

Endocrinology Review Worksheet Part 1

Define the following terms:

Hormones: chemical substance produced by a specialized gland in one part of the body and carried to a distant organ where a regulatory response is produced

Endocrine System- is a ductless gland that secretes hormones- it's a collection of hormones, carrier proteins, and other components. Each hormone is produced by a specific tissue, they are released directly into the bloodstream and carried to site of action, acts on specific site to induce certain biochemical changes

List the following structure for each type of hormone

A. LH	Peptide
B. TSH	Peptide
C. Growth Hormone	Peptide
D. Cortisol	Steroid
E. Testosterone	Steroid
F. Epinephrine	Amino Acid
G. T3	Amino Acid
H. Prostaglandins	Fatty Acids

True or false Peptide hormones are water soluble and require a transport protein to move through the circulation? **False- they do NOT**

Describe the hypothalamus pituitary end organ system? **The hypothalamus produces hypophysiotropic neurons produces release hormones which stimulate pituitary gland to produce stimulating hormones that act on an end organ to produce hormones to initiate a process**

List the three parts of the pituitary gland

Anterior
Intermediate lobe
Posterior pituitary

What is the action of the following hypophysiotropic hormones?

TRH- **release TSH and PRL**

GnRH- **release LH and FSH**

CRH- **Releases ACTH**

GHRH- **release GH**

Define tropic and direct effectors hormones? **Tropic their actions are specific for another endocrine gland. Direct effectors they act directly on the peripheral tissue.**

Growth Hormone: stimulated by **GHRH** inhibited by **somatostatin**

True or false hyperprolactinemia can produce hypogonadal symptoms in both males and females.

The principle function of **ADH** is water reabsorption from the renal tubular fluid.

Describe the water deprivation test? Patients with central or nephrogenic diabetes insipidus lose free water when they undergo a period of time without water. Patients are hyperosmolar and hypernatremia. Urine osmo remains low. Do a baseline osmo, give exogenous vasopressin injection, measure urine osmo 60 minutes later. An increase greater than 10% from baseline indicates problem is central (hypothalamus or pit). If no increase indicates problem is nephrogenic

Define mineralocorticoid and glucocorticoid and give an example of each.

Mineralocorticoid groups of steroids that regulates salt and water metabolism example aldosterone
Glucocorticoid it is secreted in periods of hypoglycemia to help raise blood glucose levels ex; ACTH

The G zone what is the steroid produced and clinical significance?

Aldosterone

Synthesize mineralocorticoids, Na retention, K and acid base homeostasis

The F zone what is the steroid produced and clinical significance?

Cortisol

Synthesize glucocorticoids, blood glucose homeostasis, and blood pressure

The R zone what is the steroid produced and clinical significance?

DHEA

Sulfate DHEA to DHEAS, gonadal dysfunction, infertility in men and women, virilization in women and children

List the four steps when renin is released

1. Decrease in plasma volume
2. Decrease in arterial blood pressure
3. Increase in angiotensin
4. Increase in production of aldosterone

What is renin's effect in our body?

1. Retention of water and Na (increase BP)
2. Increase in extracellular volume
3. Decrease in Potassium

True or **False** Cortisol does not demonstrate diurnal variations.

Differentiate between Addison's disease and Cushing's syndrome.

Addison is low levels of cortisol, primary cause is adrenal cortex destruction, secondary ACTH deficiency, and tertiary hypothalamus is not producing enough CRH. Patient presents with weakness, fatigue, anorexia, weight loss, increased skin pigmentation. Have hyponatremia, hyperkalemia. Treat with glucocorticoids.

Cushing's- overproduction of CRH or ACTH, increasing cortisol production. Trunk obesity, ruddy complexion high blood pressure, insulin intolerance. Most common cause is pituitary adenoma (Cushing's disease). Treatment surgery to remove tumor

List the three major catecholamines and the metabolite that is produced in urine

Dopamine- HVA

Norepinephrine-VMA

Epinephrine- VMA

What are the classical symptoms of pheochromocytoma?

Excess catecholamines, HTN, weight loss, periods of sweating, headache, palpitations, anxiety