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NURSING OFFICER

**EMPLOYEES' STATE INSURANCE
CORPORATION**

Volume – 6 (PART – 1)

**MEDICAL SURGICAL NURSING
(HUMAN BODY SYSTEM & DISORDERS)**



CONTENT

NEUROENDOCRINOLOGY

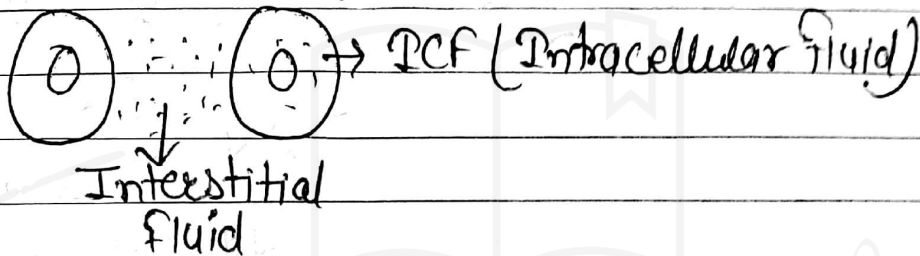
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NEURO-ENDOCRINOLOGY

Homeostasis \Rightarrow Homeo + stasis

\Rightarrow It is the condition of balance or equilibrium of the cells internal environment.



\rightarrow ECF Control \rightarrow internal environment

\Rightarrow Homeostasis is regulated by / maintain by interstitial fluid or extracellular fluid although (अर्थात्) it is located outside the cell

This function is given by Clude Bernard

Regarded \Rightarrow "father of physiology"
as

* Comparison of endocrine and nervous systems \Rightarrow

Endocrine System

Nervous System

① Hormones are through
Control

① Neuro-transmitters are
through Control

② wider Coverage

② Narrow Coverage

③ Target organ \Rightarrow far (दूर)

③ Target Organ \Rightarrow Near (करीब)

Glands
 \Downarrow
eg \rightarrow adrenal
gland

Neurons

Smooth &
Skeletal
Muscle

\Downarrow
(Medulla)

④ onset of action

④ Onset of action

\Downarrow
slow

\Downarrow
fast

⑤ Duration \Rightarrow Longer

⑤ Duration \Rightarrow shorter

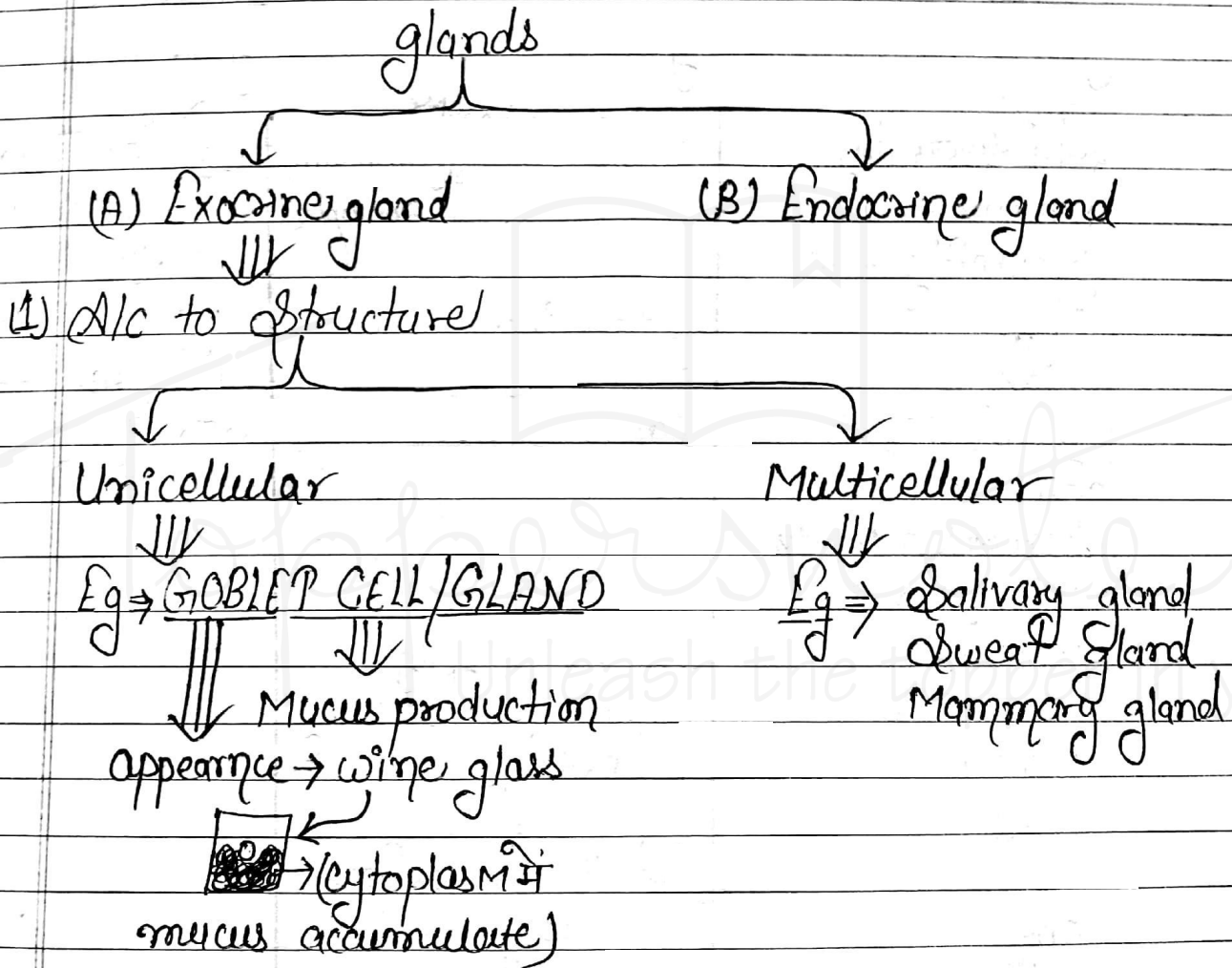
\Downarrow
Because Hormone
circulation में रहेगा
और Target cell तक
पहुंचना

\Downarrow
Because neurotransmitter
rapid function करे
ए

Endocrine System

Gland

glands are specialized single or group of cell.
produce Hormone and juice



goblet cell
Found in ⇒ (1) GIT → Stomach में Mucus layer etc etc
(2) Respiration (prevent → HCl में)
Mucus prevent → Moist & stop dust particle
(3) Reproductive/fallopian tube

(2) A/c to function Exocrine gland

(A) Holocrine Exocrine gland

इसमें secretory product whole/ completely रहा है।

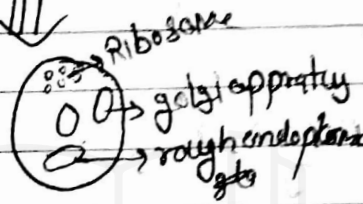
cytoplasm में cell death होने पर secretion product/ release कम हो जाता है।

Eg → sebaceous gland

sebaceous secretion करते हैं।

dies cells होने पर वह बाहर निकलती है।

(B) Merocrine Exocrine gland



Eg → salivary gland

saliva का production rough endoplasmic करती है।

saliva का golgi apparatus packing करती है।

छोटे-2 vesicles के रूप में आयेगा।

जो secretion exocytosis के द्वारा बाहर निकलेगी।

जो plasma membrane को Break करके बाहर निकलती है।

(C) Apocrine Exocrine gland

cell की apex secretes part है।

apex part separate करके बाहर निकलती है।

Endocrine System

Endocrine system is consist of :-

- (1) Endocrine gland
- (2) Endocrine organs and tissue

(1) Endocrine gland →
Pure endocrine | Hormonal function

- | | | | | |
|---------------------|------------------|--------------------------------------|----------------------------|-----------------------------|
| (A) Pituitary gland | (B) Pineal gland | (C) Thyroid
Lower part
of neck | (d) Para
thyroid
(4) | (E) Adrenal
gland
(2) |
| 3rd - Ectoderm | | | | |

(2) Endocrine Organs and tissue →

Endocrine function \bar{c} Non-endocrine function (Both performed)

- | | |
|-------------------|----------------------|
| (1) Hypothalamus | (10) Placenta |
| (2) Thyroid gland | (11) corpus Luteum |
| (3) Heart | (12) Skin |
| (4) Stomach | (13) Adipose tissues |
| (5) Pancreas | |
| (6) Liver | |
| (7) Kidney | |
| (8) ovaries | |
| (9) Testes | |

(1) Hypothalamus

⇓⇓⇓
(A) Anti-Diuretic Hormone [ADH] / vasopressin / Arginine vasopressin [AVP]

(B) Oxytocin Hormone

(C) Releasing Hormone (6)



(i) Growth Hormone Releasing Hormone [GHRH]

(ii) Prolactin Releasing Hormone [PRH]

(iii) Corticotropin Releasing Hormone [CRH]

(iv) Thyrotropin Releasing Hormone [TRH]

(v) Gonadotropin Releasing Hormone [GnRH]

(vi) Melanocyte Stimulating Releasing Hormone [MRH]

(D) Inhibiting Hormone



(i) Growth Hormone Inhibiting Hormone [GHIH]

(ii) Prolactin Inhibiting Hormone [PIH]



Bromocriptine drug



Hypothalamus में absorb होकर



PIH Level ↑se



stop decretion milk

⇒ Hypothalamus is not endocrine gland but Hypothalamus is endocrine organ and tissues

(2) Thymus Gland ⇒ (i) Thyrosine Hormone
 (ii) Thymic Humoral factor
 (T-Lymphocyte formation)

(3) Heart ⇒ (i) Atrial Natriuretic peptide [ANP]
 (Peptide Hormone) * → Atrial myocyte (Myometrium cell) से Secrete करती है
 (Circulatory & endocrine organ)

Function ANP ⇒ Natriuresis
 Sodium (Na) Urine

Condition develop ⇒ (i) Hypovolemia } Both condition
 (ii) Hyponatremia } B.P. ↓ se.

ANP ⇒ B.P. को ↓ se करती है। जबकि Renine and angiotensine B.P. को ↑ se करती है।

(4) Stomach ⇒ (i) Gastric Hormone
 (Formation by G-cell)

(5) Pancreas ⇒ (i) Insuline
 (ii) Glucagone
 (iii) Somatostatin
 (iv) pancreatic polypeptide

(6) Liver →

- (i) Thrombopoietin, Hormone (TPO) (Thrombocyte production)
- (ii) Insulin like, growth factor - I

(7) Kidney - (i) Erythropoietin Hormone (EPO)
formation of RBC ↑ Se

(8) Ovaries → PER I Hormone

P →

E →

R →

I →

(9) Testies - (i) Testosterone Hormone
(ii) Inhibin Hormone

(10) Placenta - Temporary Endocrine gland
Hormone PERI

HCG

Human Placental Lactogen (HPL)

(11) Corpus Luteum → Progesterone & Estrogen

(12) Skin → (i) vitamin D Hormone
due to sunlight apply → dermis
Substance → folic acid byalle.

vitamine के precursors में changes

vitamine D - inactive form

Outside the cell

circulation से all organ से लेकर Heart में जाने के बाद वहां से बाहर निकल कर

Hydroxylation होता है

Ist → Liver में

IInd → Kidney में

vitamine D - active form

⇒ If person suffer Hepatic or renal problem
person in deficiency vitamin D

(13) Adipose tissue ⇒ Adipose tissue endocrine organ में आता है

Because it secrete leptin (Lipid) Hormone.

Inhibite appetite.

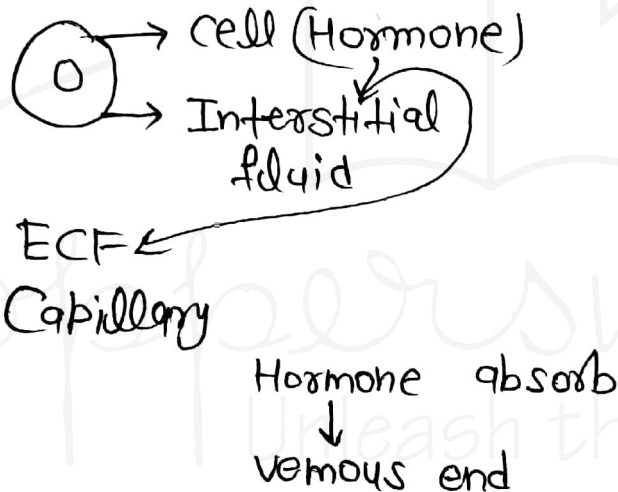
Hormones

Hormones means → to Excite

→ It is a substance of intense biological activity

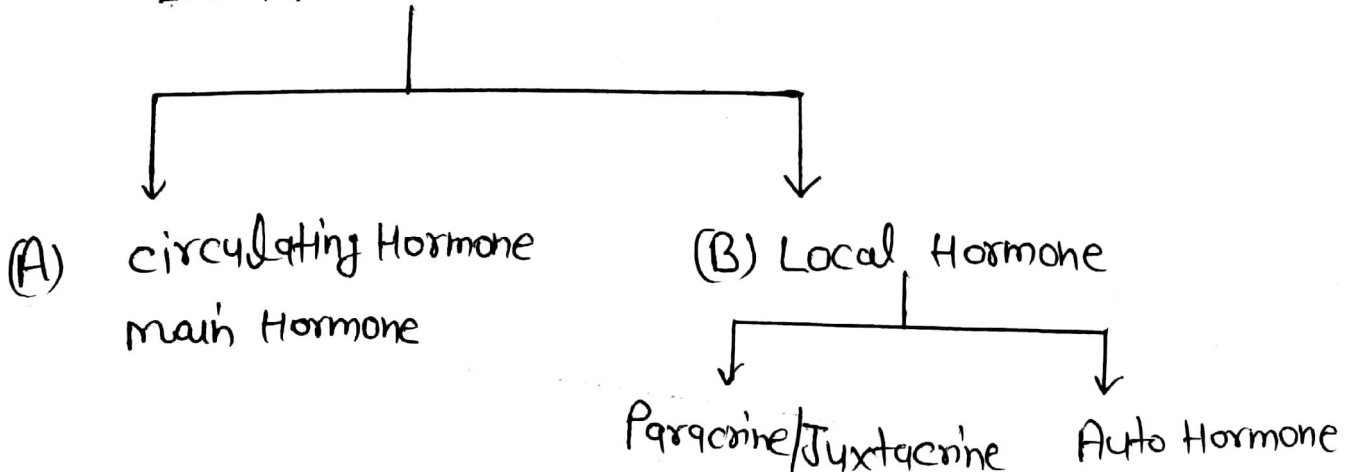
which secreted by endocrinal glandular tissue or organ into the interstitial fluid than into the venous Blood

→ Hormone diffuse in venous blood.

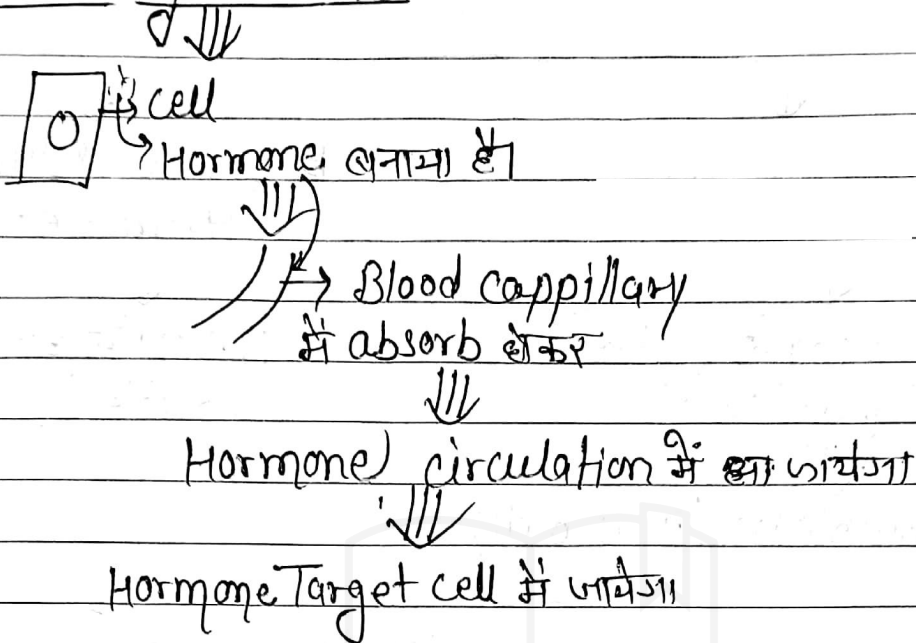


Classification of Hormone

IU A/c to circulation



(A) Circulating Hormone



(B) Local Hormone

(i) paracrine

or
Juxtacrine

ये Hormone पास वाली cell पर action करती है।

(ii) Autocrine Hormone

जो cell ~~secrete~~ Hormone secrete करती है। उसी cell पर action करती है।

Eg of Local Hormone

(1) Interleukin-II ⇒ which released by the Helper T-cell

(2) Prostaglandine

(3) Serotonine → secrete → platelet

(4) Histamine

(2) A/c to chemical Classification of Hormone

(A) Lipid Soluble Hormone

(B) water Soluble Hormone

Plasma के water में insoluble है

Plasma के अन्दर पानी में Soluble है

Double in Lipoprotein

(i) Steroid Hormone \Rightarrow Sterone की ring होती है

(ii) Thyroid Hormone

T_3 T_4

(Thyroxine)

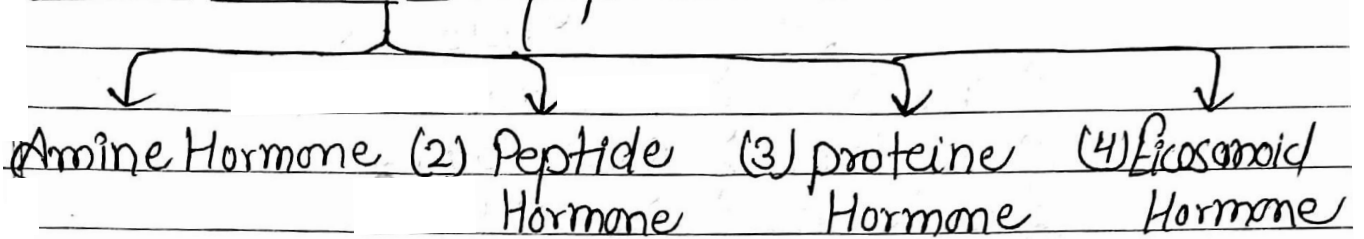
- (1) Aldosterone
- (2) Testosterone
- (3) Estrogen
- (4) progesterone
- (5) Corticosterone
- (6) Cortisole
- (7) vitamin D (Cholecalciferol)

(iii) Nitric-oxide gas (NO) \Rightarrow Secrete

function \rightarrow vasodilation

- (1) Endothelial of Blood capillary vessels

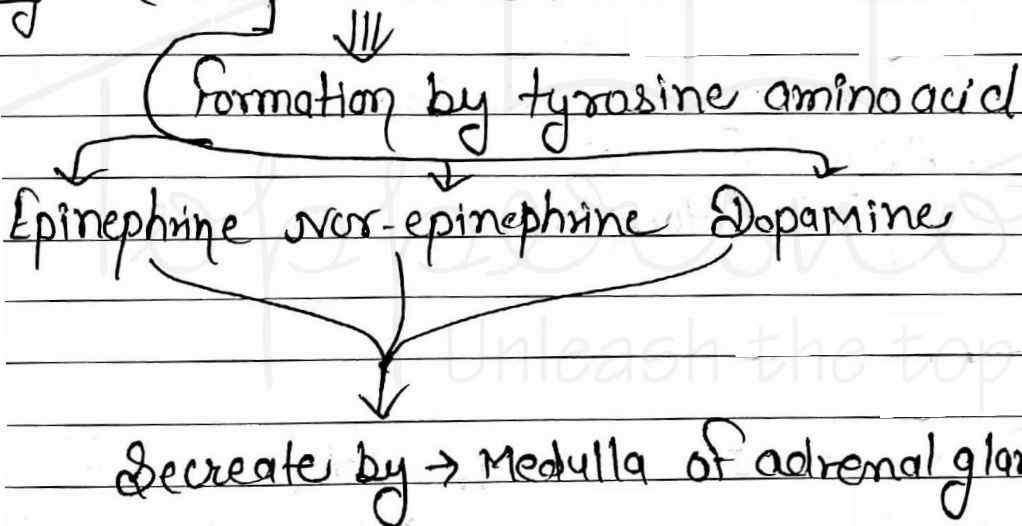
Water-Soluble Hormone



Amine Hormone ⇒

Due to NH_2 (Amino group)

Eg → (a) Catecholamines Hormone



(b) Histamine ⇒

formed by Histidine amino acid

from by Basophil and mast cell

(c) Serotonine and melatonin

formed by ~~try~~ tryptophen amino acid

⇒ Serotonin secrete by

- ⇓⇓⇓ Help
- ① Brain ⇒ Neurotransmitter
 - ② platelet ⇒ Blood clotting
 - ③ Intestine ⇒ Motility ↑se.

⇒ Melatonin secrete by

⇓⇓⇓
pineal gland

② peptide Hormone

⇓⇓⇓

formed by 3-49 amino acid

Eg → ADH Hormone
Oxytocine Hormone

③ protein Hormone

⇓⇓⇓

formed by 50-200 amino acid

Eg = "Lip" → P → Pituitary Hormone
P → parathyroid Hormone (PTH)
P → pancreas
P → placenta (except → estrogen + progesterone)

(4) Eicosanoid Hormone

This is special class of the water soluble which are derived from arachidonic acid.

IF insuline [↓] Tab. form में होती है। tab. stomach में
पारित है ही & stomach में pepsinogen destroy करता है।

Note

ADH given usually \Rightarrow injectable

[↓]
avoid orally

[↓]
Sc Route
nasal spray



Toppernotes
Unleash the topper in you