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Q1. Write down a detail note on thyroid hormones?

Answer:

Introduction:

- Thyroid is an endocrine gland situated at the root of the neck on either side of the trachea.
- The potency of T3 is four times more than that of T4.
- TSH is necessary for secretory activity of the thyroid gland.
- TH secretes T3 (9%), T4 (90%) and calcitonin.
- Degradation of thyroid hormones occurs in muscles, liver and kidney.

Rate of secretion:

Thyroxin = 80 to 90 µg/day
Tri-iodothyronine = 4 to 5 µg/day

Plasma Level: Total T3 = 0.12
µg/dL Total T4 = 8 µg/dL.

FUNCTIONS OF THYROID HORMONES:

- To increase basal metabolic rate
 - To stimulate growth.
 - Action on carbohydrate metabolism
 - Action on protein metabolism
 - Action on body weight
 - Action on cardiovascular system
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Q2. Explain and classify adrenocortical hormones?

Answer:

Adrenocortical Hormones:

- There are 2 adrenal glands.
- 4 grams each.
- At the superior pole of the 2 kidneys.
- Each gland is composed of 2 distinct parts:

1. Adrenal Cortex

2. Adrenal Medulla

1. Adrenal Cortex:

- Secretes corticosteroids.
- These hormones are all synthesized from the steroid cholesterol and they all have similar chemical formulas.
- Slight differences in their molecular structures. ▪ Different very important functions.

2. Adrenal Medulla:

- The central 20% of the gland
- Related to the sympathetic nervous system;
- It secretes epinephrine and norepinephrine

Synthesis and Secretion of Adrenocortical Hormones:

The adrenal cortex has three distinct layers:

1) The zona glomerulosa:

- Thin layer of cells that lies just underneath the capsule; 15% of the cortex.
- Secrete Aldosterone; because these cells contain the enzyme aldosterone synthase.

2) The zona fasciculata:

- The middle and widest layer; 75% of the cortex.
- Secretes the glucocorticoids cortisol and corticosterone, as well as small amounts of adrenal androgens and estrogens.

3) The zona reticularis:

- The deep layer of the cortex.
 - Secretes the adrenal androgens dehydroepiandrosterone (DHEA) and androstenedione. As well as small amounts of estrogens and some glucocorticoids'.
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Q3. Define and explain hyperthyroidism and hypothyroidism?

Answer:

Hyperthyroidism:

Hyperthyroidism is caused by:

1. Graves' disease
2. Thyroid adenoma.

Sign and symptoms

- Toxic goiter,
- Polycythemia,
- Tachycardia,
- atrial fibrillation,
- Increased sweating,
- Decreased body weight,
- Diarrhea,
- Muscular weakness etc.

Hypothyroidism:

Hypothyroidism leads to myxedema in adults and cretinism in children.

Sign and Symptoms:

- Anemia,
 - Fatigue,
 - Extreme somnolence with sleeping disturbance,
 - decreased cardiovascular functions such as reduction in rate and force of contraction of the heart,
 - cardiac output and blood volume,
 - Increase in body weight,
 - Constipation,
 - Depressed hair growth,
 - Scaliness of skin,
 - Cold intolerance
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Q4. How calcium is regulated? Define osteomalacia.

Answer:

- Blood calcium level are regulated by parathyroid hormone, which is produced by the parathyroid glands.
- Parathyroid hormones is released in response to low blood calcium levels.

It increases calcium levels by targeting the skeleton, kidneys, and in the intestine.

Osteomalacia.

- Osteomalacia is the softening of the bones, typically through a deficiency of vitamin D or calcium.
 - In the children this condition is called rickets.
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Q5. write a short note on sex hormones?

Answer:

DEFINITION:

Hormones are chemical substances synthesized in small amounts by endocrine tissues and carried by blood stream to another tissue, where it acts as a messenger to regulate the function of the target tissue or organ. **Classification of sex hormones:**

<u>Classes of hormones</u>	<u>Chemical composition</u>	<u>examples</u>
Amino acid derivatives	C,H and N amine group	catecholamine's
Polypeptides	Long chains of amino acid	Insulin, glucagon
glycoproteins	Large proteins combined with carbohydrates	FSH, LH etc.
steroids	Lipids	Corticoids,sex hormones

The end
