Phenobarbitone and phenytoin induce metabolism of hydrocortisone, prcdnisolone and dexamethasone, etc. to decrease their therapeutic effect.

ADVERSE EFFECTS

These arc extension of the pharmacological action which become prominent with prolonged therapy which limit their use.

**A. Mineralocorticoid** Sodium and water retention, edema, hypokalaemic alkalosis and a progressive rise in BP. Gradual rise in BP occurs due to excess glucocorticoid action

**B. Glucocorticoid**

1. Cushing's habitus: Abnormal fat distribution causes peculiar features with rounded face, narrow mouth, supraclavicular hump (buffalo hump), obesity of trunk with relatively thin limbs.
2. Fragile skin, purple striae-typically on thighs and lower abdomen, easy bruising, telangiectasis. hirsutism.
3. Hyperglycaemia, which may lead to glycosuria, precipitation of diabetes.
4. Muscular weakness and fatigability: Due to hypokalaemia, proximal (shoulder. arm, pelvis. thigh) muscles are primarily affected. Myopathy occurs on long term use
5. Susceptibility to infection: this is nonspecific for all types of pathogenic organisms.

Latent tuberculosis may flare; opportunistic infections like fungal,viral and bacterial infections with low grade pathogens *(Candida,*etc.) set in. Inhalational steroids cause local irritation and fungal infection in the upper respiratory tract,can be prevented by the use of spacer and by rinsing the mouth after inhalation

6. Delayed healing of wounds and surgical incisions.
7. Peptic ulceration: risk is doubled; bleeding and silent perforation of ulcers may occur.
8. Osteoporosis: especially involving vertebrae and other flat spongy bones. Compression fractures of vertebrae and spontaneous fracture of long bones can occur, especially in the elderly. Can be prevented/arrested to some extent by

calcium supplements + vii D, but bisphosphonates are the most effective drugs.

Ischaemic necrosis of head of femur, humerous, or knee joint can occur

9. Posterior sub capsular cataract and glaucoma can occur.
11. Growth retardation: in children is more common with dexamethazone and betamethazone
12. Psychiatric disturbances: mild euphoria frequently occurs, may rarely progress to mani psychosis.nervousness, decreased sleep and mood changes occur in some patients
14. Suppression of hypothalamo-pituitary-adrenal (HPA) axis: occurs depending both on dose and duration of therapy. Stoppage of exogenous steroid precipitates

withdrawal syndrome consisting of malaise, fever, anorexia, nausea, postural hypotcnsion, electrolyte imbalance, weakness, pain in muscle and joints.

Reactivation of the disease for which the steroid was used.

Acute adrenal insufficiency leading to cardiovascular collapse.

Measures that minimise HPA axis suppression are:

(a) Use shorter acting steroids (hydrocortisone, prednisolone) at the lowest possible dose.
(b) Use steroids for the shortest period of time possible.
(c) Give the entire daily dose at one time in the morning.
(d) Switch to alternate-day therapy in chronic conditions

USES

**A. Replacement therapy**

1. *Acute adrenal insufficiency* It is an emergency. Hydrocortisone ( I 00 mg) or dexamethasone (8- 16 mg) are given i.v.Later, cause of adrenal insufficiency should be treated.
2. *Chronic adrenal insufficiency (Addison's disease)* Hydrocortisone given orally, along with adequate salt and water.
3. *Congenital adrenal hyperplasia (Adrenogenital syndrome)* It is a familial disorder due to genetic deficiency of steroidogenic enzymes, mostly 2 1-hydroxylase. As a result the synthesis of hydrocortisone and aldosterone suffers. There is compensatory increase in ACTH secretion

Treatment - hydrocortisone 0.6 mg/ kg daily in divided doses

**B. Pharmacotherapy (for nonendocrine diseases)**

Systemic as well as topical corticosteroids have widest spectrum of medicinal uses due to their antiinflammatory and immunosuppressivc properties.

1 . *Arthritides*

( i) *Rheumatoid arthritis:* Corticosteroids are indicated only in severe cases as adjuvants to NSAIDs and DMARDS when distress and disability persists

(ii) *Osteoarthritis:rarely used,*intraarticular injection of a steroid may be given to control an acute exacerbation.

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(iii) *Rheumatic fever:* Corticoids are used only in severe cases with carditis and CHF with the aim or rapid suppression of symptoms.