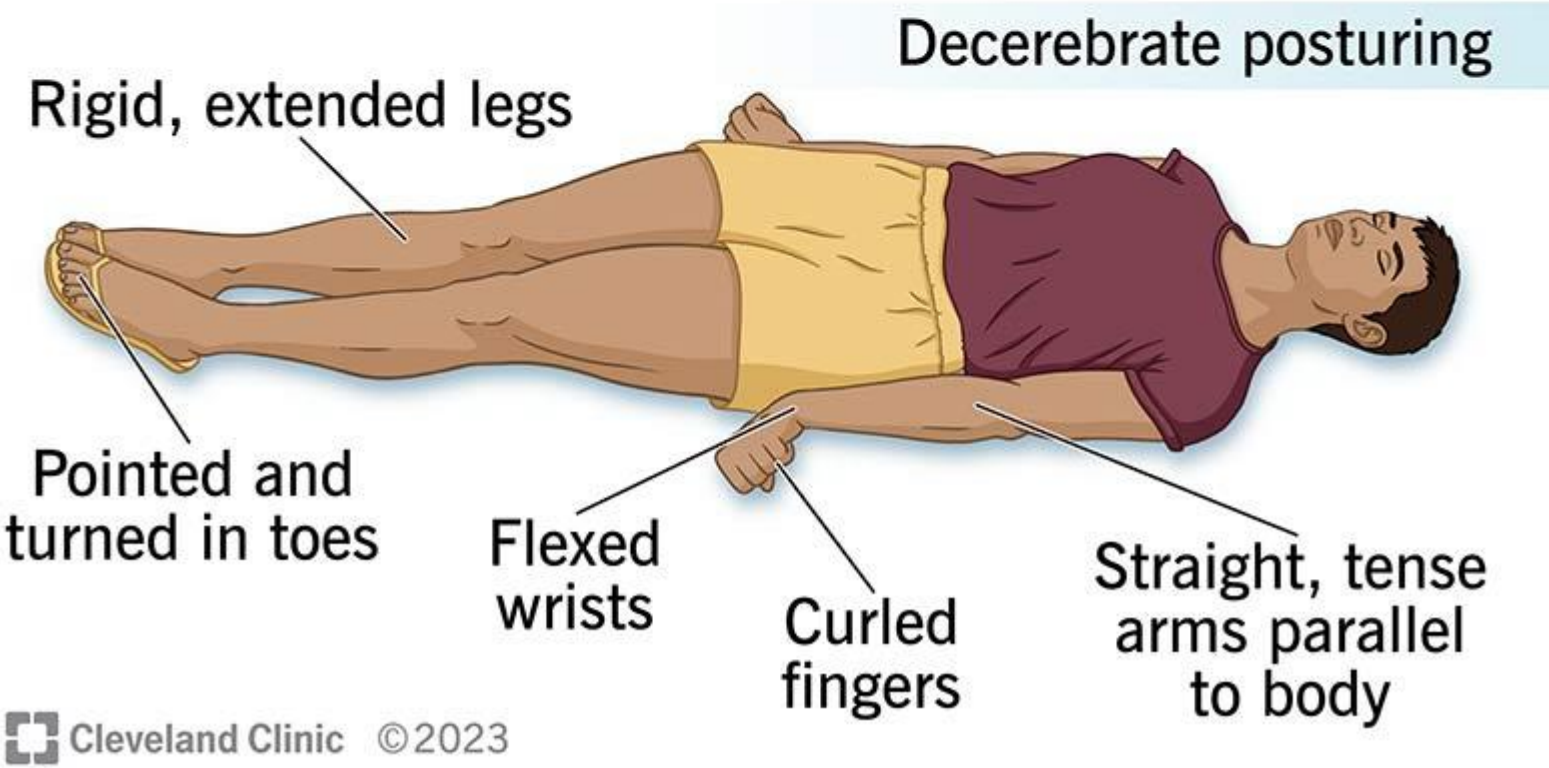
❖Arms bent upward at the elbows towards the Centre of your body

❖Curled wrists

❖Hands balled and pressed together against the chest.

DECEREBRATE

- Sign of severe brain injury
- Arms and legs will be straight out, toes pointed down, and head and neck arched back These assessment findings indicate that severe injury has occured


Decerebrate posturing
Rigid, extended legs
Pointed and turned in toes
Flexed wrists
Curled fingers
Straight, tense arms parallel to body
Cleveland Clinic ©2023

NURSING INTERVENTIONS TO LOWER ICP

- Hyperventilate before suctioning
- Maintain dark, quiet environment
- Maintain the head of the bed in a neutral, midline position
- Elevate head of the bed to 30 degrees
- Administer stool softeners to decrease straining Manage pain
- Manage fever
- Administer stool softeners to decrease straining
- Manage pain
- Manage fever

SPINAL INJURIES

- ***Neurogenic Shock***
- Vasodilation will occur due to loss of innervation from the spine
- This will decrease venous return to the heart , signs of neurogenic shock include: hypotension, bradycardia, and pink and dry skin from the vasodilation
- Usually occurs in cervical or T6 or higher spinal injuries
- Priority nursing care is administering normal saline to increase blood pressure and perfusion to vital organs

- **Laminectomy**
- Removing the posterior of spinous process Relieves compression of nerve root
- Pain, paresthesia, paresis(muscle weakness) these are signs that the nerve root is being pressed on so then would get a laminectomy
- The location will determine the symptoms, prognosis and symptoms 3 locations: cervical, thoracic, lumbar
- **LOG ROLL AFTER SURGERY**
- Anterior thoracic will have chest tubes
- Laminectomy with fusion- take bone from hip Do not dangle, no sitting
- Do not sit for longer than 30 minutes
- They may walk, stand, or lay without restrictions
- Discharge teaching: 6 weeks no sitting for more than 30 minutes, lie flat and log roll for 6 weeks, no driving for 6 weeks, do not lift anything over 5 lbs for 6 weeks, cervical lams cannot lift anything over the head

- Acronym to help determine spine immobilization NSAIDS
- N, neurological damage
- S, significant traumatic injury
- A, alertness
- I, intoxication
- D, distracting injury
- S, spinal examination

Jaw Thrust Maneuver

- Trauma should follow ABC
- Especially true with suspected head and neck injuries
- Until the spin is appropriately addressed, the patient should be placed on a backboard
- The nurse should use the jaw thrust maneuver Acronym to help determine spine immobilization NSAIDS

END

THANK YOU!!