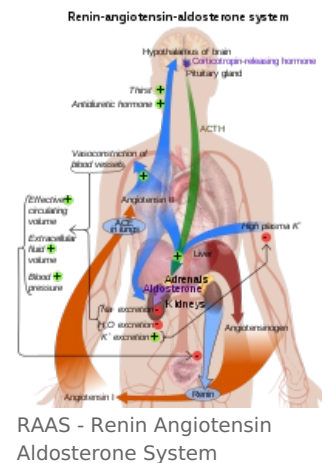


Mineralocorticoids

Adrenal cortex

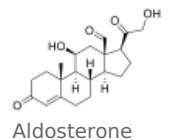
The adrenal cortex composes the outer layer of the adrenal gland and consists of three sublayers called zonae each of which produces structurally similar and functionally different compounds and hormones. The cortical zonae are the zona glomerulosa, fasciculata and reticularis producing and secreting minerocorticoids, glucocorticoids and steroid hormones respectively.

- **Zona Glomerulosa:** is the outermost layer of the cortex specialized in the production and secretion of minerocorticoids and predominantly aldosterone a hormone involved in extracellular fluid volume and osmolality control. Aldosterone is generally responsible for the renal absorption of Na^+ and excretion of K^+ from the distal part of the distal convoluted tubule and collecting duct and intestinal absorption of Na^+ in lesser extend.
- **Zona Fasciculata:** is the intermediate layer of the cortex specialized in the production and secretion of glucocorticoids and predominantly cortisol and corticosterone hormones involved in metabolism control along with inflammatory regulation being of vital importance for life maintenance.
- **Zona Reticularis:** is the innermost layer of the cortex specialized in the production and secretion of sex steroid hormones and predominantly androgens and androgen precursors. The zona reticularis secretes androstenedione, dehydroepiandrosterone and dehydroepiandrosterone which are not effective androgens as testosterone. However, when secreted they are transported to the gonads either testes or ovaries where they are converted to the more potent testosterone and to the most potent sex steroid hormone called dihydrotestosterone. The androgens stimulate and control the development and maintenance of male characteristics (and of female characteristics to lesser extend). This includes the activity of the accessory male sex organs and development of male secondary sex characteristics.

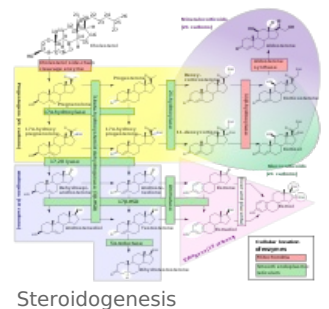


Minerocorticoidss

The adrenocortical hormones are the compounds secreted by the adrenal gland except catecholamines. Therefore the adrenocortical hormones refer to glucocorticoids-cortisol, minerocorticoids-aldosterone and sex steroids-andogens. Precursor of all adrenocortical hormones is cholesterol. Aldosterone circulates in plasma bound to an aldosterone-binding protein, to transcortin and to albumin. Aldosterone receptor in the cytoplasm of target cells influence the transcription and protein synthesis in order to provide Na^+ and K^+ pumps for NaCl reabsorption and potassium excretion .



1. In the renal nephorns, aldosterone stimulates the active reabsorption of Na^+ from the tubular fluid by the distal part of the distal tubules and collecting ducts and excretion of potassium. This is achieved through stimulation of the Na^+/K^+ ATPase pump and increase of density of Na^+ channels at the luminal membrane
2. Stimulation of Na^+ reabsorption from the intestine
3. Decrease in the ratio of Na^+ over K^+ in sweat and saliva
4. Indirect increase of blood volume and blood pressure



Links

Bibliography

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