CHEMICAL CONTROL & COORDINATION

ENDOCRINE SYSTEM

Endocrine system has various endocrine glands and every gland secretes variety of hormones.

Chemical nature of hormones:

Following are different types of hormones on the basis of their chemical nature:

a. Amino acid derivative -
b. Peptide or Proteinaceous hormones.
c. Iodothyronines
d. Steroid hormones.

Epinephrine & Norepinephrine is the derivative of amino acid - Tyrosine whereas Melatonine and Serotonin are derivative of Tryptophan.

ADH [Antidiuretic hormone, oxytocin, Insulin, Glucagon, GH [Growth hormone], TSH

[Thyroid stimulating hormones] etc. are Peptide or Proteinaceous hormones.

Thyroxine is the iodinated amino acid with with di-phenyle ether ring and Aldosterone, Calcitrol, Cortisol Testosterone, Oestrogen, progesterone etc. are group of Steroid hormones.

HYPOTHALAMUS & PITUITARY GLAND

Fig: 22.14.

Hypothalamus develops from the embryonic ectoderm. Lies below the thalamus. Hormones of hypothalamus influence the functioning of pituitary gland and it is commonly called supreme commander of endocrine regulation.

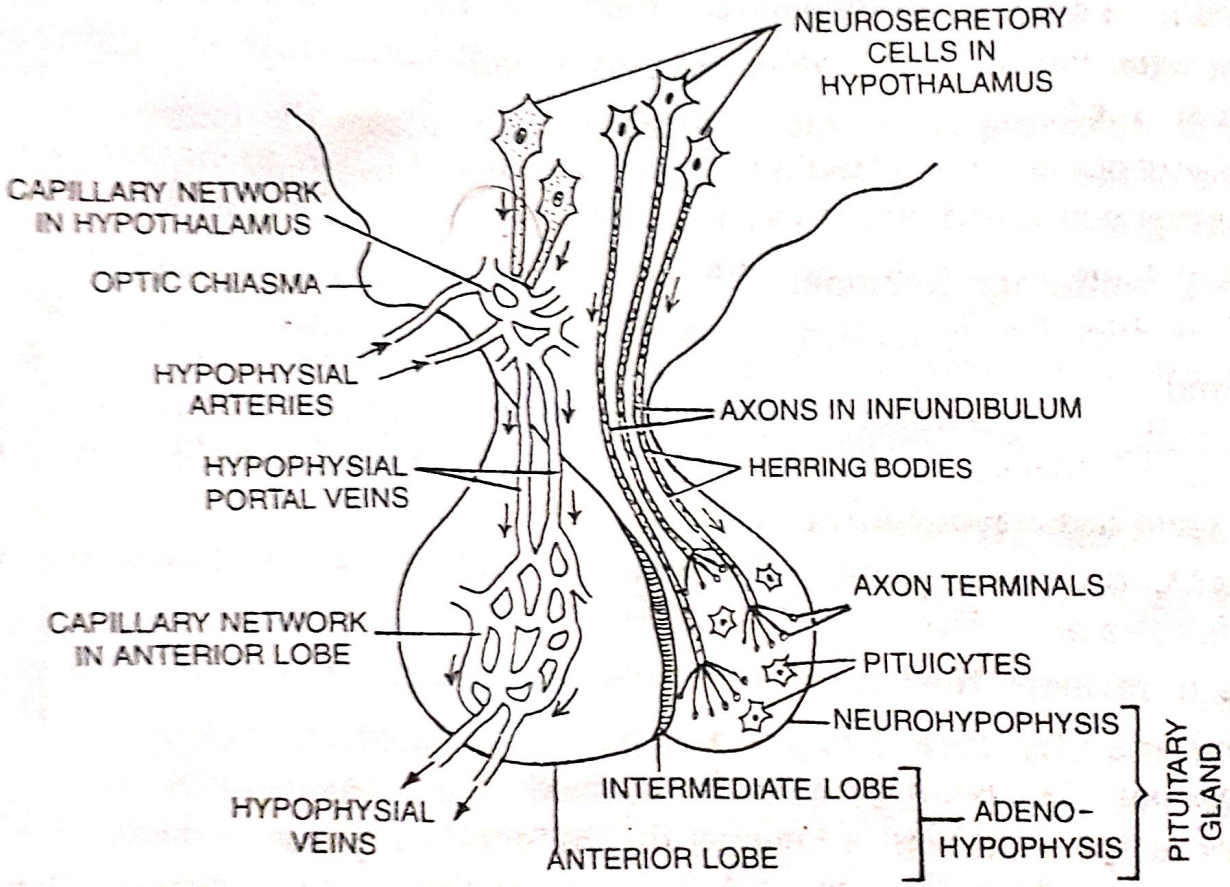

Fig. 22.14. Neurosecretory cells (neurons) of hypothalamus discharging their neurohormones into hypophysial portal veins and into neurohypophysis (posterior lobe) of pituitary gland.

The neurosecretory cells of hypothalamus secrete the following hormones:

a. Adrenocorticotropic releasing hormone [ARH]
⇒ The above hormone stimulates anterior lobe of pituitary to ~~sec~~ secrete ACTH.

b. Thyrotropin releasing hormone [TRH]
It stimulates anterior lobe of pituitary gland to secrete TSH ie Thyroid stimulating hormone.

c. Growth hormone releasing hormone [GHRH] – It stimulates anterior pituitary gland to release GH [growth hormone]

d. Growth hormone inhibitory hormone [GHIH] – It is called somatostatin and inhibits secretion of GH from pituitary gland.

e. Gonadotropin releasing hormone [GnRH]
This hormone stimulates pituitary gland to secrete gonadotropic hormone ie LH & FSH.