

Hormones

Adrenocorticosteroids

Mechanism of action:

-Steroid bind to glucocorticoid receptors results in its activation.

Physiological effects:

-Wide spread effects because they affect the function of most cells in the body.

Metabolic effects:

1-Stimulate gluconeogenesis

2-Stimulate conversion of proteins to carbohydrates

3-Facilitate lipolysis

Pharmacological effects:

- 1-Anti-inflammatory and immunosuppressive effects
- 2-Induces hypertension
- 3-Development of peptic ulcer
- 4-Skeletal muscle wasting
- 5-Has important effects on development of fetal lungs

Therapeutic uses :

1-Replacement therapy in adrenocortical insufficiency

2-Rheumatic disorders

3-Allergy

4-Bronchial asthma

5-Renal diseases

6-Ocular diseases

7-Gastrointestinal diseases

8-Hematologic disorders

Glucocorticoids:

Short acting: cortisol

Long acting: dexamethasone

Side effects:

1-Hyperglycemia

2-Hypertension

3-Peptic ulcer

4-Cataract

5-Flaring up of infection

Thyroid gland

Disturbances of the functions of thyroid gland produce either hyperthyroidism or hypothyroidism.

Hyperthyroidism

Occurs due to increased secretion of thyroid H.

Treatment of hyperthyroidism:

- 1- Carbimazole
- 2- Lugol`s iodine
- 3- Radioactive iodine
- 4- Subtotal thyroidectomy

Hypothyroidism (Myxedema):

Is treated by thyroid hormones.

N.B: Cretinism is the hypofunction of the thyroid gland in the newborn infants.

Insulin hormone

It is secreted by the beta cells of islets of langerhans of pancreas.

Actions of insulin:

- 1-Stimulate energy production
- 2-Helps formation of glycogen

Sources of insulin:

- 1-Beef insulin
- 2-Pork insulin
- 3-Human insulin

Four types of diabetes mellitus:

Type 1: Insulin dependant diabetes mellitus

Type 2: Non-insulin dependent diabetes mellitus

Type 3: Drug induced diabetes

Type 4: Gestational diabetes mellitus

Therapeutic uses:

- 1-Insulin dependant diabetes mellitus (IDDM)
- 2-Non-insulin dependent diabetes mellitus (with infection, surgery and pregnancy) and diabetic coma (hyperglycemic coma).

Common preparations of insulin:

1. Crystalline insulin (regular)
2. Protamine zinc insulin
3. Lente insulin

Complications of insulin therapy:

I-Hypoglycemia

II-Insulin allergy

III-Insulin resistance

IV-Lipodystrophy

- **Diabetic coma (Hyperglycemic coma)**

- It is due to increase the sugar level in the blood.

- It is treated by giving insulin (regular), fluids, potassium and bicarbonates to correct acidosis.

- **Hypoglycemic coma:**

Occurs due to:

1-Errors of dosage

2-Use of long acting insulins or oral antidiabetic drugs

3-Missed meal

4-Excess exercise without dietary adjustment.

Treatment of hypoglycemia:

- Oral sweetened juice if the patient is conscious or I.V. glucose.
- S.C. adrenaline to transform glycogen in the liver into glucose.

N.B:

Insulin cannot be given orally because it is inactivated by digestive juices.

Oral antidiabetics

Used in treatment of type 2 diabetes

Types:

1-Drugs stimulate insulin secretion

2-Drugs that decrease glucose production by the liver

3-Drugs that increase sensitivity of the cells to insulin

4-Drugs that decrease absorption of glucose from GIT

NB:

However in cases of complete pancreatic dysfunction these drugs are ineffective and insulin must be injected to the patient.

Contraceptive pills

These are the most reliable means of contraception

Types:

1-Combined preparations

2-Progestin only pills (minipill)

3-The morning after pill

Mechanism of action:

- 1- Inhibit ovulation.
- 2- Alter the viscosity of cervical mucus.
- 3- Inhibit implantation.
- 4- Inhibit sperm penetration.

Indication of pills:

- 1- Establishment of regular menstrual cycles.
- 2- Hormonal contraception.
- 3- It is used in lactating mothers.

Side effects:

- 1- Phlebitis, phlebothrombosis and hypertension.
- 2- Nausea, vomiting and cholestatic jaundice.
- 3- Spotting, break through bleeding and change in menstrual flow.
- 4- Breast tenderness, enlargement, lactation and risk of breast cancer.

Contraindications:

- Thrombophlebitis, thromboembolism and coronary heart disease.
- Impaired liver functions.
- Known or suspected pregnancy.
- Known or suspected breast masses.

Injectable contraceptives:

- 1- Depot medroxy progesterone.
- 2- Given every 3 months +/- 14 days.
- 3- Amenorrhea / occasional spotting in 80% by 12 months

Subdermal implants:

- 1- Norplant-6-rod system lasting 5 years.
- 2- Jadelle-2-rod system lasting 2 years.
- 3- Irregular bleeding pattern is the most common side effect.

Drugs Acting on Gastro- Intestinal Tract

Drugs Acting on Gastro-Intestinal Tract (G.I.T)

Drugs acting on the salivary glands

Carminatives

Drugs acting on gastric secretion:

1-Agents that stimulate gastric secretion: e.g. alcohol and histamine.

2-Drugs that inhibit gastric secretion e.g. **H₂ blockers** as ranitidine and famotidine, **anticholinergic** as atropine and atropine substitute.

Also fats, oils and milk decrease gastric secretion and are helpful in treatment of hyperacidity and peptic ulcer.

Antacids

They are used in treatment of hyperacidity. They are **classified into:**

1- Local antacids e.g.:

- Magnesium trisilicate
- Aluminium hydroxyide

2- Systemic antacids e.g.:

- Sodium bicarbonate

• *Drugs used in treatment of peptic ulcer:*

1-Antacids to control hyperacidity.

2-H₂-receptor antagonists e.g. ranitidine and famotidine.

3-Parasympatholytics e.g. atropine and atropine substitutes (pirenzepine).

4-Mucosal protective agents e.g. carbenoxolone and sucralfate.

5-Prostaglandin analogue e.g. Misoprostol

6-Proton pump inhibitors e.g. Omeprazole

The patient should avoid smoking, spices, caffeine, alcohol, drugs e.g. aspirin and is advised to take regular small meals.

Proton pump inhibitors (PPIs)

e.g. Omeprazole, lansoprazole

Mechanism of action:

Irreversibly inactivates the pump molecule and suppress acid secretion

H₂-receptor antagonists

e.g. ranitidine and famotidine.

Mechanism of action:

They inhibit acid secretion reversibly and less potent than PPIs

Emetics and Antiemetics

Emetics: e.g.

- Apomorphine (5-10mg)
- Syrup ipecac 15-30ml.

Therapeutic emesis:

This is indicated in case of poisoning to evacuate gastric contents.

Antiemetics:

e.g. Diphenhydramine (H1-antagonists) and chlorpromazine (dopaminergic antagonists).

Laxatives

-These are agents used to evacuate the intestinal contents e.g. liquid paraffin and glycerin suppositories, castor oil and phenolphthalein tablets. They are used in treatment of constipation.

Adsorptive compounds

Substances used to adsorb gases and toxins on their surfaces.

They are used in treatment of diarrhea and drug poisoning e.g. charcoal and kaolin.

Drugs used for X-ray of digestive system

Barium sulfate:

It is radio-opaque substance. It may be taken orally for the stomach and upper small intestine or as an enema for the colon and rectum to help diagnosis of some G.I.T disease.