DISEASE	CAUSES	CLASSIC S&S	Labs	Pharmacology	INTERVENTIONS
Acromegaly- GH ↑ Adults Also called somatropin. **Ant. Pituitary –stimd by Hypothalmus GHRH via pituitary portal circulation** **Stimulates synthesis and secretion of adrenal cortical hormones** **Gigantism- ↑GH children** **Ant pituitary** **Dwarfism GH ↓** **Ant pituitary** **Adults ??? GH ↓** **Ant pituitary** GH stims growth Promotes PRO BUILD Promotes FAT METAB Decrease Carb metaB So BG up	**↑secretion** is rare and usually from 2 types of pituitary tumors ("functional" eosinophillic and basophilic tumors), pit tumors can cause visual disturbances & HA. Also strokes, trauma etc. Stress, exercise, low BG **↓secretion**- radiation tx head & neck area, trauma, tumor ("non-functional" chromophobic tumors make up 90% of pit tumors), vascular lesion, encephalitis, autoimmunity, stroke. Postpartum pituitary necrosis- Sheehan's syndrome, occurs w/ hemorrhage, hypovolemia, and hypotension during delivery.	Bone/tissue/organ enlargement. Ht not ↑ Thick bones face, jaw, hands, feet Myriad complications of enlarged organs 7-8 ft tall Mild-mod obesity Reduced CO Fatigue & low BP	GH Blood test w/ induced hypoglycemia	Octreocid-Sandostatin Suppresses GH GH meds given SQ, IM only – gi inactivates PO GH tx can antagonize insulin & cause DM Somatropin- -Humatrope Somatrem-Protropin	**Pituitary = Hypophysis** Must admin before epiphysis fuse to avoid gigantism Abnormalities of the anterior and posterior portions of the gland may occur independently Hypofunction (hypopituitarism)(panhypopit) is more common. Can result from disease of the pituitary gland itself or disease of the hypothalamus. Results are pretty much the same. **Result**: thyroid, gonads, and adreanal no longer stim'd resulting extreme weight loss, emaciation, atrophy of all endocrine glands & organs, hair loss, impotence, amenorrhea, hypometabolism, and hypoglycemia. Coma and death if no HRT.
SIADH – ACTH ↑ **Post pituitary** **Stimd by hypothalamus CRH** **ACTH Stims synthesis and secretion of adrenal cortical hormones**	SEE ABOVE Adrenal ADH ↑ UP H2O retention	Conc. Urine Hypotonic overhydration	Serum osmolality/specific gravity ↑		Restrict H2O
Diab. Insipidus – ACTH ↓ **Post pituitary** Stimd by hypothalamus CRH	SEE ABOVE Adrenal ADH ↓ dN H2O retention	Dilute polyuria Hypertonic dehydration Hypernatremia	Fluid deprivation test Serum osmolality/specific gravity ↓	IM ADH (vasopressin)	Watch for dehydration esp young & old

DISEASE	CAUSES	CLASSIC S&S	La	Pharmacology	INTERVENTIONS
Cushings ↑ steroids adrenal cortex Stim is ACTH from pit **Glucocorti steroids** **Cortisol (this is it according to Ms M)** that it's only these steroids Maintain bg lvls ↓rate of BG use Inhibit insulin Fight stress Antinflame **Mineral corticoids** **Aldosterone** Saves salt Wastes K+ Androgens 2ndary sex character, pubic and axillary hair, sex drive in women	Women 20-40 Stress overrides neg feedback Hypoglycemia Hypoxia Pain Infection Trauma Anxiety Tumors steroids Cushs disease:↑ACTH Cushs syndrome:↑Adrenal prod + release	Abd obesity Kyphosis, buffalo Muscle waste Osteoporosis Moon face ↑ BP, HF Hyperglycemia Thin, fragile oily, skin, striae, acne. Andro Bruising, slow healing Susceptible for Infxn Wt gain Virilization - andro Mood changes	Dexamethasone suppression ↑Na+, K+↓, BG↑,WBC CT & MRI for tumors 24h urine – free cortisol Plasma ACTH ↑ w/ pit tumor ↓ w/ adrenal tumor ↓ from ppt this value would probably go w/addisons	Mitotane, Metyrapone, Aminoglutethimide, Ketoconazole All reduce ACTH hyperadrenalism Monitor for adrenal insuff Monitor meds effect Reduce or taper steroids QD or Q otherD if cushings is from steroid tx	Protect from infection Monitor elec Monitor I/O, BP, BG, meds SE Daily wt Psych support **R/F injury** r/t weakness – fall prvnt, diet high in protein, calcium & vit D minimizes muscle wasting & osteoporosis. **R/F infection** – teach HH & to avoid sick ppl, teach get immunization, monitor for infxn **Imbalanced nutrition**, too much food. **Excess fluid volume** r/t Na+ & H2O retention

SURGERY **Transsphenoidal (thru nose) Hypophysectomy - Pituitary Tumor** Can be craniotomy or transsphenoidal Craniotomy Complications: ↑ICP, bleeding, menegitis, hypopituitarism Transsphenoida complicationsl: CSF leak, infection, hypopituitarism May get Addisons/ adrenal crises 12-48h post sx effect **Post op:** VS, neuro, LOC ↑HOB Monitor for ↑ICP, bleeding, CSF leak (post nasal drip, or drainage and √ drainage for Glucose Monitor electrolytes (Na+ & K+) for temp SIADH or diabetes insipidus Monitor I/O – avoid H2O intoxication Admin glucocorticoids and other HRT (Vasopressin-ADH, Levoxithyroxine-Synthroid, gonadatropics, GH	**SURGERY - Adrenalectomy – Adrenal Tumor** May be unilateral or bilateral Preop: monitor and correct elec lvls Monitor for hyperglycemia Assess dysrhythymias Protect from infection Admin steroids as ordered Postop: monitor VS, Monitor I/O – if output <30ml/h notify HO may be renal failure or impending shock Daily wt Monitor elec, BG Monitor S&S of shock & hemorrhage Monitor for paralytic ileus (abd bloat, pain, N&V, ↓ or absent bowel sounds) Admin IV fluids for volume Admin gluco and mineralsteroids, pain meds	**RADIATION** Can be effective but may take months SE: skin changes and irritation Fatigue, alopecia-hair loss, altered taste Assess nutritional status and well being we need to know Radiation cautions

DISEASE	CAUSES	CLASSIC S&S	L		Pharmacology	INTERVENTI
Conn's- hyper aldosteronism ↑ mineralcorticoid from 1 Or both glands adrenal cortex Stim is ACTH from pit **Mineral corticoids** **Aldosterone** Saves salt Wastes K+	tumors	HTN ↑Na+, ↓K+, ↓H ↑pH & ↑HCO3- (alkalosis)				Collaberative Mgmt Reverse HTN Correct Hypokalemia Prevent kidney damage Sx is adrenalectomy
Addisons- Adrenal Insuff (hypoadrenalism) Adrenal cortex Stim is ACTH from pit Inadequate production of: **Glucocorti steroids cortisol** Maintain BG lvls ↓rate of BG use Inhibit insulin Fight stress Antinflame **Mineral corticoids** **Aldosterone** Saves salt Wastes K+ **Androgens** 2ndary sex character, pubic and axillary hair, sex drive in women	Autoimmune destruction Bilateral adrenalectomy High dose, longterm steroid Tx. Tumor Adrenal necrosis, sepsis, hemorrhage	Fatigue GI symptoms personality changes pigmentation changes HYPOTENSION F&E imbalance HYPOGLYCEMIA????? Lose salt??? HyperK+?????			Long acting PO steroids	Collaberative Mgmt Fluid replacement Hormone therapy – long acting PO steroids Stabilize Electrolytes
Adrenal Crises	Acute stressor from outside glands	N&V Severe Fluid & Elec Imbalance Tachycardia, dysrythymias Seizures, coma, death				IV steroids,elevate legs, combat circulatory shock

DISEASE	CAUSES	CLASSIC S&S	Labs	Pharmacology	INTERVENTIONS
Pheochromocytoma **↑epi, ↑norepi** **Adrenal medulla** **Stimd by ACTH** regulate metabolic pathways to promote catabolism of stored fuels to meet caloric needs. Major effects of epinephrine release are to prepare to meet a challenge (fight-or-flight response). Secretion of epinephrine causes decreased blood flow to tissues that are not needed in emergency situations, such as the GI tract, and ↑d blood flow to tissues that are important for effective fight or flight, such as cardiac and skeletal muscle. Catecholamines also induce the release of free fatty acids, ↑ the basal metabolic rate, and ↑ BG.	**↑Epi ↑ Norepi** **Pheochromocytoma –** typically benign tumor of adrenal medulla, also can be in chest,bladder, abd, and brain. Or problem w/ pit. Strong genetic link. Peak incidence 40-50 yo. **↓ Epi, ↓ Norepi** **sx removal of adrenal gland**	Hyperglycemia, HTN, severe HA, Palpitations, flushing, diaphoresis, chest and abd pain w/ N & V, heat intolerance, wt loss Can result in CV collapse, hypotension, and shock			

DISEASE	CAUSES	CLASSIC S&S	Labs
Hyperthyroid (graves) **Thyroxine (T4)** 4 atoms of iodine **Triiodothyronine (T3)** 3 atoms of iodine Control the metabolic rate of all cells Regulate protein, fat and CHO metabolism Influences body heat production Affects oxygen consumption Increases absorption of glucose from GI tract Acts as insulin antagonist **Calcitonin** Secreted in response to high serum calcium levels Actions Reduces plasma calcium level by increasing calcium deposits into bone.	Excessive thyroid hormone secretion Second to diabetes as the most commonly occurring endocrine problem Graves Abnormal stim of the thyroid gland by circulating immunoglobulins. Antibodies attach to TSH receptors on the thyroid and cause excessive production of hormones and gland enlargement Occurs more often in younger women	Nervousness, irritability, apprehension Palpitations, rapid pulse Heat intolerance, flushing Skin warm, soft, moist Exophthalmos Increased appetite, wt loss Cardiac effects **GENERAL LABS** GENERAL Total thyroxine (T4) Measures concentration of T4 in blood Helpful with diagnosis & treatment ↑ with hyper, ↓ with hypo Total triiodothyronine (T3) Measures concentration of T3 in blood Used in the diagnosis of hyperthyroidism ↑ with hyper, ↓ with hypo **NURSING DX** Hyperthyroidism Altered nutrition: Less than body requirements R/T increased metabolism High calorie, protein diet with snacks Weigh daily ↓ Foods that increase peristalsis Hyperthermia Cool room, dry linens Alteration in bowel elimination Skin care, extra fluids	TSH, Thyrotropin- from the anterior pituitary With hyperthyroidism from a thyroid disorder, TSH will be decreased With hypothyroidism from a thyroid disorder, TSH will be elevated With hyperthyroidism from a pituitary disorder, TSH will be elevated With hypothyroidism from a pituitary disorder, TSH will be decreased HYPERTHYROID Thyroid scan Evaluates thyroid size and any masses Radioactive Iodine Uptake Test Radioactive iodine given orally Uptake by thyroid is measured No radiation precautions necessary ↑ uptake with hyper, ↓ with hypo Radio immunoassays Urine tests Stimulation and suppression tests **PHARMACOLOGY** Hormone Control: Thioamides Interferes with incorporation of iodide into T3 and T4 PTU (propylthiouracil), Tapazole (methimazole) Used for hyperthyroidism, thyroid storm, preparation for thyroidectomy May take weeks for results Weight gain, ↓BP, ↓pulse Watch for S&S hypothyroidism BP Control: Beta-Adrenergic Blockers Relieve symptoms that result from increased sympathetic nervous system stimulation Inderal (propranolol, metoprolol) Monitor BP, pulse Radioactive Iodine (RAI) Decreases hormone secretion by destroying thyroid tissue Sodium Iodide 131 (oral), No radiation precautions necessary Iodine solution- rarely used now Decreases vascularity of gland, shrinking the tissue and reducing hormone production. Benefit lasts <6 weeks

Thyroid Storm/Crisis **Causes** Undiagnosed hyperthyroidism Poorly controlled hyperthyroidism Post-thyroidectomy following manipulation of the thyroid gland May be brought on by stress, infections, trauma, surgery **Life-threatening condition** **Extreme S&S** of hyperthyroidism HTN, tachycardia, fever			**Thyroidectomy** Can be total or subtotal Indicated for large goiter or lack of response to drug therapy Pre-op preparation Anti thyroid medications given several weeks pre-op to obtain euthyroid state Post-op Thyroidectomy Assess for S&S hemorrhage Initially, semi-Fowler's position with head supported by sandbags/pillows Monitor VS, control pain, C&DB Teach to avoid tension on suture line by avoiding abrupt head movements and supporting neck when moving Reassure of temporary nature of hoarseness Respiratory distress from swelling Dyspnea, laryngeal stridor Medical emergency Oxygen, suctioning, trach tray prn Laryngeal nerve damage Voice check q 1-2 hr (some hoarseness is expected). Ask yes/no questions. Report severe hoarseness or voice changes. Complications Hypocalcemic tetany from accidental removal of parathyroids Paresthesia, muscle twitching, apprehension Have calcium gluconate available Thyroid crisis/storm Fever, tachycardia, HTN, agitation Treat with ABCs and drugs 25% mortality rate with treatment

DISEASE	CAUSES	CLASSIC S&S	La	Pharmacology	INTERVENTIONS
Hypothyroid (Hashimotos)	Insufficient circulating thyroid hormones Women affected 7-10x more than men Incidence increases with aging Decreased amount of thyroid tissue due to Atrophy of thyroid gland due to aging Surgery RAI therapy - radiation Thyroid cancer Autoimmune disease; Hashimoto's Thyroiditis – antithyroid antibodies attack thyroid tissue Certain medications (Lithium) Iodine deficiency or excess Inadequate production of TSH from a pituitary or hypothalamus tumor			Synthetic oral thyroxine Increases levels of T3 and T4, increasing metabolic rate Synthroid/Levothroid (levothyroxine) Take in AM Watch for side effects of hyperthyroidism if dose too large Monitor effectiveness by checking pulse, weight and BM Periodic testing of thyroid function required	Hypothyroidism: Altered nutrition: More than body requires Low calorie diet until weight stabilizes Constipation Activity, fluids, fiber, stool softeners Risk for impaired skin integrity Turn q2h, monitor pressure points, lotions Hypothermia Warm environment, extra clothing, blankets
Myexedema	Most severe form of hypothyroidism Causes Untreated prolonged hypothyroidism Rapid withdraw of thyroid medications Exposure to cold, surgery, infections, trauma Life-threatening condition Hypothermia, bradypnea, hypotension, lethargy	Extreme fatigue Hair loss, dry skin, brittle nails Husky voice Weight gain Intolerance to cold Masklike expression			