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B.Sc (H)/Subs
Part-II
Semester II

Adrenal Gland. (1st gland)

Adrenal Gland is a paired Endocrine gland, situated on the top of kidney. So known as "Supra-renal Gland". It's also known as Emergency gland. Its shape flattened in Mammals, but in frog its shape is triangular. Its pale-yellow in colour.

Structure

It's covered by fibrous sheath, and its matrix - consists of Cortex & Medulla. The outer part (derived from Mesoderm), is known as the Cortex, and the inner part (derived from neural crest) as the Medulla.

Cortex - It's composed of three layers of cells. It's divided into:

- (i) Zona glomerulosa
- (ii) Zona fasciculata
- (iii) Zona reticulata

(i) Zona glomerulosa: The outer layer zona glomerulosa is made up of comparatively small thickly set-ovoid group of cells. These secrete Mineralo-corticoids which regulate Na⁺ & Water balance (Electrolyte).
Ex. / Aldosterone, & Deoxycorticosterone. The most potent Mineralo-corticoid is Aldosterone.
Aldosterone is a "Salt retaining hormone" which promotes the reabsorption of Na⁺ & Cl⁻ ions by renal tubules. Retention of these in the blood, keeps the O.P. (Osmotic pressure) high as a result of, which water is also re-absorbed. This in turn increases normal blood volume & pressure. It also increases excretion of K⁺ (Potassium ions).

Hyposecretion of Aldosterone causes Addison's disease
(Thomas Addison - Father of Endocrinology) (1855)

Symptoms

- Excessive loss of Sodium chloride in the urine & elevated levels of Potassium in the serum.
- Lowering of BP, Body temp, & Basal Metabolic rate (BMR)
- Muscular weakness,
- Hypoglycaemia.
- Loss of appetite, vomiting, & Gastro-intestinal disturbances.
- Bronzish pigmentation or bronzing of skin especially exposed part, such as face & hands due to deposition of melanin pigment.

Hypersecretion of Aldosterone causes Conn's Syndrome / Aldosteronism.

Symptoms

- It's characterised by increase in ECF volume & blood volume,
- Hypertension.
 - Polyuria.
 - often due to small tumor (tumour) of Xona glomerulosa.