Anti-androgens drugs

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Anti-androgens

There are several anti-androgens available, each with different uses. the most common ones.

-Danazol

-Cyproterone acetate

-Flutamide

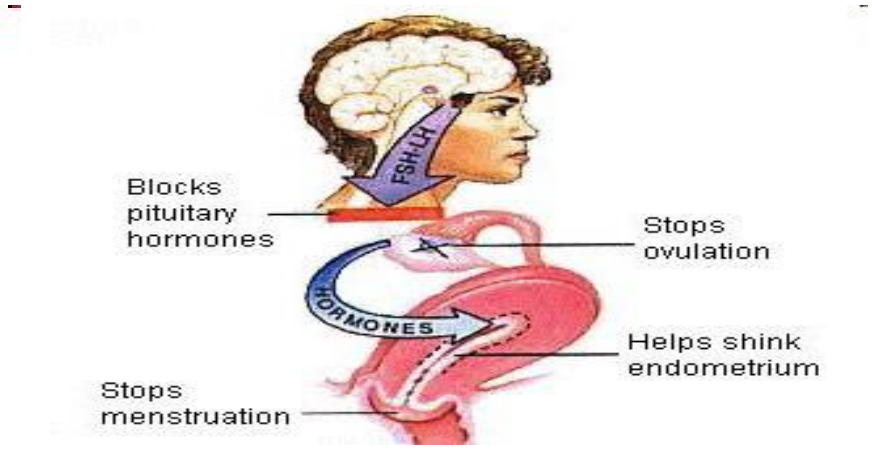
-Finasteride attenuated

-Spironolactone

Danazol

As a gonadotropin inhibitor, 1-danazol suppresses the pituitary-ovarian axis possibly by inhibiting the output of pituitary gonadotropins.

2-Danazol also depresses the preovulatory output of follicle-stimulating hormone (FSH) and luteinizing hormone (LH), thereby reducing ovarian estrogen production



3-Danazol may also directly inhibits ovarian steroidogenesis; bind to androgen, progesterone, and glucocorticoid receptors; bind to sex-hormone-binding globulin and corticosteroid-binding globulin; and increases the metabolic clearance rate of progesterone.

4-Another mechanism of action by which danazol may use to facilitate regression of endometriosis is by decreasing IgG, IgM, and IgA concentrations, as well as phospholipid and IgG isotope autoantibodies. In the treatment of endometriosis, as a consequence of suppression of ovarian function,

danazol causes both normal and ectopic endometrial tissues to become inactive and atrophic. This leads to anovulation and associated amenorrhea

Pharmacokinetic

-The bioavailability of danazol is low ,In addition, circulating levels of danazol do not increase proportionally with increasing doses, intake with food

-Danazol is metabolized in the liver, its half-life has been found to be 3 to 10 hours after a single dose and 24 to 26 hours with repeated administration. The major metabolites of danazol are 2-hydroxymethylethisterone is inactive and ethisterone (a progestogen and androgen).

Available forms

Danazol comes in the form of 50, 100, and 200 mg oral capsules ,It is taken at a dose of 50 to 400 mg two or three times per day, for a total of 100 to 800 mg per day depending on the indication.

Uses

-Endometriosis

- Menorrhagia

- Fibrocystic breast disease

-Hereditary angioneurotic edema

-Gynecomastia

-Infertility

Contraindications

Danazol is contraindicated during pregnancy because it has the potential to viriliz female fetuses. Women taking danazol should practice effective contraception to prevent pregnancy if sexually active.

Since danazol is metabolized by the liver it cannot be used by patients with liver disease and in patients receiving long-term therapy, liver function must be monitored on a periodic basis.

Side effects: Dose related

- Amenorrhea (High doses)
- Androgenic effects - Decreased breast size, hirsutism, weight gain etc.
- Hot flashes, night sweating, cramps

cyproterone acetate (CPA) is a synthetic progesterone derivative with antiandrogenic and progesterone-like activity . It is not approved by the FDA for use in the United States but is approved in other countries. the brand name Androcur or

with ethinylestradiol the brand names Diane is an antiandrogen and progestin medication used in the treatment of androgen-dependent conditions , CPA is taken by mouth one to three times per day ,it Competes with dihydroteststerone for intracellular receptor.

Uses:

1-Acne

3-hirsutism

4-Ca. of prostate

5-Virilizing syndrome

6-Precocious puberty

7-It’s been used with other medications to treat women with PCOS (polycystic ovarian syndrome)

8-It’s also been shown to decrease testosterone levels and reduce the production of acne-causing oils.

-It may also be used to reduce masculine traits in transgender women. However, due to its side effects, it’s generally not preferred.

Side effects

-in men include gynecomastia and feminization.

-In both men and women, possible side effects of include low sex hormone levels, reversible infertility , sexual dysfunction, fatigue, depression, weight gain, and elevated liver enzymes.

Pharmacokinetic

-CPA can be taken by mouth or by injection intra muscle ,is highly and exclusively bound to albumin in terms of plasma protein binding.

metabolized in the liver by hydroxylation and

conjugation , has 15 β-hydroxycyproterone acetate as a single major active metabolite,

-has a long half-life of about 2 to 4 days regardless of route of administration, is excreted in feces primarily and to a lesser extent in urine

-CPA is available in the form of oral tablets alone (10 mg, 50 mg, 100 mg) or in combination with ethinylestradiol or estradiol valerate (low-dose).

-in the form of ampoules for intramuscular injection 100 mg/mL, 300 mg/3 mL; brand name Androcur Depot.

Flutamide

-Non-steroidal anti-inflammatory and no hormonal activity but specific antiandrogen action, Flutamide is a type of anti-androgen that's used with other medications to treat certain types of prostate cancer. Flutamide binds to the androgen receptors in prostate cancer cells, which blocks androgens from binding to the receptors. This prevents androgens from encouraging prostate cancer cell growth. Antagonize androgens by competitive block

Uses:

-Cancer of prostate along with GnRH agonist

-Female hirsutism

Finasteride

MOA: Selective competitive inhibitor of 5 α-reductase

Mainly acts on urogenital tract (prostate) -DHT level lowered but not plasma testosterone level

Uses:

1-Benign prostatic hypertrophy :decrease in prostate volume, improved urinary flow, reversion of disease progression, withdrawal results in regrowth and prolonged therapy

2-Male pattern baldness

-Kinetics: effective orally, metabolized in liver ,t1/2–4-6 hrs)

-Side effects: loss of libido, impotence, decreased ejaculation

-Doses: 5 mg OD (BHP) or 1 mg OD in baldness

Spironolactone

Spironolactone (Aldactone) is a type of anti-androgen that's been used since 30 years to treat hormonal acne and excessive body hair. People transitioning may take it to reduce masculine traits. Although there's little evidence to its use, some doctors also prescribe it for female pattern baldness.

What are the side effects?

possible side effects include:

-low sex drive

-increased risk of depression

-elevated liver enzymes, hepatitis, liver injury

-reduced facial and body hair

-higher risk of birth defects if taken during pregnancy

-erectile dysfunction

-diarrhea

-breast tenderness, hot flashes, menstrual irregularity

-skin rash

Thank you