MEDICAL-SURGICAL NURSING

By: Anthony T. Villegas R.N.

Overview of structures and functions:

NERVOUS SYSTEM

- The functional unit of the nervous system is the nerve cells or neurons
- The nervous system is composed of the ff:

Central Nervous System

- Brain
- Spinal Cord serves as a connecting link between the brain & the periphery.

Peripheral Nervous System

- Cranial Nerves -12 pairs; carry impulses to & from the brain. ٠
- Spinal Nerves 31 pairs; carry impulses to & from spinal ٠ cord.

Autonomic Nervous System

- > subdivision of the PNS that automatically controls body function such as breathing & heart beat.
- Special senses of vision and hearing are also covered in this >section
- Sympathetic nervous system generally accelerate some body functions in response to stress.
- Parasympathetic nervous system controls normal body ٠ functioning.

CELLS

A. NEURONS

- Primary component of nervous system
- Composed of cell body (gray matter), axon, and dendrites
- Basic cells for nerve impulse and conduction.

Axon

- ٠ Elongated process or fiber extending from the cell body
- Transmits impulses (messages) away from the cell body to dendrites or directly to the cell bodies of other neurons
- Neurons usually has only one axon ٠

Dendrites

- Short, blanching fibers that receives impulses and conducts them toward the nerve cell body.
- Neurons may have many dendrites.

Synapse

- Junction between neurons where an impulse is transmitted Neurotransmitter
- Chemical agent (ex. Acetylcholine, norepinephrine) involved in the transmission of impulse across synapse.

Myelin Sheath

- A wrapping of myelin (whitish, fatty material) that protects and insulates nerve fibers and enhances the speed of impulse conduction.
 - Both axons and dendrites may or may not have a

- Capable of regeneration with limited time, survival period.
- Kidney cells, Liver cells, Salivary cells, pancreas.

3. Permanent

- Not capable of regeneration.
- Myocardial cells, Neurons, Bone cells, Osteocytes, Retinal Cells.

B. NEUROGLIA

Support and protection of neurons.

TYPES

1. Astrocytes

- maintains blood brain barrier semi-permiable.
- majority of brain tumors (90%) arises from called astrocytoma.
- integrity of blood brain barrier.
- 2. Oligodendria
 - produces myelin sheath in CNS.
 - act as insulator and facilitates rapid nerve impulse transmission.
- 3. Microglia
 - stationary cells that carry on phagocytosis (engulfing of bacteria or cellular debris, eating), pinocytosis (cell drinking).
- 4. Epindymal
 - secretes a glue called chemo attractants that concentrate the bacteria.

| MACROPHAGE Microglia | ORGAN Brain |
|-------------------------|----------------|
| Monocytes | Blood |
| Kupffers | Kidney |
| Histiocytes | Skin |
| Alveolar Macrophage | Lung |

Central Nervous System

Composition Of Brain

- 80% brain mass
- 10% blood
- 10% CSF

Brain Mass

Parts Of The Brain

1. Cerebrum

- largest part of the brain
- outermost area (cerebral cortex) is gray matter
- deeper area is composed of white matter ٠
- function of cerebrum: integration, sensory, motor
- composed of two hemisphere the Right Cerebral Hemisphere and Left Cerebral Hemisphere enclosed in the Corpus Callosum.

- myelin sheath (myelinated/unmyelinated)
- Most axons leaving the CNS are heavily myelinated 0 by schwann cells

Functional Classification

- 1. Afferent (sensory) neurons
- Transmit impulses from peripheral recentors to the CNS 1. erent (motor) neurons Conduct impulses flotte CNS •
- 2. Efferent (motor) neurons
- Conduct impuises from CNS to muscle and Lands 3. Internutural neurons (interneurons) connecting into terms afferent and efferent neurons Properties
 - 1. Excitability ability of neuron to be affected by changes in external environment.
 - 2. Conductility ability of neuron to transmit a wave of excitetation from one cell to another.
 - 3. Permanent Cell once destroyed not capable of regeneration.

TYPES OF CELLS BASED ON REGENERATIVE CAPACITY

- 1. Labile
 - Capable of regeneration.
 - Epidermal cells, GIT cells, GUT cells, cells of lungs.
- 2. Stable

Each hemisphere divided into four lobes; many of the functional areas of the cerebrum have been located in these lobes:

Lobes of Cerebrum

- 1. Frontal Lobe
 - controls personality, behavior ٠
 - higher cortical thinking, intellectual functioning
 - precentral gyrus: controls motor function
 - Broca's Area: specialized motor speech area when damaged results to garbled speech.
- 2. Temporal Lobe
 - hearing, taste, smell •
 - short term memory
 - Wernicke's area: sensory speech area (understanding/formulation of language)
- 3. Pareital Lobe
 - for appreciation ٠
 - integrates sensory information
 - discrimination of sensory impulses to pain, touch, pressure, heat, cold, numbness.
 - Postcentral gyrus: registered general sensation (ex. Touch, pressure)

3. Meninges

- Membranes between the skull & brain & the vertebral column & spinal cord
- 3 fold membrane that covers brain and spinal cord.
- For support and protection; for nourishment; blood supply
- Area between arachnoid & pia mater is called subarachnoid space: CSF aspiration is done
- Subdural space between the dura and arachnoid
- Layers:

Dura Mater

- outermost layer, tough, leathery
- Arachnoid Mater
- middle layer, weblike

Pia Mater

- innermost layer, delicate, clings to surface of brain ٠
- 4. Ventricles
 - Four fluid-filled cavities connecting with one another & spinal canal
 - Produce & circulate cerebrospinal fluid

5. Cerebrospinal Fluid (CSF)

- Surrounds brain & spinal cord
- Offer protection by functioning as a shock absorber
- Allows fluid shifts from the cranial cavity to the spinal cavity
- Carries nutrient to & waste product away from nerve cells
- Component of CSF: CHON, WBC, Glucose

6. Vascular Supply

- Two internal carotid arteries anteriorly
- Two vertebral arteries leading to basilar artery posteriorly
- These arteries communicate at the base of the brain through the circle of willis
- Anterior, middle, & posterior cerebral arteries are the main arteries for distributing blood to each hemisphere of the brain
- Brain stem & cerebellum are supplied by branches of the vertebral & basilar arteries
- Venous blood drains into dural sinuses & then into jugular veins
- 7. Blood-Brain-Barrier (BBB)
 - Protective barrier preventing harmful agents from entering the capillaries of the CNS; protect brain & spinal cord

Substance That Can Pass Blood-Brain Barrier

- 1. Amonia
 - Cerebral toxin ٠
- For movement of pharynx Hepatic Encephalopathy (Liver Cirrhosis) (elevation) & swallowing. Ascites Vagus : CN X Mixed: impulses for sensation to **Esophageal Varices** ٠ lower pharynx & larynx; muscle for Early Signs of Hepatic Encephalopathy pharynx, skaal Accessory sternomast retor hepaticus inholia inke breatht dachase LCC Hoon Monoridu rochter Coisonine Can lead tu Parkinser Epileper Movement of soft palate, • pharynx, & larynx. Late Signs of Hepatic Encephalopathy : CN XI Motor: movement of sternomastoid muscles & upper part of trapezius Muscles. : CN XII Motor: movement of tongue. **Autonomic Nervous System** Part of the peripheral nervous system Include those peripheral nerves (both cranial & spinal) that regulates smooth muscles, cardiac muscles, & glands. Epilepsy Component: Treated with calcium EDTA. 1. Sympathetic Nervous System 3. Type 1 DM (IDDM) Generally accelerates some body function in • Causes diabetic ketoacidosis. • response to stress.

- Signs of jaundice (icteric sclerae).
- Caused by bilirubin (yellow pigment)
- 5. Bilirubin
 - Increase bilirubin in brain (kernicterus).
 - Causing irreversible brain damage.

Peripheral Nervous System

Spinal Nerves

- 31 pairs: carry impulses to & from spinal cord
- Each segment of the spinal cord contains a pair of spinal nerves (one of each side of the body)
- Each nerve is attached to the spinal by two roots: .
 - 1. Dorsal (posterior) roots
 - contains afferent (sensory) nerve whose cell body is in the dorsal roots ganglion
 - 2. Ventral (anterior) roots
 - Contains efferent (motor) nerve whose nerve fibers originate in the anterior horn cell of the spinal cord (lower motor neuron)

Cranial Nerves

- 12 pairs: carry impulses to & from the brain.
- May have sensory, motor, or mixed functions.

| Name & Numb | er | Function | | |
|---|-----------------|---------------------------------------|--|--|
| Olfactory | : CN I | Sensory: carries impulses for | | |
| sense of smell. | | | | |
| Optic | : CN II | Sensory: carries impulses for vision. | | |
| Oculomotor | : CN III | Motor: muscles for papillary | | |
| constriction, el | evation of uppe | r eyelid; | | |
| | | 4 out of 6 extraocular | | |
| movement. | | | | |
| Trochlear | : CN IV | Motor: muscles for downward, | | |
| inward, movement of the eye | | | | |
| Trigeminal | : CN V | Mixed: impulses from face, surface | | |
| of eyes (corneal reflex); muscle | | | | |
| | | Controlling mastication. | | |
| Abducens | : CN VI | Motor: muscles for lateral deviation | | |
| of eye | | | | |
| Facial | : CN VII | Mixed: impulses for taste from | | |
| anterior tongue; muscles for facial | | | | |
| | | Movement. | | |
| Acoustic | : CN V | III Sensory: impulses for | | |
| hearing (cochlear division) & balance (vestibular | | | | |
| | | Division). | | |
| Glossopharyng | eal : CN IX | Mixed: impulses for | | |
| sensation to posterior tongue & pharynx; muscle | | | | |

- And increases breakdown of fats.
- And free fatty acids •
- Resulting to cholesterol and positive to ketones (CNS depressant).
- Resulting to acetone breath odor/fruity odor.
- And kusshmauls respiration a rapid shallow respiration.
- Which may lead to diabetic coma.
- 4. Hepatitis

- 2. Parasympathetic Nervous System
 - Controls normal body functioning •

| Sympathetic Nervous System | Parasympathetic Nervous System |
|-----------------------------------|--|
| (Adrenergic) Effect | (Cholinergic) Effect, Vagal, |
| | Sympatholytic |
| - Involved in fight or aggression | Involved in flight or withdrawal |
| response. | response. |

- a. Cheyne-Stokes Respiration: regular rhythmic alternating between hyperventilation & apnea; may be caused by structural cerebral dysfunction or by metabolic problems such as diabetic coma
- Central Neurogenic Hyperventilation: sustained, rapid, regular respiration (rate of 25/min) with normal O2 level; usually due to brainstem dysfunction
- c. Apneustic Breathing: prolonged inspiratory phase, followed by a 2-to-3 sec pause; usually indicates dysfunction respiratory center in pons
- Cluster Breathing: cluster of irregular breathing, irregularly followed by periods of apnea; usually caused by a lesion in upper medulla & lower pons
- e. Ataxic Breathing: breathing pattern completely irregular; indicates damage to respiratory center of the medulla

Neurologic Exam

- 1. Mental status and speech (Cerebral Function)
 - a. General appearance & behavior
 - b. LOC
 - c. Intellectual Function: memory (recent & remote), attention span, cognitive skills
 - d. Emotional status
 - e. Thought content
 - f. Language / speech
- 2. Cranial nerve assessment
- 3. Cerebellar Function: posture, gait, balance, coordination
 - a. Romberg's Test: 2 nurses, positive for ataxia
 - b. Finger to Nose Test: positive result mean dimetria (inability of body to stop movement at desired point)
- 4. Sensory Function: light touch, superficial pain, temperature, vibration & position sense
- 5. Motor Function: muscle size, tone, strength; abnormal or involuntary movements
- 6. Reflexes
 - a. Deep tendon reflex: grade from 0 (no response); to 4 (hyperactive); 2 (normal)
 - b. Superficial
 - c. Pathologic: babinski reflex (dorsiflexion of the great toe with fanning of toes): indicates damage to corticospinal tracts

Level Of Consciouness (LOC)

- 1. Conscious: awake
- 2. Lethargy: lethargic (drowsy, sleepy, obtunded)
- 3. Stupor
 - Stuporous: (awakened by vigorous stimulation)
 - Generalized body weakness
 - Decrease body reflex
- 4. Coma
 - > Comatose
 - light coma: positive to all forms of painful stimulus

Cranial Nerves

| Cranial Nerves | Function |
|------------------|---|
| Olfactory | S |
| Optic | S |
| Oculomotor | Μ |
| Trochlear | М |
| | (smallest) |
| Trigeminal | B (largest) |
| Abducens | Μ |
| Facial | В |
| Acoustic | S |
| Glossopharengeal | В |
| Vagus | B (longest) |
| Spinal Accessory | Μ |
| Hypoglossal | М |
| | Cranial Nerves Olfactory Optic Oculomotor Trochlear Trigeminal Abducens Facial Acoustic Glossopharengeal Vagus Spinal Accessory Hypoglossal |

CRANIAL NERVE I: OLFACTORY

Sensory function for smell

Material Used

- Don't use alcohol, ammonia, perfume because it is irritating and highly diffusible.
- > Use coffee granules, vinegar, bar of soap, cigarette

Procedure

> Test each nostril by occluding each nostril

Abnormal Findings

- 1. Hyposnia: decrease sensitivity to smell
- 2. Dysosmia: distorted sense of smell
- 3. Anosmia: absence of smell

Either of the 3 may indicate head injury damaging the cribriform plate of ethmoid bone where olfactory cells are located may indicate inflammatory conditions (sinusitis)

CRANIAL NERVE II: OPTIC

> Sensory function for vision or sight

Functions

- 1. Test visual acuity or central vision or distance
 - Use Snellen's Chart
 - Snellen's Alphabet chart: for literate client
 - > Snellen's E chart: for illiterate client
 - > Snellen's Animal chart: for pediatric client
 - Normal visual acuity 20/20
 - Numerator: is constant, it is the distance of person from the chart (6-7 m, 20 feet)
 - Denominator: changes, indicates distance by which the person normally can see letter in the chart.
 - 20/200 indicates blindness
 - 20/20 visual acuity if client is able to read letters above the red line.
- 2. Test of visual field or peripheral vision
 - a. Superiorly
 - b. Bitemporaly
 - c. Nasally
 - d. Inferiorly

CRANIAL NERVE III, IV, VI: OCULOMOTOR, TROCHLEAR, ABDUCENS

> Controls or innervates the movement of extrinsic ocular



Level of Orientation

- 1. Time: first asked
- 2. Person: second asked
- 3. Place: third asked

- Controls the size and response of pupil
- Normal pupil size is 2 3 mm
- Equal size of pupil: Isocoria
- Unequal size of pupil: Anisocoria
- Normal response: positive PERRLA

- Morphine Sulfate
- antidote: Naloxone (Narcan) toxicity leads to tremors.
- b. Allopurinol (Zylopril)

Side Effects

- respiratory depression (check for RR)

Parkinson's Disease/ Parkinsonism

- Chronic progressive disorder of CNS characterized by degeneration of dopamine producing cells in the substantia nigra of the midbrain and basal ganglia.
- Progressive disorder with degeneration of the nerve cell in • the basal ganglia resulting in generalized decline in muscular function
- Disorder of the extrapyramidal system
- Usually occurs in the older population
- Cause Unknown: predominantly idiopathic, but sometimes disorder is postencephalitic, toxic, arteriosclerotic, traumatic, or drug induced (reserpine, methyldopa (aldomet) haloperidol (haldol), phenothiazines).

Pathophysiology

- Disorder causes degeneration of dopamine producing neurons in the substantia nigra in the midbrain
- Dopamine: influences purposeful movement
- Depletion of dopamine results in degeneration of the basal ganglia

Predisposing Factors

- 1. Poisoning (lead and carbon monoxide)
- 2. Arteriosclerosis
- 3. Hypoxia
- 4. Encephalitis
- 5. Increase dosage of the following drugs:
 - a. Reserpine (Serpasil)
 - b. Methyldopa (Aldomet) Antihypertensive
 - c. Haloperidol (Haldol)-
 - d. Phenothiazine Antipsychotic

Side Effects Reserpine: Major depression lead to suicide



Nursing Intervention for Suicide

- direct approach towards the client
- close surveillance is a nursing priority
- time to commit suicide is on weekends early morning

- a. Levodopa (L-dopa) short acting
 - MOA: Increase level of dopamine in the brain; relieves tremors; rigidity; bradykinesia
 - SE: GIT irritation (should be taken with meal); anorexia; N/V; postural hypotension; mental changes: confusion, agitation, hallucination; cardiac arrhythmias; dyskinesias.
 - Cl: narrow-angled glaucoma; client taking MAOI inhibitor; reserpine; guanethidine; methyldopa; antipsychotic; acute psychoses
 - Avoid multi-vitamins preparation containing vitamin B6 & food rich in vitamin B6 (Pyridoxine): reverses the therapeutic effects of Levodopa
 - Urine and stool may be darkened
 - Be aware of any worsening of symptoms with prolonged high-dose therapy: "on-off" syndrome.
- b. Carbidopa-levodopa (Sinemet)
 - Prevents breakdown of dopamine in the periphery & causes fewer side effects.
- c. Amantadine Hydrochloride (Symmetrel)
 - Used in mild cases or in combination with L-dopa to • reduce rigidity, tremors, & bradykinesia

Anti-Cholinergic Drug

- a. Benztropine Mesylate (Cogentin)
- b. **Procyclidine** (Kemadrine)
- c. Trihexyphenidyl (Artane)
 - MOA: inhinit the action of acetylcholine; used in mild cases or in combination with L-dopa; relived tremors & rigidity
 - SE: dry mouth; blurred vision; constipation; urinary retention; confusion; hallucination; tachycardia

Anti-Histamines Drug

- a. Diphenhydramine (benadryl)
 - MOA: decrease tremors & anxiety
 - SE: Adult: drowsiness Children: CNS excitement (hyperactivity) because blood brain barrier is not yet fully developed.
- b. **Bromocriptine** (Parlodel)
 - MOA: stimulate release of dopamine in the substantia nigra
 - Often employed when L-dopa loses effectiveness

MAOI Inhibitor

- a. Eldepryl (Selegilene)
 - MOA: inhibit dopamine breakdown & slow progression of disease

Anti-Depressant Drug

- a. Tricyclic
 - MOA: given to treat depression commonly seen in Parkinson's disease

S/sx

- 1. Tremor: mainly of the upper limbs "pill rolling tremors" of extremities especially the hands; resting tremor: most Stooped posture: shuffling, propulsive 536 3. Fatigue Mask like faciar (2) ression with
- 2.
- 3.
- 4
- 5.
- EX ression with decreate to king 6.
- Quite, monotone spee
 - Emotional lability: state of depression 9
 - 10. Increase salivation: drooling type
 - 11. Cramped, small handwriting
 - 12. Autonomic Symptoms
 - a. excessive sweating
 - b. increase lacrimation
 - c. seborrhea
 - d. constipation
 - e. decrease sexual capacity

Nursing Intervention

1. Administer medications as ordered Anti-Parkinson Drug

- 2. Provide safe environment
 - Side rails on bed
 - Rails & handlebars in the toilet, bathtub, & hallways
 - No scattered rugs
 - Hard-back or spring-loaded chair to make getting up easier
- 3. Provide measures to increase mobility
 - Physical Therapy: active & passive ROM exercise; stretching exercise; warm baths
 - Assistive devices
 - If client "freezes" suggest thinking of something to walk over
- 4. Encourage independence in self-care activities:
 - alter clothing for ease in dressing
 - use assistive device
 - do not rush the client

5. Improve communication abilities:

- Instruct the client to practice reading a loud
- Listen to own voice & enunciate each syllable clearly
- 6. Refer for speech therapy when indicated.
- 7. Maintain adequate nutrition.
 - Cut food into bite-size pieces
 - Provide small frequent feeding
 - Allow sufficient time for meals, use warming tray
- 8. Avoid constipation & maintain adequate bowel elimination

- Clonic contractions: contraction of extremities
- Postictal sleep: unresponsive sleep
- Seizure ends with postictal period of confusion, drowsiness
- b. Absence Seizure (Petit mal Seizure):
- Usually non-organic brain damage present
- Must be differentiated from daydreaming
- Sudden onset with twitching & rolling of eyes that last 20-40 sec
- Common among pediatric clients characterized by:
 - Blank stare
 - Decrease blinking of eyes
 - Twitching of mouth
 - Loss of consciousness (5 10 seconds) \geq

2. Partial or Localized Seizure

- > Begins in focal area of brain & symptoms are related to a dysfunction of that area
- May progress into a generalized seizure \geq
- a. Jacksonian Seizure (focal seizure)
 - characterized by tingling and jerky movement of index finger and thumb that spreads to the shoulder and other side of the body.
- b. Psychomotor Seizure (focal motor seizure)
 - May follow trauma, hypoxia, drug use
 - Purposeful but inappropriate repetitive motor acts
 - Aura is present: daydreaming like
 - > Automatism: stereotype repetitive and non propulsive behavior
 - Clouding of consciousness: not in contact with environment
 - Mild hallucinatory sensory experience

3. Status Epilepticus

- Usually refers to generalized grand mal seizure
- > Seizure is prolong (or there are repeated seizures without regaining consciousness) & unresponsive to treatment
- Can result in decrease in O2 supply & possible cardiac \geq arrest
- A continuous uninterrupted seizure activity
- If left untreated can lead to hyperpyrexia and lead to coma and eventually death.
- > DOC: Diazepam (Valium) & Glucose

C. Diagnostic Procedures

- 1. CT Scan reveals brain lesions
- 2. EEG reveals hyper activity of electrical brain waves

D. Nursing Management

1. Maintain patent airway and promote safety before seizure activity

- a. Eyelids (Palpebrae) & Eyelashes: protect the eye from foreign particles
- b. Conjunctiva:
 - Palpebral Conjunctiva: pink; lines inner surface of eyelids
 - Bulbar Conjunctiva: white with small blood vessels. covers anterior sclera
- c. Lacrimal Apparatus (lacrimal gland & its ducts & passage): produces tears to lubricate the eye & moisten the cornea; tears drain into the nasolacrimal duct, which empties into nasal cavity
- d. The movement of the eye is controlled by 6 extraocular muscles (EOM)

Internal Structure of Eye

- A. 3 layers of the eyeball
 - 1. Outer Layer
 - a. Sclera: tough, white connective tissue ("white of the eye"); located anteriorly & posteriorly
 - b. Cornea: transparent tissue through which light enters the eye; located anteriorly
 - 2. Middle Layer
 - a. Choroid: highly vascular layer, nourishes retina; located posteriorly
 - b. Ciliary Body: anterior to choroid, secrets aqueous humor; muscle change shape of lens
 - c. Iris: pigmented membrane behind cornea, gives color to eye; located anteriorly
 - d. Pupil: is circular opening in the middle of the iris that constrict or dilates to regulate amount of light entering the eye
 - 3. Inner Layer
 - a. Light-sensitive layer composed of rods & cones (visual cell)
 - Cones: specialized for fine discrimination & color vision; (daylight / colored vision)
 - Rods: more sensitive to light than cones, aid \geq in peripheral vision; (night twilight vision)
 - b. Optic Disk: area in retina for entrance of optic nerve, has no photoreceptors
- B. Lens: transparent body that focuses image on retina
- C. Fluid of the eye
 - 1. Aqueous Humor: clear, watery fluid in anterior & posterior chambers in anterior part of eye; serves as refracting medium & provides nutrients to lens & cornea; contribute to maintenance of intraocular pressure
 - 2. Vitreous Humor: clear, gelatinous material that fills posterior cavity of eye; maintains transparency & form of eye

Visual Pathways

- a. Retina (rods & cones) translates light waves into neural
- a. clear the site of blunt or sharp objects
- b. loosen clothing of client
- c. maintain side rails
- d. avoid use of restrains
- e. turn clients head to side to prevent aspiration

- f. place mouth piece of tongue guard to prevent biting or tongue 2. Avoid precipitating stimulus such as blight graphy lights and noise 3. Administer medications a) prevent 4. Antiputervulsants (Dilantin, the tytoin)
- - azepam c. Carbamaz pine (Tegnetol) - trigeminal neuralgia
 - d. Phenobarbital, Luminal
- 4. Institute seizure and safety precaution post seizure attack
 - a. administer O2 inhalation
 - b. provide suction apparatus
- 5. Document and monitor the following
 - a. onset and duration
 - b. types of seizures
 - c. duration of post ictal sleep may lead to status epilepticus
 - d. assist in surgical procedure cortical resection

Overview Anatomy & Physiology of the Eye

External Structure of Eye

- impulses that travel over the optic nerves
- b. Optic nerves for each eye meet at the optic chiasm
 - Fibers from median halves of the retinas cross here & travel to the opposite side of the brain
 - Fibers from lateral halves of retinas remain

uncrossed

c. Optic nerves continue from optic chiasm as optic tracts & travels to the cerebrum (occipital lobe) where visual impulses are perceived & interpreted

Canal of schlemm: site of aqueous humor drainage Meibomian gland: secrets a lubricating fluid inside the eyelid Maculla lutea: yellow spot center of retina Fovea centralis: area with highest visual acuity or acute vision

2 muscles of iris:

Circular smooth muscle fiber: Constricts the pupil Radial smooth muscle fiber: Dilates the pupil

Physiology of vision

4 Physiological processes for vision to occur:

- 1. Refraction of light rays: bending of light rays
- 2. Accommodation of lens
- 3. Constriction & dilation of pupils

4. Convergence of eyes

Unit of measurements of refraction: diopters Normal eye refraction: emmetropia Normal IOP: 12-21 mmHg

Error of Refraction

- 1. Myopia: nearsightedness: Treatment: biconcave lens
- 2. Hyperopia: farsightedness: Treatment: biconvex lens
- 3. Astigmatisim: distorted vision: Treatment: cylindrical
- 4. Presbyopia: "old sight" inelasticity of lens due to aging: Treatment: bifocal lens or double vista

Accommodation of lenses: based on thelmholtz theory of accommodation

Near Vision: Ciliary muscle contracts: Lens bulges

Far Vision: ciliary muscle dilates / relaxes: lens is flat

Convergence of the eye:

Error:

- 1. Exotropia:1 eye normal
- 2. Esophoria: corrective eye surger
- Strabismus: squint eye 3.
- 4. Amblyopia: prolong squinting

Common Visual Disorder

Glaucoma

- > Characterized by increase intraocular pressure resulting in progressive loss of vision
- May cause blindness if not recognized & treated
- Early detection is very important
- preventable but not curable
- Regular eye exam including tonometry for person over age \geq 40 is recommended

Predisposing Factors

- 1. Common among 40 years old and above
- 2. Hereditary
- 3. Hypertension
- 4. Obesity
- 5. History of previous eye surgery, trauma, inflammation

Types of Glaucoma:

- 1. Chronic (open-angle) Glaucoma:
 - Most common form
 - Due to obstruction of the outflow of aqueous humor, in \geq trabecular meshwork or canal of schlemm
- 2. Acute (close-angle) Glaucoma:
 - > Due to forward displacement of the iris against the

Dx

- 1. Visual Acuity: reduced
- 2. Tonometry: reading of 24-32 mmHg suggest glaucoma; may be 50 mmHg of more in acute (close-angle) glaucoma
- 3. Ophthalmoscopic exam: reveals narrowing of small vessels of optic disk, cupping of optic disk
- 4. Perimetry: reveals defects in visual field
- 5. Gonioscopy: examine angle of anterior chamber

Medical Management

- 1. Chronic (open-angle) Glaucoma
 - a. Drug Therapy: one or a combination of the following
 - Miotics eye drops (Pilocarpine): to increase outflow of aqueous humor
 - Epinephrine eye drops: to decrease aqueous humor production & increase outflow
 - > Carbonic Anhydrase Inhibitor: Acetazolamide (Diamox): to decrease aqueous humor production
 - > Timolol Maleate (Timoptic): topical beta-adrenergic blocker: to decrease intraocular pressure (IOP)
 - b. Surgery (if no improvement with drug)
 - Filtering procedure (Trabeculectomy / Trephining): to create artificial openings for the outflow of aqueous humor
 - Laser Trabeculoplasty: non-invasive procedure performed with argon laser that can be done on an out-client basis; procedure similar result as trabeculectomy

2. Acute (close-angle) Glaucoma

- a. Drug Therapy: before surgery
 - > Miotics eye drops (Pilocarpine): to cause pupil to contract & draw iris away from cornea
 - Osmotic Agent (Glycerin oral, Mannitol IV): to \geq decrease intraocular pressure (IOP)
 - Narcotic Analgesic: for pain

b. Surgery

- Peripheral Iridectomy: portion of the iris is excised to facilitate outflow of aqueous humor
- > Argon Laser Beam Surgery: non-invasive procedure using laser produces same effect as iridectomy; done in out-client basis
- > Iridectomy: usually performed on second eye later since a large number of client have an acute acute attack in the other eye
- 3. Chronic (close-angle) Glaucoma
 - a. Drug Therapy:
 - miotics (pilocarpine)
 - b. Surgery:
 - bilateral peripheral iridectomy: to prevent acute attacks

Nursing Intervention

- cornea, obstructing the outflow of the aqueous humor
- ≻ Occurs suddenly & is an emergency situation
- \geq If untreated it will result to blindness
- 3. Chronic (close-angle) Glaucoma:
- 4.
 5.
 6.
 1. Chronic (open-angle) Glauco to evolutions develops slowly
 Impaired operiod methods in (PS; tunned vision)
 Halve around light
 Mild disconfort (1) here to be a state of the stateo

- Loss of contral vision if unarrested
- 2. Acute (close-angle) Glaucoma
 - ≻ Severe eye pain
 - ۶ Blurred cloudy vision
 - Halos around light \geq
 - N/V \geq
 - Steamy cornea \geq
 - Moderate pupillary dilation \geq
- 3. Chronic (close-angle) Glaucoma
 - \geq Transient blurred vision
 - Slight eye pain \geq
 - Halos around lights ≻

- Administer medication as ordered
- 2. Provide quite, dark environment
- Maintain accurate I & O with the use of osmotic agent 3.
- 4. Prepare client for surgery if indicated
- Provide post-op care
- Provide client teaching & discharge planning
- a. Self-administration of eye drops
- b. Need to avoid stooping, heavy lifting or pushing, emotional upsets, excessive fluid intake, constrictive clothing around the neck
- c. Need to avoid the use antihistamines or
 - sympathomimetic drugs (found in cold preparation) in close-angle glaucoma since they may cause mydriasis
- d. Importance of follow-up care
- Need to wear medic-alert tag e.

Cataract

- . Decrease opacity of ocular lens
- Incidence increases with age

Predisposing Factor

- 1. Aging 65 years and above
- 2. May caused by changes associated with aging ("senile"

cataract)

3. Related to congenital

| | Growth | & | |
|--|------------------|----------|------|
| development | | | |
| : Thyrocalcitonin | : | lowers | |
| serum calcium & phosphate levels | | | |
| | | | Adı |
| Parathyroid G : PTH | : regulates | serum | |
| calcium & phosphate levels | | | |
| | | | |
| Pancreas (islets of | | | 2 S |
| Langerhans) | | | |
| Beta Cells : Insulin | : allows gluco | ise to | |
| diffuse across cell membrane; | | | |
| | Converts glu | cose to | |
| | glycogen | | |
| Alpha Cells | : increase blo | od | |
| glucose by causing glyconeogenisis | | | |
| | & glycogeno | lysis in | |
| | the liver; sec | reted in | |
| | response to | | |
| | low blood sug | jar | |
| | | | |
| development of secondary say characteristics | in the | | |
| development of secondary sex characteristics | Fomalo ma | turation | |
| of sev organ, sexual functioning | Tennale, Ina | Luration | |
| or sex organ, sexual functioning | Maintenance | of | |
| pregnancy | Municentinee | 01 | |
| Testes Testosterone | · developm | ent of | |
| secondary sex characteristics in the | i dereiopin | ent of | |
| | Male matura | ation of | |
| the sex organs, sexual functioning | | | |
| | | | |
| Pituitary Gland (Hypophysis) | | | The |
| Located in sella turcica at the base of I | brain | | 1113 |
| "Master Gland" or master clock | | | |
| Controls all metabolic function of body | | | |
| 3 Lobes of Pituitary Gland | | | |
| 1. Anterior Lobe PG (Adenohypophysis) | | | |
| a. Secretes tropic hormones (hormon | es that stimula | ate | |
| target glands to produce their horr | mones): | | |
| adrenocorticotropic H (ACTH), thyr | oid-stimulating | ; Н | |
| (TSH), follicle-stimulating H (FSH), | luteinizing H (L | _H) | |
| ACTH: promotes developm | ent of adrenal | cortex | |
| LH: secretes estrogen | | | |
| FSH: secretes progesterone | e | | |
| b. Also secretes hormones that have | direct effects o | on | |
| tissues: somatotropic or growth H, | prolactin | | _ |
| Somatotropic / GH: promot | es elongation | of long | Par |
| | | | |

- Hyposecretion of GH: among children results to >dwarfism
- > Hypersecretion of GH: among children results to

- 1. Lead to blindness due to severe photophobia
- 2. Prone to skin cancer

renal Glands

Two small glands, one above each kidney; Located at top of each kidney

Sections of Adrenal Glands

- 1. Adrenal Cortex (outer portion): produces mineralocorticoids, glucocorticoids, sex hormones
 - > 3 Zones/Layers
 - > Zona Fasciculata: secretes glucocortocoids (cortisol): controls glucose metabolism: Sugar
 - Zona Reticularis: secretes traces of glucocorticoids \geq & androgenic hormones: promotes secondary sex characteristics: Sex
 - \geq Zona Glumerulosa: secretes mineralocorticoids (aldosterone): promotes sodium and water reabsorption and excretion of potassium: Salt
- Adrenal Medulla (inner portion): produces epinephrine, 2. norepinephrine (secretes catecholamines a power hormone): vasoconstrictor
 - > 2 Types of Catecholamines:
 - Epinephrine (vasoconstrictor)
 - Norepinephrine (vasoconstrictor) \geq
 - Pheochromocytoma (adrenal medulla): Increase secretion of norepinephrine: Leading to hypertension which is resistant to pharmacological agents leading to CVA: Use beta-blockers

yroid Gland

- Located in anterior portion of the neck
- Consist of 2 lobes connected by a narrow isthmus
- Produces thyroxine (T4), triiodothyronine (T3), thyrocalcitonin
- 3 Hormones Secreted:
 - T3: 3 molecules of iodine (more potent)
 - ➤ T4: 4 molecule of iodine
 - T3 and T4 are metabolic hormone: increase brain \geq activity; promotes cerebration (thinking); increase V/S
 - \geq Thyrocalcitonin: antagonizes the effects of parathormone to promote calcium reabsorption.

athyroid Gland

- > 4 small glands located in pairs behind the thyroid gland
- Produce parathormone (PTH) \geq
- Promotes calcium reabsorption \succ

Pancreas

- gigantism
- \geq Hypersecretion of GH: among adults results to acromegaly (square face)
- DOC: Ocreotide (Sandostatin) >
- ۶ Prolactin: promotes development of mammary gland; with help of oxytocin it initiates milk le
- Regulated by hypothalamic releasing actions & by negative feedback system sterior Loke 1000
- 2. Posterior Lobe

bones

- Polshot produce hormon's
- Store & e hormones (ADH) & oxytocin produced by hypothalamus
 - Secretes hormones oxytocin (promotes uterine ۶ contractions preventing bleeding or hemorrhage)
 - Administer oxytocin immediately after delivery to \geq prevent uterine atony.
 - Initiates milk let down reflex with help of hormone prolactin
 - 3. Intermediate Lobe PG
 - Secretes melanocytes stimulating H (MSH)
 - MSH: for skin pigmentation
 - Hyposecretion of MSH: results to albinism ≻
 - Hypersecretion of MSH: results to vitiligo ۶
 - 2 feared complications of albinism: ≻

- \geq Located behind the stomach
- Has both endocrine & exocrine function (mixed gland)
- Consist of Acinar Cells (exocrine gland): which secretes pancreatic juices: that aids in digestion
 - Islets of langerhans (alpha & beta cells) involved in
 - endocrine function:
 - > Alpha Cell: produce glucagons: (function: hyperglycemia)
 - Beta Cell: produce insulin: (function: hypoglycemia) \triangleright
 - Delta Cells: produce somatostatin: (function: antagonizes the effects of growth hormones)

Gonads

- Ovaries: located in pelvic cavity; produce estrogen & \geq progesterone
- Testes: located in scrotum; produces testosterone

Pineal Gland

- Secretes melatonin
- Inhibits LH secretion \geq
- It controls & regulates circadian rhythm (body clock)

Diabetes Incipidus (DI)

DI: dalas-ihi

- 1. Maintain patent airway & adequate ventilation; administer O2 as ordered
- 2. Administer IV therapy as ordered
- 3. Administer medication as ordered:
 - a. Anti-thyroid drugs
 - b. Corticosteroids
 - c. Sedatives
 - d. Cardiac Drugs

Thyroidectomy

- > Partial or total removal of thyroid gland
- Indication:
 - Subtotal Thyroidectomy: hyperthyroidism
 - Total Thyroidectomy: thyroid cancer \geq

Nursing Intervention Pre-op

- 1. Ensure that the client is adequately prepared for surgery
 - a. Cardiac status is normal
 - b. Weight & nutritional status is normal
- 2. Administer anti-thyroid drugs as ordered: to suppressed the production of thyroid hormone & to prevent thyroid storm
- 3. Administer iodine preparation Lugol's Solution (SSKI) or Potassium Iodide Solution: to decrease vascularity of the thyroid gland & to prevent hemorrhage.

Nursing Intervention Post-Op

- 1. Monitor V/S & I&O
- 2. Check dressing for signs of hemorrhage: check for wetness behind the neck
- 3. Place client in semi-fowlers position & support head with pillow
- Observe for respiratory distress secondary to 4. hemorrhage, edema of glottis, laryngeal nerve damage, or tetany: keep tracheostomy set, O2 & suction nearby
- 5. Assess for signs of tetany: due to hypocalcemia: due to secondary accidental removal of parathyroid glands: keep Calcium Gluconate available:
 - Watch out for accidental removal of parathyroid which may lead to hypocalcemia (tetany) Classic S/sx of Tetany
 - Positive trousseu's sign
 - Positive chvostek sign
 - Observe for arrhythmia, seizure: give Calcium \geq Gluconate IV slowly as ordered
- 6. Ecourage clients voice to rest:
 - a. Some hoarseness is common
 - b. Check every 30-60 min for extreme hoarseness or any accompanying respiratory distress
- 7. Observe for signs of thyroid storm / thyrotoxicosis: due to release of excessive amount of thyroid hormone during surgery

- 12. Assist the client with ambulation: instruct the client to place the hands behind the neck: to decrease stress on suture line if added support is necessary
- 13. Hormonal replacement therapy for lifetime
- 14. Watch out for accidental laryngeal damage which may lead to hoarseness of voice: encourage client to talk/speak immediately after operation and notify physician
- **15**. Provide client teaching& discharge planning concerning:
 - a. S/sx of hyperthyroidism & hypothyroidism
 - b. Self administration of thyroid hormone: if total thyroidectomy is performed
 - c. Application of lubricant to the incision once suture is removed
 - d. Perform ROM neck exercise 3-4 times a day
 - e. Importance of follow up care with periodic serum calcium level

Hypoparathyroidism

- > Disorder characterized by hypocalcemia resulting from a deficiency of parathormone (PTH) production
- Decrease secretion of parathormone: leading to hypocalcemia: resulting to hyperphospatemia
- > If calcium decreases phosphate increases

Predisposing Factors

- 1. May be hereditary
- 2. Idiopathic
- 3. Caused by accidental damage to or removal of parathyroid gland during thyroidectomy surgery
- 4. Atrophy of parathyroid gland due to: inflammation, tumor, trauma

S/sx

- 1. Acute hypocalcemia (tetany)
 - a. Paresthesia: tingling sensation of finger & around lip
 - b. Muscle spasm
 - c. laryngospasm/broncospasm
 - d. Dysphagia
 - e. Seizure: feared complications
 - Cardiac arrhythmia: feared complications f.
 - Numbness g.
 - h. Positive trousseu's sign: carpopedal spasm
 - i. Positive chvostek sign
- Chronic hypocalcemia (tetany) 2.
 - a. Fatigue
 - b. Weakness
 - c. Muscle cramps
 - d. Personality changes
 - e. Irritability
 - Memory impairment



- Monitor strictly vital signs, input and output and neuro check.
- Maintain side rails
- Offer TSB
- 8. Administer IV fluids as ordered: until the client is tolerating fluids by mouth
- 9. Administer analgesics as ordered: for incisional pain
- **10**. Relieve discomfort from sore throat:
 - a. Cool mist humidifier to thin secretions
 - b. Administer analgesic throat lozenges before meals prn as ordered
- 11. Encourage coughing & deep breathing every hour

- Agitation g.
- Dry scaly skin h.
- Hair loss i.
- Loss of tooth enamel j.
- Tremors k.
- ١. Cardiac arrhythmias
- m. Cataract formation
- Photophobia n.
- Anorexia ο.
- N/V p.

Diagnostic Procedures

- 1. Serum Calcium level: decreased (normal value: 8.5 11 mg/100 ml)
- 2. Serum Phosphate level: increased (normal value: 2.5 -4.5 mg/100 ml)
- Skeletal X-ray of long bones: reveals a increased in bone 3. density
- CT Scan: reveals degeneration of basal ganglia 4.

Nursing Management

- 1. Administer medications as ordered such as:
 - a. Acute Tetany: Calcium Gluconate slow IV drip as ordered
 - b. Chronic Tetany:

- 3. Serum Sodium: is decrease (normal value: 135 145 meq/L)
- Serum Potassium: is increased (normal value: 3.5 4.5 4. meq/L)

Nursing Intervention

- 1. Administer hormone replacement therapy as ordered:
 - a. Glucocorticoids: stimulate diurnal rhythm of cortisol release, give 2/3 of dose in early morning & 1/3 of dose in afternoon
 - Corticosteroids: Dexamethasone (Decadrone) •
 - Hydrocortisone: Cortisone (Prednisone)
 - b. Mineralocorticoids:
 - Fludrocortisone Acetate (Florinef) •

Nursing Management when giving steroids

- 1. Instruct client to take 2/3 dose in the morning and 1/3 dose in the afternoon to mimic the normal diurnal rhythm
- 2. Taper dose (withdraw gradually from drug)
- 3. Monitor side effects:
 - Hypertension
 - Edema •
 - Hirsutism
 - Increase susceptibility to infection .
 - Moon face appearance
- 2. Monitor V/S
- Decrease stress in the environment 3.
- Prevent exposure to infection 4.
- 5. Provide rest period: prevent fatigue
- 6. Weight daily
- 7. Provide small frequent feeding of diet: decrease in K, increase cal, CHO, CHON, Na: to prevent hypoglycemia, & hyponatremia & provide proper nutrition
- 8. Monitor I&O: to determine presence of addisonian crisis (complication of addison's disease)
- 9. Provide meticulous skin care
- 10. Provide client teaching & discharge planning concerning:
 - a. Disease process: signs of adrenal insufficiency
 - b. Use of prescribe medication for lifelong replacement therapy: never omit medication
 - c. Need to avoid stress, trauma & infection: notify the physician if these occurs as medication dosage may need to be adjusted
 - d. Stress management technique
 - e. Diet modification
 - Use of salt tablet (if prescribe) or ingestion of salty f. foods (potato chips): if experiencing increase sweating
 - Importance of alternating regular exercise with rest q. periods

k. Importance of follow up care

Addisonian Crisis

Severe exacerbation of addison's diseasecaused by acute • adrenal insufficiency

Predisposing Factors

- 1. Strenuous activity
- 2. Stress
- 3. Trauma
- 4. Infection
- 5. Failure to take prescribe medicine
- 6. latrogenic:
 - Surgery of pituitary gland or adrenal gland
 - Rapid withdrawal of exogenous steroids in a client on long-term steroid therapy

S/sx

- 1. Generalized muscle weakness
- Severe hypotension 2.
- Hypovolemic shock: vascular collapse 3.
- Hyponatremia: leading to progressive stupor and 4. coma

Nursing Intervention

- 1. Assist in mechanical ventilation
- 2. Administer IV fluids (5% dextrose in saline, plasma) as ordered: to treat vascular collapse
- 3. Administer IV glucocorticoids: Hydrocortisone (Solu-Cortef) & vasopressors as ordered
- 4. Force fluids
- 5. If crisis precipitate by infection: administer antibiotics as ordered
- 6. Maintain strict bed rest & eliminate all forms of stressful stimuli
- 7. Monitor V/S, I&O & daily weight
- Protect client from infection 8.
- 9. Provide client teaching & discharge planning concerning: same as addison's disease

Cushing Syndrome

- Condition resulting from excessive secretion of corticosteroids, particularly glucocorticoid cortisol
- Hypersecretion of adrenocortical hormones

Predisposing Factors

- 1. Primary Cushing's Syndrome: caused by adrenocortical tumors or hyperplasia
- 2. Secondary Cushing's Syndrome (also called Cushing's disease): caused by functioning pituitary or nonpituitary neoplasm secreting ACTH, causing increase secretion of glucocorticoids

- h. Avoidance of strenuous exercise especially in hot weather
- Avoid precipitating factor: leading to addisonian i., crisis: stress, infection, sudden withdrawal to
- 1. Muscle weakness
- 2.
- 3.
- 6. Depression
 - 7. Frequent mood swings
 - 8. Moon face
 - 9. Buffalo hump
 - 10. Pendulous abdomen
 - 11. Purple striae on trunk
 - 12. Acne
 - 13. Thin skin

Dx

- 1. FBS: is increased
- 2. Plasma Cortisol: is increased
- 3. Serum Sodium: is increased
- 4. Serum Potassium: is decreased

- latrogenic: cause by prolonged use of corticosteroids 3.
- Related to hyperplasia of adrenal gland 4.
- Increase susceptibility to infections 5.

S/sx

- 14. Signs of masculinization in women: menstrual dysfunction, decrease libido
- 15. Osteoporosis
- 16. Decrease resistance to infection
- 17. Hypertension
- 18. Edema
- 19. Hypernatremia
- 20. Weight gain
- 21. Hypokalemia
- 22. Constipation
- 23. U wave upon ECG (T wave hyperkalemia)
- 24. Hirsutis
- 25. Easy bruising

Nursing Intervention

- 1. Maintain muscle tone
 - a. Provide ROM exercise
 - b. Assist in ambulation
- 2. Prevent accidents fall & provide adequate rest

S/Sx:

- 1. Pathognomonic sign: (+) rebound tenderness
- 2. Low grade fever
- 3. N/V
- 4. Decrease bowel sound
- 5. Diffuse pain at lower Right iliac region
- 6. Late sign: tachycardia: due to pain

Dx

- 1. CBC: mild leukocytosis: increase WBC
- 2. PE: (+) rebound tenderness (flex Right leg, palpate Right iliac area: rebound)
- 3. Urinalysis: elevated acetone in urine

Medical Management

Surgery: Appendectomy 24-45 hrs

Nursing Intervention

- 1. Administer antibiotics / antipyretic as ordered
- 2. Routinary pre-op nursing measures:
 - Skin prep
 - NPO •
 - Avoid enema, cathartics: lead to rupture of appendix
- 3. Don't give analgesic: will mask pain
 - Presence of pain means appendix has not ruptured
- 4. Avoid heat application: will rupture appendix
- 5. Monitor VS, I&O bowel sound

Nursing Intervention post op

- 1. If (+) Pendrose drain (rubber drain inserted at surgical wound for drainage of blood, pus etc): indicates rupture of appendix
- 2. Position the client semi-fowlers or side lying on right: to facilitate drainage
- Administer Meds: 3.
 - Analgesic: due post op pain
 - Antibiotics: for infection •
 - Antipyretics: for fever (PRN)
- 4. Monitor VS, I&O, bowel sound
- 5. Maintain patent IV line
- 6. Complications: Peritonitis, Septicemia

Liver Cirrhosis

Chronic progressive disease characterized by inflammation, fibrosis & degeneration of the liver parenchymal cell Destroyed liver cell are replaced by scar tissue, resulting in architectural changes & malfunction of the liver Lost of architectural design of liver leading to fat necrosis & scarring

Fetor hepaticus: fruity, musty odor of chronic liver disease Aterixis: flapping of hands & tremores Hard nodular liver upon palpation Increased abdominal girth Changes in moods Alertness & mental ability Sensory deficits Gynecomastia Decrease of pubic & axilla hair in males Amenorrhea in female laundice Pruritus or urticaria Easy bruising Spider angiomas on nose, cheeks, upper thorax &

shoulder

Palmar erythema

Muscle atrophy

Dx

Liver enzymes: increase SGPT (ALT) SGOT (AST) LDH Alkaline Phosphate Serum cholesterol & ammonia: increase Indirect bilirubin: increase **CBC**: pancytopenia PT: prolonged Hepatic Ultrasonogram: fat necrosis of liver lobules

Nursing Intervention

CBR with bathroom privileges

Encourage gradual, progressive, increasing activity with planned rest period

Institute measure to relieve pruritus

- Do not use soap & detergent
- Bathe with tepid water followed by application of emollient lotion
- Provide cool, light, non-constrictive clothing
- Keep nail short: to avoid skin excoriation from scratching
- Apply cool, moist compresses to pruritic area
- Monitor VS, I & O

Prevent Infection

Prevent skin breakdown: by turning & skin care

Provide reverse isolation for client with severe leukopenia:

handwashing technique

Monitor WBC

Diet:

Small frequent meals

- Restrict Na!
- High calorie, low to moderate CHON, high CHO, low fats with supplemental Vit A, B-complex, C, D, K & folic acid
 - Monitor / prevent bleeding

Types

Laennec's Cirrhosis

Associated with alcohol abuse & malnutrition Characterized by an accumulation of fat in the liver cell

Results in chronic impairment of bile excretion

S/sx

Fatigue Anorexia N/V **Dyspepsia:** Indigestion Weight loss Flatulence Change (Irregular) bowel habit Ascites Peripheral edema Hepatomegaly: pain located in the right upper quadrant Atrophy of the liver

Measure abdominal girth daily: notify MD Line induction of the part of With pt daily & assess pitting edema Reporting signs of reccuring illness (liver tenderness, increase Avoid straining stool vigorous blowing of nose & coughing: to decrease incidence of bleeding Complications: Ascites: accumolation of free fluid in abdominal cavity

Nursing Intervention

Meds: Loop diuretics: 10-15 min effect Assist in abdominal paracentesis: aspiration of fluid Void before paracentesis: to prevent accidental puncture of bladder as trochar is inserted

Bleeding esophageal varices: Dilation of esophageal veins

Nursing Intervention Administer meds:

Antibiotics Antispasmodic Surgery: removal of any obstruction Chronic Antibiotics **Urinary Antiseptics** Nitrofurantoin (macrodantin) SE: peripheral neuropathy GI irritation Hemolytic anemia Staining of teeth Surgery: correction of structural abnormality if possible

Dx

Urine culture & sensitivity: (+) E. coli & streptococcus Urinalysis: increase WBC, CHON & pus cells Cystoscopic exam: urinary obstruction

Nursing Intervention

Provide CBR: acute phase Monitor I & O Force fluid Acid ash diet Administer medication as ordered Chronic: possibility of dialysis & transplant if has renal deterioration **Complication:** Renal Failure

Nephrolithiasis / Urolithiasis

Presence of stone anywhere in the urinary tract Formation of stones at urinary tract Frequent composition of stones Calcium

Oxalate

Uric acid

Calcium

Milk

Oxalate

Organ meat

Nuts

Sardines

♦

Anchovies

Uric Acid

★ Cabbage Cranberries Nuts tea Chocolates

Predisposing factors:

Diet: increase Ca & oxalate Increase uric acid level Hereditary: gout or calculi Immobility Sedentary lifestyle Hyperparathyroidism

S/sx

Abdominal or flank pain

Delivers shockwaves from outside of the body to the stone causing pulverization Pain management & diet modification Nursing Intervention Force fluid: 3000-4000 ml / day Strain urine using gauze pad: to detect stones & crush all cloths Encourage ambulation: to prevent stasis Warm sitz bath: for comfort Administer narcotic analgesic as ordered: Morphine SO4: to relieve pain Application warm compress at flank area: to relieve pain Monitor I & O Provide modified diet depending upon the stone consistency **Calcium Stones** Limit milk & dairy products Provide acid ash diet (cranberry or prune juice, meat, fish, eggs, poultry, grapes, whole grains): to acidify urine Take vitamin C **Oxalate Stone** Avoid excess intake of food / fluids high in oxalate (tea, chocolate, rhubarb, spinach) Maintain alkaline-ash diet (milk, vegetable, fruits except cranberry, plums & prune): to alkalinize urine Uric Acid Stone Reduce food high in purine (liver, brain, kidney, venison, shellfish, meat soup, gravies, legumes) Maintain alkaline urine Administer Allopurinol (Zyloprim) as ordered: to decrease uric acid production: push fluids when giving allopurinol Provide client teaching & discharge planning Prevention of urinary stasis: increase fluid intake especially during hot weather & illness Mobility Voiding whenever the urge is felt & at least twice during night Adherence to prescribe diet **Complications:** Renal Failure

Benign Prostatic Hypertrophy (BPH)

Mild to moderate glandular enlargement, hyperplsia & over growth of the smooth muscles & connective tissue As the gland enlarges it compresses the urethra: resulting to urinary retention

Enlarged prostate gland leading to

Hydroureters: dilation of urethers Hydronephrosis: dilation of renal pelvis Kidney stones Renal failure

Predisposing factor:

High risk: 50 years old & above & 60-70 (3-4x at risk) Influence of male hormone

Renal colic Cool moist skin (shock) Burning sensation upon urination net identifies site of orstrogion & bar & the or stone bar & the or stone Hematuria Anorexia N/V Dx Intravenous presence of No. adiopaque store location, num struction Stone Analysis: composition & type of stone Urinalysis: indicates presence of bacteria, increase WBC, RBC & CHON

Medical Management

Surgery

Percutaneous Nephrostomy:

Tube is inserted through skin & underlying tissue into renal

pelvis to remove calculi

Percutaneous Nephrostolithotomy

Delivers ultrasound wave through a probe placed on the calculus

Extracorporeal Shockwave Lithotripsy:

Non-invasive

S/sx

Urgency, frequency & hesitancy

Nocturia

Enlargement of prostate gland upon palpation by digital

rectal exam

Decrease force & amount of urinary stream

Dysuria

Hematuria

Burning sensation upon urination

Terminal bubbling

Backache

Sciatica: severe pain in the lower back & down the back of thigh & leg

Dx

Digital rectal exam: enlarged prostate gland KUB: urinary obstruction Cystoscopic Exam: reveals enlargement of prostate gland & obstruction of urine flow Urinalysis: alkalinity increase Specific Gravity: normal or elevated BUN & Creatinine: elevated (if longstanding BPH) Prostate-specific Antigen: elevated (normal is < 4 ng /ml)

Nursing Intervention