Endocrine Disorder

Introduction:Hypo and hyper function of any endocrine gland causes deficiency or disorder of specific organ and tissue of the body.

Some disorders:

Kallmann syndrome: This syndrome results from defective hypothalamic gonadotropin releasing hormone synthesis (GnRH)

Symptoms: i) Colour blindness

ii) Optic atrophy

iii) Renal abnormalities and nerve deafness

iv) Cleft Palate

Cause of disorder: KAL gene defect or failure.

Acromegaly: Excess growth hormone (GH) secretion causes acromegaly & also excess secretion of GH releasing hormone causes acromegaly.

Symptoms: a) Increased hand and foot size.

b) Mandibular enlargement.

c) Widened space between the lower incisor teeth.

In children: Initiation of GH hyper secretion prior to epiphyseal long bone closure is associated with the development of pituitary gigantism. The person with acromegaly develops a large nose and thick lips.

Cushing syndrome: Excess secretion of ACTH causes Cushing's disease.

Symptoms: i) Thin brittle skin, hyper pigmentation.

ii) Central obesity and hypertension.

iii) Plethoric moon faces, purple striae.

iv)Glucose intolerance or diabetes mellitus, osteoporosis.

v) Psychological disorders (depression, mania, psychosis)

vi) Edema

Cause of disease: pituitary corticotroph adenomas and tumor of corticotroph or hyperplasia causes this disease.

Diabetes Insipidus: Decreased secretion of vasopressin or ADH is usually manifests as the diabetes insipidus.

Symptoms: i) A syndrome is characterized by the production of abnormally large amount of dilute urine.

ii) The polyurea produces symptoms of urinary frequency, enuresis & nocturnia; which may disturb sleep and causes day time fatigue.

iii) It is also associated with thirst & commensurate a increase in fluid intake (polydipsia).

Causes of the disease: Sometimes the irreversible destruction of neurohypophysis occur & sometimes the cause is due to genetics that affect the hormone secretion. Deficiency of this hormone affects the kidneys & water reabsorption power of kidneys is lost.

Hyponatremia: Excessive secretion or action of ADH results in the production of decreased volumes of more concentrated urine.

Symptom: If the hyponatremia develops gradually or has been present for more than a few days, it may be asymptomatic. It may cause nausea, anorexia, vomiting, convulsions and may lead to coma.

Autoimmune hypothyroidism: Autoimmune hypothyroidism may be associated with a goiter (Hashimoto's disease) or at the later stages of the disease minimal residual thyroid tissue (atrophic thyroiditis). Due to the autoimmune process gradually reduces thyroid function.

Cause and symptom: The thyroid lymphatic infiltrate in the autoimmune hypothyroidism is composed of activated CDH and CD8+ T cells as well as B cells. Thyroid cell destroy the immune cells.

Grave's Disease: High iodine intake is associated with an increased prevalence of Grave's disease & also thyrotoxicosis. Some genetic factors HLA-DR and CTLA-4 polymorphosis causes this disease.

Symptoms: Hyperactivity, irritability, dysphoria, palpitations, fatigue and weakness. Weight loss with increased appetite and polyurea. Warm moist skin, with muscle weakness.

Goiter: Goiter refers to an enlarged thyroid gland. Biosynthetic defect, iodine deficiency, autoimmune disease and nodular disease. Biosynthetic defects and iodine deficiency are associated with reduced efficiency of thyroid hormone synthesis. When diffuse enlargement of the thyroid occurs in the absence of nodules and hyperthyroidism, it is referred to as a diffused nontoxic goiter; this is sometimes called as simple goiter.

Symptoms: If the thyroid is markedly enlarged, it can cause tracheal or oesophageal compression. Goiter may obstruct thoracic inlet.

Addison's Disease: Addison's disease is caused by decreased synthesis of the adrenal hormones.

Symptoms: Weakness, weight loss, pigmentation of skin, abdominal pain, constipation, hypotension, nausea and vomiting.

Cause of disease: Gradual destruction of adrenal gland.

Diabetes mellitus: Type-i diabetes mellitus develops as a result of the synergistic effect of genetic, environmental and immunological factors that destroy the pancreatic β-cells. Type-ii diabetes mellitus develops due to abnormal insulin secretion and also insulin not binding properly with the receptors on the target tissues.

Symptoms: Cardiovascular disease, neuropathy, hyperglycemia, failure of nervous system, damage of retinal tissue and cells, release of glucose with urine. In extreme cases renal failure occurs and complete destruction of nephrons. Tissue damage occurs in some cases.

Hypoglycemia(Insulin shock): When Insulin level becomes very high, then hypoglycemia occurs. Hyperactivity of pancreas β cell causes hypoglycemia.

Symptoms: Sugar level of the blood becomes lowered. Brain may enter the stage of coma due low glucose level even for few minutes.

Cretinism: Hyposecretion of the thyroid hormone causes cretinism.

Symptoms: Cretinism is a condition which affects the growth of children showing dwarfism and mental retardation. This is due to the defective development or early atrophy (degeneration) of the thyroid.

Myxoedema: Myxoedema is a condition that affects an adult if his/her thyroid doesn't work properly. In this condition the person become sluggish with swelling of the face and hands.

Exopthalmic goiter: Excess of thyroxine secretion may also cause a kind of goiter called exopthalmic goiter.

Symptoms: Marked increase in metabolic rate, rapid heartbeat, shortness of breath, the ages are protruded and forms goiter on the neck.

Gigantism:Oversecretion of GH in childhood results in gigantism.

Symptoms: Long bones lengthen beyond the normal length and human giants upto 2.7 meters of height are produced.

Polycystic ovarian syndrome: This disease is characterized by infertility, hirsutism, obesity, insulin resistance.

Characteristics: Enlarged, polycystic ovaries. White smooth sclerotic ovaries with a thickened capsule, multiple follicular cysts in various stages of atresia. Hyperplastic theca and stroma and rare or absent corpora albicans. Lipid-laden luteal cells are present.

Symptoms: Spontaneous, unpredictable uterine bleeding occurs at any duration. Failure to ovulate spontaneously and at proper time.

Cause of the disease: the combination of elevated level of adrenal androgens and obesity leads to increased formation of extra-glandular secretion of estrogen. This estrogen stimulate to synthesis extra LH and inhibit FSH secretion. This extra LH secretion can cause hyperplasia of ovarian stroma and thecal cell and further increase of androgen production.

Hirsutism: Defined as the excessive male pattern hair growth affects approximately 10% of women.

Cause: Excess androgen secretion. Polycystic ovarian syndrome causes this disease.

Virilization: Refers to the state in which androgen levels are sufficiently high to cause additional sign and symptoms such as deepening of voice, breast atrophy, and increased muscle bulk.