

Posterior Pituitary

Parts :

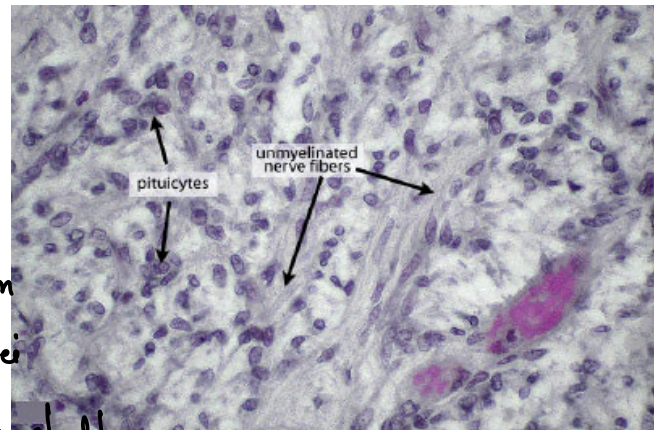
- Consists of three parts :
 - (1) Pars nervosa / Infundibular Process
 - (2) Neural stalk / Infundibular Stem
 - (3) Median Eminence.
- Pars tuberalis (anterior pituitary)
& Neural Stalk • Hypophyseal stalk.

Histology

- Posterior pituitary is made up of neural type of cells, **Pituicytes**, and unmyelinated nerve fibers.

Pituicytes :- Fusiform derived from glial cells.

- Several processes
- Brown pigment granules
- Do not secrete hormones.



Unmyelinated Nerve fibers : Come from supraoptic & paraventricular nuclei of hypothalamus through pituitary stalk.

- Other structures include Blood vessels, hyaline bodies, neuroglial cells and mast cells.

Hormones of Posterior Pituitary

- (a) Antidiuretic hormone (ADH) or Vasopressin
- (b) Oxytocin.

- The posterior pituitary does not secrete any hormone.
- ADH & oxytocin are synthesized in hypothalamus and from there they are transported to posterior pituitary through the nerve fibers of hypothalamo-hypophyseal tract.

Antidiuretic hormone :

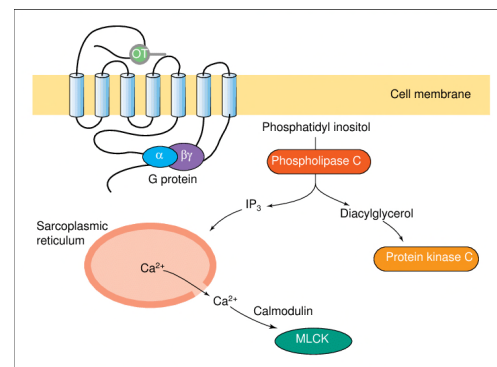
- ADH is secreted mainly by supraoptic nucleus of hypothalamus.
- It is secreted by Paraventricular nucleus in small amount.
- ADH = 9 AAs with Half-life = 18-20 mins.
- It has two main functions:
 - (a) Retention of water : Inc. water reabsorption from DCT & Collecting tubule
 - (b) Vasopressor action
 - ADH shows Vasoconstrictor if in large amount.
 - By increasing / Regulating aquaporins through $\downarrow$ 2 receptors.
- ADH is regulated by:
 - (a) Decrease in ECF volume.
 - (b) Increase in Osmolar conc. of ECF.

Oxytocin :

- It is mainly secreted by Paraventricular nucleus.
- It is also secreted by supraoptic but in small quantity.
- It is secreted in both sexes.
- Oxytocin = 9 AAs with Half-life = 6 mins.
- It acts via activating G-protein coupled oxytocin receptor.

Functions :

- (1) Action on mammary gland - It causes milk ejection by contracting myoepithelial cells of mammary gland.
 - It is a Neuro-endocrine reflexes.
 - It is based on positive feedback mechanism.



Increased milk production triggers increased suckling by infant (positive feedback loop).

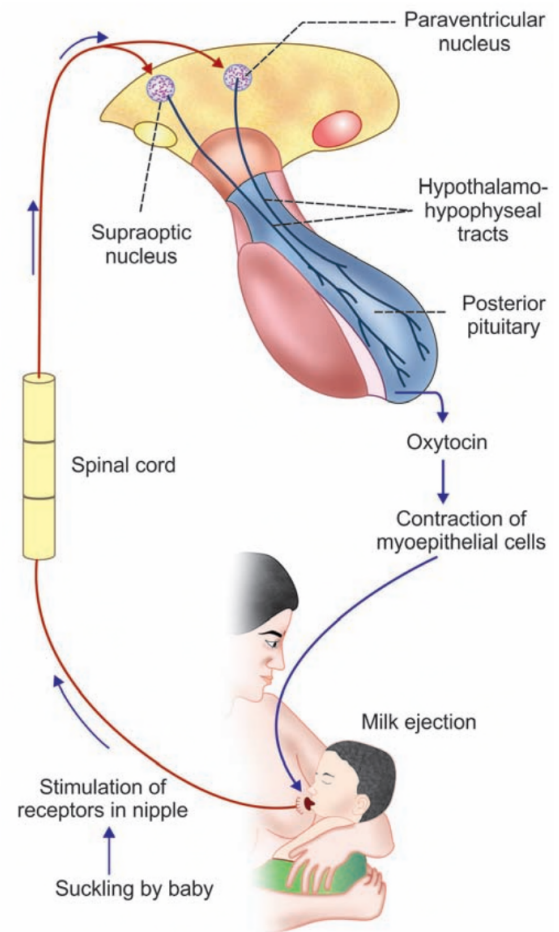
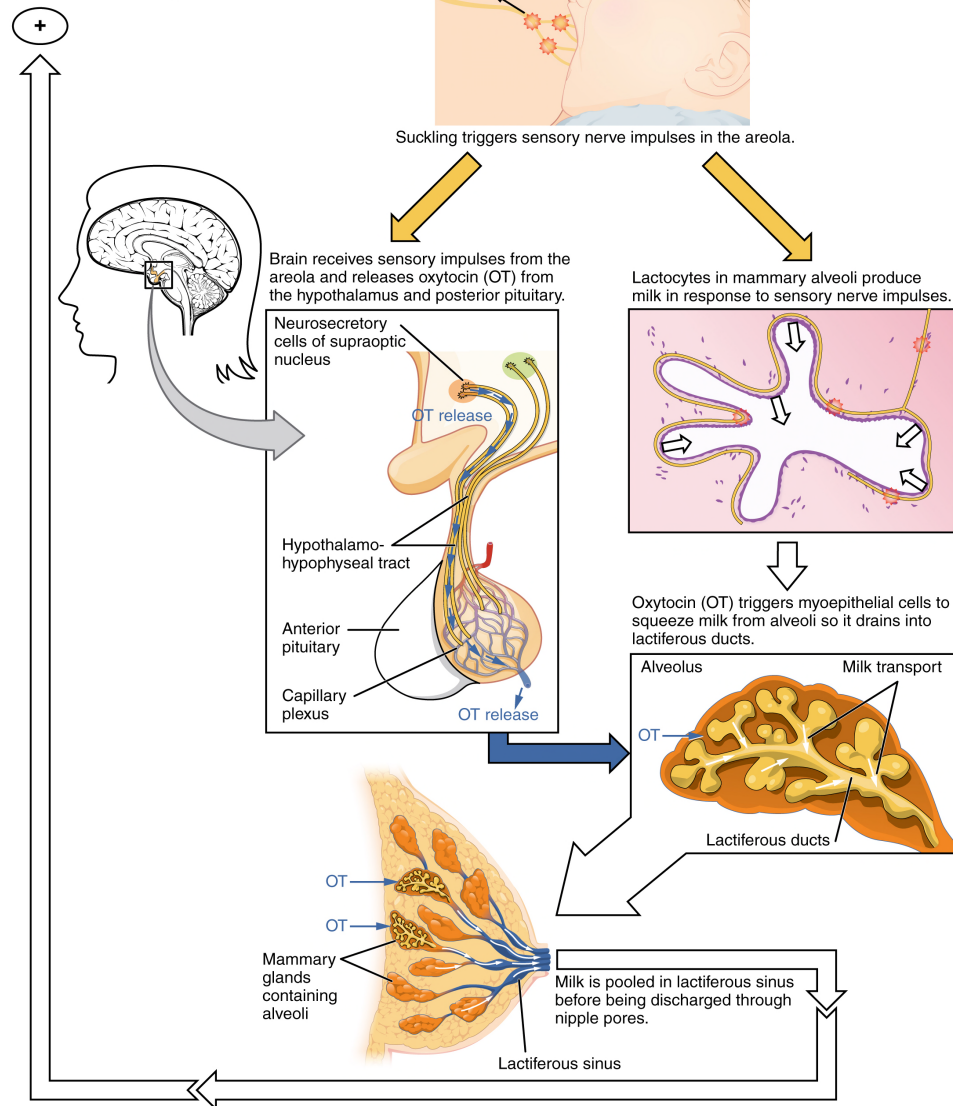


FIGURE 66.5: Milk ejection reflex

(2) Action on Uterus -

In non-pregnant Uterus:

- Oxytocin helps to facilitate the transport of sperms through female genital tract upto fallopian tube by uterine contraction.

In Pregnant Uterus (during labor)

The baby pushes against the cervix, causing it to stretch.

