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Topic: Function of Adrenal gland

Diseases of The Adrenal Glands:

Diseases of the adrenal glands may be divided into those of the medulla and those of the cortex.

The only known disease of the **adrenal medulla** is a tumors known as a pheochromocytoma. Pheochromocytomas secrete excessive quantities of epinephrine and norepinephrine.

Many patients with these tumours have periodic episodes of hypertension (high blood pressure), palpitations of the heart, sweating, headaches, and anxiety, whereas other patients have persistently high blood pressure.

High blood pressure and other symptoms can be treated with drugs that block the action of epinephrine and norepinephrine; however, the most effective treatment is surgical removal of the tumour.

Diseases of the **adrenal cortex** may be manifested as hyperfunction (excessive secretion of adrenocortical hormones) or hypofunction (insufficient secretion of these hormones), also known as Addison disease.

Adrenocortical hyperfunction :may be congenital or acquired. Congenital hyperfunction is always due to hyperplasia (enlargement) of both adrenal glands, whereas acquired hyperfunction may be due to either an adrenal tumour or hyperplasia.

Congenital adrenal hyperplasia, also known as adrenogenital stndrome, is a disorder in which there is an inherited defect in one of the enzymes needed for the production of cortisol.

Excessive amounts of adrenal androgens must be produced to overcome the block in cortisol production.

In female infants this results in masculinization with pseudohermaphroditism (anomalous development of genital organs), whereas in male infants it results in premature sexual development (sexual precocity).

Acquired adrenocortical hyperfunction is manifested by either cortisol excess , androgen excess, or aldosterone excess (primary aldosteronism).

Cushing syndrome is characterized by obesity, rounding and reddening of the face, high blood pressure, diabetes mellitus ,osteoporosis , thinning and easy bruising of the skin, muscle weakness, depression, and, in women, cessation of menstrual cycles (amenorrhea).

The major causes of Cushing syndrome are a corticotropin-producing tumour of the pituitary gland (known as Cushing disease), production of corticotropin by a nonendocrine tumor, or a benign or malignant adrenal tumour.

. All these disorders are treated most effectively by surgical removal of the tumour. Androgen excess in women is characterized by excessive hair growth on the face and other regions and amenorrhea; incontrast, androgen excess has few effects in men.

The major causes of adrenal androgen excess in adults are late-onset congenital adrenal hyperplasia and adrenal tumours.

Primary aldosteronism is characterized by high blood pressure, caused by increased retention of salt and water by the kidneys, and low serum potassium concentrations (hypokalemia), caused by excess excretion of potassium in the urine.

The symptoms and signs of aldosterone excess include not only hypertension but also muscle weakness and cramps and increased thirst and urination.

Primary aldosteronism is usually caused by a benign adrenal tumour (adenoma), but some patients have hyperplasia of both adrenal glands.

Successful removal of the adrenal tumour usually results in reduction in blood pressure and cessation of potassium loss; patients with bilateral adrenal hyperplasia are treated with antihypertensive drugs.