Juvenile Idiopathic Arthritis (JIA)

- Chronic autoimmune inflammatory joint disease in children <16 years old lasting >6 weeks.

Common Signs/Symptoms

- Joint pain and swelling
- Morning stiffness
- Limping
- Fever, rash (sometimes)
- Limited movement

Labs/Diagnosis

- ANA (positive in some types)
- ESR/CRP elevated
- Rheumatoid factor (RF)
- CBC
- X-ray/MRI for joint damage

Therapeutic/Nursing Management

- Encourage ROM exercises and physical therapy
- Warm compresses
- Balance activity and rest
- Monitor pain and joint swelling
- Eye exams for uveitis
- Support growth and nutrition

Medications

- NSAIDs (Ibuprofen, Naproxen)
- Corticosteroids
- Methotrexate
- Biologics (Etanercept)

Types of JIA

Oligoarticular JIA

- Affects ≤4 joints
- Most common type
- Risk for uveitis

Polyarticular JIA

- Affects ≥5 joints
- Symmetrical joint involvement
- RF may be positive

Systemic JIA (Still Disease)

- Fever, rash, enlarged lymph nodes
- Organ involvement possible

Enthesitis-related JIA

- Inflammation at tendon insertion sites
- Common in boys

Psoriatic JIA

- Arthritis with psoriasis or nail changes

Allergic Rhinitis

- Inflammation of nasal mucosa caused by allergens.

Signs/Symptoms

- Sneezing
- Runny nose
- Nasal congestion
- Itchy eyes/nose
- Allergic shiners

Labs/Diagnosis

- Allergy testing
- History and physical exam
- Elevated IgE

Therapeutic/Nursing Management

- Avoid allergens
- Encourage hydration
- Environmental control
- Educate on trigger avoidance

Medications

- Antihistamines (Cetirizine, Loratadine)
- Nasal corticosteroids
- Decongestants

Atopic Dermatitis (Eczema)

- Chronic inflammatory skin disorder with itching.

Signs/Symptoms

- Dry itchy skin
- Red rashes
- Skin thickening from scratching
- Common on cheeks, elbows, knees

Labs/Diagnosis

- Clinical diagnosis
- Allergy testing if needed

Therapeutic/Nursing Management

- Keep skin moisturized
- Avoid irritants
- Short lukewarm baths
- Prevent scratching
- Maintain short nails

Medications

- Topical corticosteroids
- Antihistamines
- Emollients/moisturizers

Asthma

- Chronic inflammatory airway disease causing reversible airway obstruction.

Signs/Symptoms

- Wheezing
- Cough
- Dyspnea
- Chest tightness
- Retractions in severe attack

Labs/Diagnosis

- Pulmonary function tests
- Peak flow measurement
- Pulse oximetry
- ABG if severe

Therapeutic/Nursing Management

- High Fowler's position
- Monitor respiratory status
- Avoid triggers
- Teach inhaler use
- Encourage hydration

Medications

- Short-acting bronchodilator: Albuterol
- Corticosteroids
- Leukotriene modifiers (Montelukast)
- Oxygen if needed

Cancer

- Uncontrolled abnormal cell growth that may invade tissues and metastasize.

Warning Signs (CAUTION)

- C: Change in bowel/bladder
- A: A sore that does not heal
- U: Unusual bleeding
- T: Thickening/lump
- I: Indigestion
- O: Obvious change in wart/mole
- N: Nagging cough

Diagnosis

- Biopsy
- Imaging (CT, MRI)
- CBC
- Tumor markers

Treatment

- Surgery
- Chemotherapy
- Radiation
- Immunotherapy

Nursing Management

- Infection prevention
- Pain management
- Nutritional support
- Emotional support
- Monitor side effects of therapy

Oncology

- Branch of medicine dealing with cancer diagnosis and treatment.

Types

- *Medical oncology*: chemotherapy
- *Surgical oncology*: surgery
- *Radiation oncology*: radiation therapy

Characteristics of Neoplasia

Benign Tumor

- Slow growth
- Localized
- Well differentiated
- Does not metastasize

Malignant Tumor

- Rapid growth
- Invasive
- Poorly differentiated
- Metastasizes

Leukemia

- Cancer of blood-forming tissues causing abnormal WBC production.

Signs/Symptoms

- Fever
- Fatigue
- Pallor
- Bleeding/bruising
- Bone pain
- Enlarged liver/spleen

Labs/Diagnosis

- CBC: abnormal WBC
- Bone marrow aspiration (definitive)
- Lumbar puncture

Therapeutic/Nursing Management

- Prevent infection
- Bleeding precautions
- Manage fatigue
- Nutritional support
- Monitor for complications

Medications/Treatment

- Chemotherapy
- Corticosteroids
- Bone marrow transplant

Types of Leukemia

Acute Lymphoblastic Leukemia (ALL)

- Most common in children
- Better prognosis

Acute Myelogenous Leukemia (AML)

- More aggressive

Chronic Myelogenous Leukemia (CML)

- Rare in children

Chronic Lymphocytic Leukemia (CLL)

- Common in adults

Lymphomas

- a type of blood cancer that originates in the lymphatic system when white blood cells called lymphocytes grow abnormally and uncontrollably.

Signs/Symptoms

- Enlarged painless lymph nodes
- Fever
- Night sweats
- Weight loss

Diagnosis

- Lymph node biopsy
- CT/PET scan
- CBC

Treatment

- Chemotherapy
- Radiation
- Immunotherapy

Hodgkin Lymphoma

- Presence of Reed-Sternberg cells.

Signs/Symptoms

- Painless enlarged lymph nodes
- Fever
- Night sweats
- Weight loss

Diagnosis

- Lymph node biopsy

Treatment/Nursing Management

- Chemotherapy and radiation
- Monitor infection
- Manage fatigue and nutrition

Non-Hodgkin Lymphoma

- Lymphoma without Reed-Sternberg cells.

Characteristics

- More widespread
- Faster spread than Hodgkin

Signs/Symptoms

- Enlarged lymph nodes
- Respiratory or abdominal symptoms

Diagnosis

- Biopsy
- CT/MRI/PET

Treatment

- Chemotherapy
- Radiation

Wilms Tumor (Nephroblastoma)

- Malignant kidney tumor in children.

Signs/Symptoms

- Abdominal mass/swelling
- Hematuria
- Hypertension
- Fever

Labs/Diagnosis

- Ultrasound
- CT scan
- Urinalysis
- CBC

Therapeutic/Nursing Management

- DO NOT palpate abdomen
- Monitor BP
- Pre/post-op care
- Emotional support

Treatment

- Nephrectomy
- Chemotherapy
- Radiation (sometimes)

Staging of Wilms Tumor

<u>Stage I</u>

- Limited to kidney

<u>Stage II</u>

- Spread beyond kidney but removable

<u>Stage III</u>

- Residual abdominal tumor

<u>Stage IV</u>

- Distant metastasis

<u>Stage V</u>

- Bilateral kidney involvement

Brain Tumors

- Abnormal growth of cells in the brain.

Signs/Symptoms

- Headache (especially morning)
- Vomiting
- Seizures
- Visual changes
- Increased ICP
- Behavioral changes

Labs/Diagnosis

- MRI (best)
- CT scan
- Neurologic exam
- Biopsy

Therapeutic/Nursing Management

- Monitor neurologic status
- Seizure precautions
- Monitor signs of increased ICP
- Elevate HOB
- Maintain safety

Medications/Treatment

- Surgery
- Radiation
- Chemotherapy
- Corticosteroids (Dexamethasone)
- Anticonvulsants

Classes of Chemotherapy Drugs

Alkylating Agents

Definition:
Drugs that directly damage DNA of cancer cells.

Action:

- Prevent cell division
- Destroy DNA

Examples:

- Cyclophosphamide
- Cisplatin

Toxic Effects:

- Bone marrow suppression
- Nausea/vomiting
- Hair loss
- Kidney damage
- Hemorrhagic cystitis

Remember:
"**Alkylating attacks DNA directly.**"

Antimetabolites

Definition:
Drugs that act like fake nutrients and block DNA/RNA production.

Action:

- Stop cell metabolism
- Prevent DNA synthesis

Examples:

- Methotrexate
- 5-Fluorouracil

Toxic Effects:

- Mouth sores
- Bone marrow suppression
- Diarrhea
- Liver toxicity

Remember:
"**Fake nutrients stop cancer growth**."

Antitumor Antibiotics

Definition:
Antibiotics that damage cancer cell DNA.

Action:

- Prevent DNA and RNA synthesis

Examples:

- Doxorubicin
- Bleomycin

Toxic Effects:

- Cardiotoxicity
- Bone marrow suppression
- Hair loss

Remember:
"**Antibiotics that kill tumor DNA.**"

Mitotic Inhibitors

Definition:
Drugs that stop mitosis or cell division.

Action:

- Prevent spindle formation
- Stop cells from dividing

Examples:

- Vincristine
- Paclitaxel

Toxic Effects:

- Peripheral neuropathy
- Constipation
- Hair loss

Remember:
"**Stops mitosis."**

Hormones

Definition:
Hormones used to slow growth of hormone-dependent cancers.

Action:

- Change hormone environment of cancer cells

Examples:

- Prednisone
- Estrogen

Toxic Effects:

- Weight gain
- Fluid retention
- Hyperglycemia

Remember:
"**Hormones can slow cancer growth.**"

Hormone Antagonists

Definition:
Drugs that block hormones needed by cancer cells.

Action:

- Block hormone receptors

Examples:

- Tamoxifen
- Flutamide

Toxic Effects:

- Hot flashes
- Risk of clotting
- Nausea

Remember:
"**Blocks hormones feeding the cancer.**"

Effects of Chemotherapy

Common Effects:

- Hair loss
- Nausea/vomiting
- Fatigue
- Bone marrow suppression
- Infection risk
- Mouth sores
- Weight loss
- Infertility

Why?
Chemotherapy attacks rapidly dividing cells, including normal cells.

How to Administer Chemotherapy

Routes:

- IV infusion
- Oral
- Intramuscular
- Intrathecal

Before Administration:

- Check doctor's order
- Verify patient identity
- Wear PPE
- Check CBC and platelet count

During Administration:

- Monitor IV site
- Watch for allergic reactions
- Monitor vital signs

After Administration:

- Dispose safely
- Monitor side effects
- Encourage fluids

Nursing Care for Chemotherapy

Before Chemo:

- Assess labs and vital signs
- Explain procedure
- Provide emotional support

During Chemo:

- Use PPE
- Monitor for extravasation
- Watch for adverse reactions

After Chemo:

- Monitor infection signs
- Encourage oral care
- Encourage nutrition and hydration
- Monitor CBC
- Teach patient to avoid crowds/sick people

Important Nursing Priorities:

- Prevent infection
- Prevent bleeding
- Manage nausea
- Monitor toxicity

Adenohypophysis (Anterior Pituitary Gland)

- Front part of the pituitary gland that secretes hormones:
- Growth Hormone (GH)
- Thyroid Stimulating Hormone (TSH)
- Adrenocorticotropic Hormone (ACTH)
- Follicle Stimulating Hormone (FSH)
- Luteinizing Hormone (LH)
- Prolactin

Diagnosis/Labs:

- Hormone level tests
- MRI/CT scan of pituitary

Management:

- Depends on hormone imbalance
- Hormone replacement or suppression

Medications:

- Hormone therapy if deficient

Neurohypophysis (Posterior Pituitary Gland)
- Stores and releases:

- Antidiuretic Hormone (ADH)
- Oxytocin

Diagnosis/Labs:

- ADH levels
- Serum and urine osmolality

Management:

- Correct fluid imbalance

Medications:

- Desmopressin if low ADH

PITUITARY DISORDERS

Hyperpituitarism (Acromegaly&Gigantism)

Excess GH in adults → enlarged hands, feet, jaw.

Signs/Symptoms:

- Enlarged facial bones
- Big hands/feet
- Headache
- Joint pain

Labs/Diagnosis:

- Elevated GH and IGF-1
- MRI of pituitary

Management:

- Remove tumor
- Radiation therapy

Medications:

- Octreotide
- Somatostatin analogs

Gigantism

Excess GH in children before epiphyseal closure → very tall stature.

Diagnosis:
Same as acromegaly.

Management/Medications:
Same as acromegaly.

Hypopituitarism (Dwarfism)

Deficiency of GH during childhood → short stature.

Signs/Symptoms:

- Delayed growth
- Small height

Labs/Diagnosis:

- Low GH
- Bone age X-ray
- MRI

Management:

- Promote nutrition
- Monitor growth

Medications:

- Growth hormone therapy

POSTERIOR PITUITARY DISORDERS

Diabetes Insipidus (DI)

Lack of ADH → excessive urination and thirst.

Signs/Symptoms:

- Polyuria
- Polydipsia
- Dehydration

Labs/Diagnosis:

- Low urine specific gravity
- High serum osmolality
- Water deprivation test

Management:

- Monitor I&O
- Encourage fluids
- Daily weight

Medications:

- Desmopressin (DDAVP)

Syndrome of Inappropriate Antidiuretic Hormone (SIADH)

Too much ADH → water retention and dilutional hyponatremia.

Signs/Symptoms:

- Low urine output
- Weight gain
- Confusion
- Seizures

Labs/Diagnosis:

- Low serum sodium
- Low serum osmolality
- Concentrated urine

Management:

- Fluid restriction
- Seizure precautions
- Strict I&O

Medications:

- Hypertonic saline
- Diuretics

THYROID DISORDERS

Hyperthyroidism - Grave's Disease

Excess thyroid hormones due to autoimmune disorder.

Signs/Symptoms:

- Weight loss
- Heat intolerance
- Tachycardia
- Exophthalmos
- Nervousness

Labs/Diagnosis:

- Elevated T3/T4
- Low TSH
- Thyroid scan

Management:

- Calm environment
- High-calorie diet
- Eye care

Medications:

- Methimazole
- Propylthiouracil (PTU)
- Beta blockers

Hypothyroidism - Cretinism

Congenital hypothyroidism in infants.

Signs/Symptoms:

- Delayed growth
- Large tongue
- Mental retardation
- Constipation

Labs/Diagnosis:

- Low T3/T4
- High TSH

Management:

- Early treatment important
- Monitor growth/development

Medications:

- Levothyroxine

PARATHYROID DISORDERS

Hyperparathyroidism

Excess parathyroid hormone → increased calcium.

Signs/Symptoms:

- Kidney stones
- Bone pain
- Muscle weakness
- Fractures

Labs/Diagnosis:

- High calcium
- High PTH
- Bone density scan

Management:

- Hydration
- Encourage mobility
- Safety precautions

Medications:

- Calcitonin
- Bisphosphonates

Hypoparathyroidism

Low PTH → decreased calcium.

Signs/Symptoms:

- Tetany
- Muscle cramps
- Tingling
- Positive Chvostek's and Trousseau's signs

Labs/Diagnosis:

- Low calcium
- Low PTH

Management:

- Seizure precautions
- Monitor airway

Medications:

- Calcium supplements
- Vitamin D

ADRENAL DISORDERS

Acute Adrenocortical Insufficiency - Addison's Disease

Deficiency of adrenal hormones (cortisol and aldosterone).

Signs/Symptoms:

- Fatigue
- Hypotension
- Weight loss
- Hyperpigmentation

Labs/Diagnosis:

- Low cortisol
- Low sodium
- High potassium
- ACTH stimulation test

Management:

- Monitor BP
- Increase sodium intake
- Stress reduction

Medications:

- Hydrocortisone
- Fludrocortisone

Cushing Syndrome

Excess cortisol levels.

Signs/Symptoms:

- Moon face
- Buffalo hump
- Hyperglycemia
- Thin skin
- Weight gain

Labs/Diagnosis:

- Elevated cortisol
- Dexamethasone suppression test
- CT/MRI

Management:

- Monitor glucose
- Prevent infection
- Low sodium diet

Medications:

- Ketoconazole
- Cortisol-lowering drugs

Diabetes Mellitus (DM)

Chronic disorder with elevated blood glucose.

Signs/Symptoms:

- Polyuria
- Polydipsia
- Polyphagia

Labs/Diagnosis:

- FBS ≥126 mg/dL
- HbA1c ≥6.5%

Management:

- Diet
- Exercise
- Blood glucose monitoring

Medications:

- Insulin
- Oral hypoglycemics

Type 1 Diabetes Mellitus

Autoimmune destruction of beta cells → no insulin production.

Signs/Symptoms:

- Sudden weight loss
- Polyuria
- Polyphagia

Diagnosis:

- High blood glucose
- Low insulin

Management:

- Lifelong insulin therapy

Medications:

- Insulin

Type 2 Diabetes Mellitus

Insulin resistance with decreased insulin production.

Signs/Symptoms:

- Obesity
- Slow wound healing
- Fatigue

Diagnosis:

- Elevated glucose/HbA1c

Management:

- Weight loss
- Diet and exercise

Medications:

- Metformin
- Insulin if needed

Hypoglycemia

Blood glucose below 70 mg/dL.

Signs/Symptoms:

- Sweating
- Shakiness
- Confusion
- Tachycardia

Management:

- Give fast-acting carbohydrates
- Recheck glucose

Medications/Treatment:

- Glucose tablets
- IV dextrose
- Glucagon

Hyperglycemia

High blood glucose.

Signs/Symptoms:

- Polyuria
- Polydipsia
- Blurred vision

Management:

- Hydration
- Insulin administration

Diabetic Ketoacidosis (DKA)

Life-threatening complication from lack of insulin causing ketosis and acidosis.

Signs/Symptoms:

- Kussmaul breathing
- Fruity breath odor
- Dehydration
- Abdominal pain

Labs/Diagnosis:

- Hyperglycemia
- Positive ketones
- Metabolic acidosis

Management:

- IV fluids
- Monitor electrolytes
- Insulin infusion

Medications:

- Regular insulin
- Electrolyte replacement

Obesity

Excess body fat; BMI ≥30.

Risk Factors:

- Poor diet
- Sedentary lifestyle
- Genetics

Complications:

- Hypertension
- Type 2 DM
- Heart disease

Diagnosis:

- BMI
- Waist circumference

Management:

- Diet modification
- Exercise
- Behavioral therapy

Medications:

- Orlistat
- GLP-1 agonists