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B.Sc HONS Part - III Paper - V

Topic:- Histology and Physiology of Pituitary gland of a Mammal

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Q. Describe the histology and physiology of pituitary gland of a mammal.

Ans. Pituitary gland is an oval structure situated in the brain just behind the optic chiasma and is enclosed in a depression in the sphenoid bone. The gland consists of two parts of different origin and functions. These are adenohypophysis and neurohypophysis.

(1) Adenohypophysis—This is composed of 3 parts—

- (a) Anterior part or pars distalis
- (b) posterior part of pars tuberalis
- (c) Intermediate part or pars intermedia.

The adenohypophysis consists of cells (chromophobes and chromophils) which themselves secrete hormones, with the exception of pars tuberalis.

(2) Neurohypophysis—It comprises in fundibular stalk and pars nervosa. Pars nervosa consist of non-myelinated nerve fibres and non-secretory supporting cells. The hormones are produced by nerve cells.

Hormones of pituitary gland—

(1) Somatotrophic hormone—It stimulates growth of bones, cartilage, muscles, viscera and the body as a whole.

(2) Adrenocorticotropic hormone—drenocorticotrophic hormone—It stimulates the adrenal cortex to produce glucocorticoids.

(3) Thyroid stimulating hormone—It controls growth and activity of the thyroid gland.

(4) Follicle Stimulating Hormone—In Female it stimulates the development and ripening of the ovarian follicle.

In male it stimulates the development of seminiferous tubules and spermatogenesis.

(5) Lutunzing hormone—In female it promotes maturation of the ovarian follicle, ovulation and formation of corpus luteum.

In male it stimulates the interstitial cells of testes to release testosterone.

(6) Prolactin—It has a direct effect upon the mammary glands.

(7) Melanocyte stimulating hormone—It expands melanophores and thus initiates skin darkening.

(8) Vasopressin—It promotes reabsorption of water by kidney tubules and elevates blood pressure by constricting the blood vessels.

(9) Oxytocin—It helps in parturation by initiating contraction of myometrium of uterus. It also brings about ejection of milk from lactating mammary gland.

