**Assignment 1/Presentation (marks 20)**

These marks will be count in internal assessment.

Human Anatomy-II

BS Radiology 2ndsemester (sec-A) Instructor: Dr. M.Jaffar

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**Endocrine System**

Classification of endocrine glands:

# ENDOCRINE SYSTEM:

The endocrine system is the chemical messenger system comprising feedback loops of the hormones released by internal glands of an organism directly into the circulatory system.

Endocrine glands are ductless glands of the endocrine system that secrete their products, hormone , directly into theblood.

In humans , the major endocrine glands are thyroid gland and the adrenal glands.

Vertebrate endocrine glands can be divided into different categories,like

1. ON THE BASIS OF LOCATION:
2. Cranial endocrine glands.

These endocrine glands are located in the head region.

e.g pituitary gland , pineal gland , hypothalamus.

B. pharyngeal endocrine glands

These glands are found in pharyngeal or neck region

e.g thyroid gland, parathyroid gland.

C.abdominal endocrine glands

These glands are located in the abdominal region. E.g pancreas, adrenal ,testis, ovary.

1. ON THE BASIS OF NUMBER
2. Unilateral endocrine glands

These endocrine glands are single in number

e.g pituitary , pineal gland, pancreas.

b. bilateral endocrine gland.

These endocrine glands are paired in condition.

1. ON THE BASIS OF SECRETION :
2. Telecrine glands:

Hormones are released by specialised endocrine cells into the extracellular space and are then acrried by blood to the distant target cells.

e.g thyroid gland , adrenal gland, pituitary glands etc.

b. paracrine glands:

hormone diffuse locally through the interstitial fluid from from the secretory cells to the adjacent target cells

e.g in islets of langerhans, somatostatin is secreted from alpha cell , that reacts on adjacent alpha and beta cells.

1. Pituitary gland

The pituitary gland is a small pea sized gland that plays a major role in regulating vital body functions and general wellbeing.

It is referred to as the bodys master gland because it controls the activity of most other hormone secreting glands

The pituitary gland is a part of your endocrine system. Its main function is to secrete hormones into your bloodstream. These hormones can affect other organ and glands especially your : thyroid

The pituitary gland has two main parts , the anterior pituitary gland and the posterior pituitary gland. The gland is attached to apart of the brain ( the hyothalamus) that controls its activity. The anterior pituitary gland is connected to the brain by short blood vessels.

The anterior pituitay regulates several physiological processes including stress, growth, reproduction,and lactation, its regulatory fuctions are achieved through the secretion of various peptide hormones that act on target organs including the adrenal gland, bone , thyriod gland and gonads

#  ANTERIOR LOBE

Growth hormone

Prolactin

Thyroid stimulating hormone

Adrenocorticotrophic hormone

Follicle stimulating hormone

Luteinzing hormone

# POSTERIOR LOBE :

Vesopressin

Oxytocin

# Growth hormone

Located in anterior lobe of the pituiyary gland.

Stimilating of growth of bones , catilage and connective tissue

Increases calcium absorption of GIT

# Prolactin

Prolactin play an important role in the development of mammary gland and in milk synthesis

# Thyroid stimuliting hormone

It stimulate thyroid gland to produce

Thyroxin T4

Trioodothyrionine T3

# ADRENOCORTICOTROPHIC HORMONE

It is often produce in response of biological stress

Its principal effect an increased production and release of corticosteroid

# FOLLICLE STIMULATING HORMONE

FSH regulate the movement of growth , pubertal maturation and reproductive process of the body

# LUTENIZING HORMONE

In females an acute rise of LH trigger ovulation

In males it stimukates the production of testosterone

# POSTERIOR LOBE

# ANTIDIURETIC HORMONE

TO RETAIN WATER IN THE BODY

# Oxytocin

Oxytocin is synthesized in hypothalamus

Oxytocin the production of mammary gland to produce milk ;

Stimulate contraction of smooth muscle of the utreus

1. Thyroid gland

THYROID GLAND :

# TRIIODOTHYRONINE :

It affect almost every physiological process in the body

Growth and development

Metabolism

Body temperature and heart rate

# Thyroxine

Control development and maturation

Excess thyroxin result rapid development

Deficency of thyroxin result in delayed development

# Calcitonin

It is the hormone secreted by c cell of the thyroid gland

Its main action is ‘

To increase bone calcium

To decrease blood calcium level

# Disease related to thyroid gland

# GOITER

Anyenlargment of thyroid gland is called goiter

# Parathyroid gland

In humans these are 4 parathyroid gland the main function of parthyroid gland is to increase the blood calcium level

# Disease related to parathyroid gland

Rickets

Osteomalacia

1. Adrenal gland

ADRENAL GLAND

There are two adrenal gland

About 4cm long and 3cm thick

It has two parts

Outer part is cortex and inner part is medulla

# Adrenal cortex

It product three hormones

Glucocorticoid

Mineralcorticoid

Sex hormone

## Glucocorticoid hormone

Cortisol is the main glucocorticoid

They are essiential for life , regulating metabolism and stress

## Minrealocorticoid hormone

Aldosteronine is the main mineralocorticoid

It maintain water and electrolyte balance

## Sex hormone

Androgen is the main sex hormone

They contribute to the onset of puberty

# 2. Adrenal medulla

It is surrouned by cortex

It produces two hormone

Adrenaline and non adrenaline

Non adrenaline and adrenaline are released into the blood

They are structurally very similar and have similar effect

Together they potentiate by

Increasing heart rate

Increasing blood pressure

Increasing metabolic rate

Dilating the pupils

1. Difference between the cortex and medulla

# ANSWER:

 cortex is the outer part of the kidney whereas medulla is the inner part of kidney

cortcalnephron are present in cortex and juxtamedullary nephrons are present mostly in medulla with a small part present in inner cortex.

The cortex consists of convoluted tubules together with the renal corpuscles.

The medulla consists of loops of henle and collecting ducts.

Medulla filters fluid from blood in kidney , the medulla is mainly responsible for the synthesis of catecholamines, adrenaline and nonadrenaline .adrenaline and non adrenaline are adrenal medulla hormone .

Cortex produce hormone that is vital for life such as cortisol which helps regulate metabolism and helps your body respond to stress and aldosterone which helps controls blood pressure

Adrenal cortex hormone are

Glucocorticoid

Mineralocorticoid

Sex hormone

THE END……………………………………

Note:

1. Make an assignment in PowerPoint.
2. Short and to the point.