

Hprs 2301 pathophysiology



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HPRS 2301 PATHOPHYSIOLOGY CHAPTER 4 — Diseases and Conditions of the Endocrine System

Orderly Function of the Endocrine System Two Systems Interaction-as one system starts, ends, or extends the activity of the other.

Nervous System-creates an immediate but short lived response, operating on the principles of electricity through impulse conduction. Endocrine System- has a slightly slower onset and a longer duration of action, and uses highly specific and powerful hormones to control its response. Glands of the Endocrine System- these glands secrete unique and potent chemicals called hormones directly into the bloodstream.

ENDOCRINE DISEASES Results of dysfunction of or increase/decrease of secretion of hormone Symptoms and signs- growth abnormalities, emotional disturbances or psychiatric problems; skin, hair, and nail changes; edema; hypertension or hypotension; arrhythmia; changes in urine output; muscle weakness and atrophy, menstrual irregularity or amenorrhea, impotence or changes in libido; sterility, sharp changes in energy changes.

Master gland-pituitary gland regulates most of the other endocrine glands.(HYPOTHALAMUS) Hypo (define) under Hyper (define) over Pituitary Gland Diseases Hyperpituitarism Define- a chronic and progressive disease, is caused by excessive production and secretion of pituitary hormones, for example, human growth hormone.

Gigantism Define- describes an abnormal pattern and stature. Symptoms and Signs- When the hypersecretion of GH occurs before puberty, the result is gigantism, a proportional overgrowth of all body tissue. A child experiences abnormal and accelerated growth, especially of the long bones, because epiphyseal closure has not begun. Typically an accelerated linear growth prompts an initial investigation in children. Sexual and mental developments are often retarded.

Acromegaly Define-is a chronic metabolic

condition of adults caused by hypersecretion of growth hormone (GH) by the pituitary gland. Symptoms and Signs- When the hypersecretion of GH occurs after puberty, acromegaly occurs which is an over growth of the bones of the face, hands and feet. The patient by experience joint pain resulting from osteoarthritis and a host of other clinical features in the body systems.

Hypopituitarism Define-a condition caused by a deficiency or absence of any of the pituitary hormones, especially those produced by the anterior pituitary lobe. Dwarfism Define-is the abnormal underdevelopment of the body, or hypopituitarism, occurring in the children.

Diabetes Insipidus Define- is a disturbance of water metabolism resulting in extreme thirst and excessive secretion of dilute urine. Symptoms and Signs-a deficiency in the release of vasopressin by the posterior pituitary gland resulting in the excretion of copious amounts of colorless and dilute urine polyuria. Thyroid Gland

Diseases Simple Goiter Define- an enlargement of the thyroid gland usually evidenced by a swelling in the neck. Symptoms and Signs-a hyperplasia of the thyroid gland, may be asymptomatic in the early stages. The patient, usually female, maybe unaware of the condition until the anterior aspect of the neck enlarges with a conspicuous swollen mass. Etiology- simple or nontoxic goiter results from a shortage of iodine Hashimoto's Thyroiditis

Define- is a chronic disease of the immune system that attacks the thyroid gland. Symptoms and Signs-the condition occurs in women eight times as often as men, is most common between 45 and 65 years of age, and is the leading cause of goiter and hypothyroidism. The clinical feature is the gradual and painless lumpy enlargement of the thyroid gland, which causes a feeling of pressure in the neck and difficulty swallowing. Pain can also include, sensitivity to cold, weight gain, fatigue and depression as well as

mental apathy appear as the disease progresses. Hyperthyroidism Graves' Disease Define- a condition of primary, hyperthyroidism, occurs when the entire thyroid gland hypertrophies, resulting in a diffuse goiter and an over production of thyroid hormones. Symptoms and Signs-over production of thyroid hormone causes increased metabolism and multisystem changes. The patient has rapid heartbeat and palpitations, nervousness, excitability, and insomnia, Despite excessive appetite and food consumption, the patient loses weight. Profuse perspiration and warm moist skin cause the person to be intolerant of hot weather. Other symptoms include weakness and nail changes. Hypothyroidism Define- to the state in which thyroid hormone production is below normal. Cretinism Define-is a congenital hypothyroidism development in infancy or early childhood. Symptoms and Signs-cretinism is a congenital hypothyroid condition in which the thyroid gland is absent or thyroid hormone is not synthesized by the thyroid gland; this causes mental retardation in the infant or young child. Other physical characteristics include a short forehead, a broad nose, and small wide set eyes with puffy eyelids; a wide open mouth with a thick protruding tongue. Myxedema Define-severe acquired hypothyroidism developing in older child or adult. Symptoms and Signs-severe hypothyroidism with reduced levels of T4, has its onset in the older child or adults. Metabolism is slowed and there is an onset of systematic conditions. The skin becomes dry and scaly, with little or no perspiration, because the body develops. Thyroid Cancer Define- a neoplasm of the thyroid gland, the term includes primary thyroid tumors thyroid lymphoma, and metastases from breast, colon kidney, or skin cancers. Symptoms and Signs- thyroid malignancies often do not cause symptoms until the disease include palpation of a hard, painless lump or

nodule on the thyroid gland, vocal cord paralysis, obstructive systems, and cervical lymphadenopathy. Parathyroid Gland Disease Hyperparathyroidism

Define-a condition caused by over activity of one or more of the four parathyroid glands and results in the overproduction of parathyroid hormone. Symptoms and Signs-results in excessive reabsorption of calcium into the blood and extracellular fluid. Reduces the irritability of nerve and muscle tissue, and this causes patient to experience muscle weakness and atrophy, gastrointestinal pain, and nausea and vomiting.

Hypoparathyroidism Define- condition in which the secretion of parathyroid hormone by the parathyroid glands is greatly reduced. Adrenal Gland

Diseases Cushing's Syndrome Define-a condition of chronic hypersecretion of the adrenal cortex, which results in excessive circulating cortisol levels.

Symptoms and Signs- they experience fatigue, muscular weakness weight gain, and changes in their body appearance. Fat deposits form in the scapular area and in the trunk, causing a protruding abdomen. Patient may also show evidence of glucose intolerance, osteoporosis, and atherosclerosis.

Addison's Disease Define- partial or complete failure adrenocortical function

Symptoms and Signs-adrenal insufficiency or hypoadrenalism, is gradually manifested as symptoms of fatigue, weakness, anorexia, agitation, confusion, weight loss and gastrointestinal disturbances. Endocrine

Dysfunction of Pancreas Diabetes Mellitus Define-chronic disorder of carbohydrate, fat, and protein metabolism caused by inadequate production of insulin by the pancreas or faulty use of insulin by the cells. Symptoms and Signs-a reduction in cells for use as energy and storage as glycogen. A

reduction in insulin results in hyperglycemia and deprives cells of fuel. Cells begin to metabolize fats and proteins. Two Primary Forms of Diabetes Type I-

"juvenile onset" or "insulin dependent diabetes mellitus", has an early, abrupt onset, usually before age 30 years of age, with little or no insulin being secreted by the patient and can be difficult to control. Type II- "adult onset" or "non insulin dependent" the most common form, had gradual onset in adults older than 30. This form, some pancreatic function remains, permitting control of symptoms by dietary management; in addition an oral hypoglycemic medication is often prescribed.

Warning Signs of Diabetic Coma/Symptoms and Signs/Intervention - slow onset - thirst - increased urination - nausea and vomiting - abdominal pain - drowsiness - lethargy - flushed appearance - dry skin - fruity breath odor - heavy respirations

Intervention- Give insulin, fluids, and salt; If severe give intravenous fluids, insulin, and sodium bicarbonate

Warning signs of Insulin Reaction/Symptoms and Signs/Intervention - rapid onset - hunger - trembling and paleness - feeling of faintness - cold sweat - headache - anxiety - rapid heartbeat - irritability - confusion

intervention- if awake, give simple sugar, candy, orange juice, or soda; if unconscious, give intravenous dextrose or glucagon.

Gestational Diabetes Define- type 3 diabetes mellitus, condition of damaged ability to process carbohydrate that has its onset during pregnancy.

Symptoms and Signs- is detected between 24 and 28 weeks of gestation. The patient may exhibit the usual signs of diabetes mellitus; polyuria, polydipsia, and polyphagia. **Prognosis-** the risk of C section delivery and neonatal complications, including large size and hypoglycemia is increased. 30-40% of women who have had GDM develop type 2 diabetes within 5-10 years of GDM.

Hypoglycemia Define- an abnormally low glucose level in the blood. **Symptoms and Signs-** a deficiency of glucose, in the blood, can be a

serious condition. Sweating, nervousness, weakness, hunger, dizziness, trembling, headache, and palpitations.