Unusual uses of common drugs

By

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Unusual uses of common drugs

By

PHARMACIST

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• Unusual uses of common drugs is a new vision to experience the hidden side in medications effect.
• It is the indications that health care provider not used to deal with it. Some indications may be approved by FDA other indications may be not yet approved.

• Unusual uses of common drugs differ from off-label uses that some indications approved by FDA. health care provider awareness of these unusual indications leading to the best counselling to the patient and let him use these medications in best way, also give health care provider many choices in some critical cases.

• Unusual uses of common drugs open the health care provider’s mind towards a new ways to the effect of medications.
Unusual Uses of 
Acetylsalicylic acid
Aspirin (acetylsalicylic acid)

- A salicylate drug, often used as an analgesic to relieve minor aches and pains, as an antipyretic to reduce fever, and as an anti-inflammatory medication.

- Aspirin also has an antiplatelet effect by inhibiting the production of thromboxane, which under normal circumstances binds platelet molecules together to create a patch over damaged walls of blood vessels. Because the platelet patch can become too large and also block blood flow, locally and downstream.
Unusual Uses of Aspirin

1- Aspirin used in reducing risk of preeclampsia

- Pregnant women at high risk for preeclampsia should take low-dose aspirin (75mg-81mg) every day after their first trimester.

- Preeclampsia is a complex condition that occurs in pregnant women and involves an increase in blood pressure and excess protein in the urine after 20 weeks of pregnancy.
• Daily low-dose aspirin in middle and late pregnancy can significantly reduce the occurrence of preeclampsia among these women and it can lower the risk of preterm birth or low birth weight resulting from the pregnancy-related condition because aspirin helps blood flow between the placenta and the fetus.

**Mechanism**

• High or normal doses (>325 mg) block production of prostacyclin and thromboxane, and low-dose aspirin (60–83 mg) results in selective block of thromboxane production, and favors the prostacyclin (vasodilation) pathway.

• This provides the basis for the use of low-dose aspirin to forestall or prevent pregnancy-induced hypertension. Importantly, low-dose aspirin does
not completely inhibit thromboxane and does not completely ‘spare’ prostacyclin. One group of investigators found that 81 mg of aspirin inhibited thromboxane by 75 percent, but also inhibited prostacyclin by approximately 20%.

References

- Pregnancy Induced Hypertension edited by H. Seneviratn
- Aspirin and Related Drugs edited by Kim D. Rainsford

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Links

• NHS Brand Guidelines: patient information, written information, general guidelines. Available at: http://www.nhsidentity.nhs.uk/tools-and-resources/patient-information
• OUH Maternity information leaflet available at:
• http://www.drugs.com/pregnancy/aspirin.html

• http://www.ouh.nhs.uk/patient-guide/leaflets/files%5C5C5052Ppreeclampsia.pdf
Topical aspirin dissolved in chloroform is an effective means of reducing pain due to herpes zoster and post herpetic neuralgia in most patients. The locus of pain origin and analgesia induced by topical aspirin is most likely at cutaneous free-nerve ending pain receptors. The mechanism responsible for the analgesic properties of aspirin is probably not the same as that responsible for its anti-inflammatory properties.
References:

Pain management The Importance of Individualized Therapy Promed pharmacy

Aspirin and Related Drugs edited by Kim D. Rainsfor

Clinical Management of Herpes Viruses edited by Stephen L. Sack

Links

3-Aspirin and Alzheimer's

- The Baltimore Longitudinal Study appearing in the journal Neurology reported that the incidence of Alzheimer's was 45% lower for people who took aspirin for more than two years, than those who didn't.
• This is not the first study to suggest that aspirin may be effective in combating the onset of Alzheimer's.

**Mechanism**

• There are numerous theories about why it appears to work. For example, one theory is that Alzheimer's is caused by an inflammatory process in the brain. Taking an anti-inflammatory medication might then reduce the risk. Another theory is that with Alzheimer's, enzymes in the brain cause a breakdown of proteins. When this occurs, amyloid plaque is formed and disrupts brain activity. Perhaps aspirin and other anti-inflammatory medications prevent this from occurring.
Reference


New Research on Aspirin and Health edited by Charles L. Millwood

Preventing Alzheimer's: Ways to Help Prevent, Delay, Detect, and Even Halt ... By William Rodman Shankle, Daniel G. Amen

Links


http://www.nemahealth.org/programs/nac/alzheimers_n_aspirin.htm


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4-Aspirin for the prevention of colorectal cancer

Aspirin has been studied as adjuvant therapy for colorectal cancer, with promising results. Earlier prevention studies demonstrated the efficacy of aspirin against the development of colorectal tumors prompting investigation into its potential treatment efficacy.

**Mechanism**

The proposed mechanism draws on the fact that certain colorectal tumors overexpress prostaglandin-endoperoxide synthase 2 -- better known as cyclooxygenase-2 (COX-2). Mutations of the sort seen in colorectal cancer are known to sustain tumor cell growth by preventing apoptosis. By blocking COX-2, aspirin therapy is hypothesized to suppress tumor growth.

Taking aspirin in doses as low as 325 mg per day reduces CRC risk also there is also strong evidence from secondary analyses of cardiovascular trials that daily doses as low as 75 mg per day may be effective.


**References**

Early Detection and Prevention of Colorectal Cancer edited by Karen E. Kim

Colon Cancer Prevention: Dietary Modulation of Cellular and ..., Volume 470 edited by American Institute for Cancer Research

Cancer Prevention II By Hans-Jörg Senn, Ursula Kapp, Florian Otto


**Links**


[http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3354696/](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3354696/)
5-Aspirin help in sore or ulcerated mouth

- Aspirin can be used as a gargle or mouthwash 300 mg of aspirin dissolved in half glass of water rinse around mouth and spit out. Use up to 8 times in 24 hours half an hour before meals.

Reference

Patient information leaflets Oxford university hospitals

Unusual Uses of Amitriptyline

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This medication is used to treat mental/mood problems such as depression. It may help improve mood and feelings of well-being, relieve anxiety and tension, help you sleep better, and increase your energy level. This medication belongs to a class of medications called tricyclic antidepressants. It works by affecting the balance of certain natural chemicals (neurotransmitters such as serotonin) in the brain.

- **Dose**

10-25 mg orally at bed time
Algorithm for pharmacologic migraine prophylaxis

Patient selected for pharmacologic migraine prophylaxis

Consider a first-line agent, if no contraindication:
- Amitriptyline
- Divalproex (Depakote) or valproic acid (Depakene)
- Propranolol (Inderal) or timolol (Blocadren)
- Topiramate (Topamax)

If not effective after two to three months, adjust dose successively until effective.

If initial agent not effective at maximum dose, or adverse effects make agent prohibitive, try a different first-line agent.

If no single first-line agent is effective and tolerable, consider a combination of two first-line agents.

If no first-line agent or combination is effective and tolerable, consider an alternative agent, if no contraindications:
- Atenolol (Tenormin), metoprolol (Toprol XL), or nadolol (Corgard)
- Candesartan (Atacand)
- Dihydroergotamine mesylate timed-release (DHE-45)
- Feverfew
- Fluoxetine (Prozac)
- Gabapentin (Neurontin)
- Hormone therapy
- Lisinopril (Zestril)
- Magnesium
- Naproxen sodium (Anaprox) or naproxen (Naprosyn)
- Verapamil (Calan)
- Vitamin B2 (riboflavin) or coenzyme Q10

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http://www.webmd.com/drugs/2/drug-8611/amitriptyline-oral/details#
http://www.aafp.org/afp/2006/0101/p72.html

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Unusual Uses of Betamethasone: Scalp application
Betamethasone scalp

• Betamethasone topical is used to help relieve redness, itching, swelling, or other discomfort caused by skin conditions. Betamethasone foam is used for scalp problems.

Unusual uses of Betamethasone scalp application

Betamethasone scalp application used as ear drop

• It is giving to try to manage excessive amount of skin that building up in ear canals as a result of eczema type conditions.
Patient counselling
First 2 weeks of treatment:

• Warm the drops to body temperature before you use them.

• You may find that the first time you use the drops you experience a slight hot or burning type sensation - this is normal.

• Put 2 drops in the affected ear / ears, every night for 2 weeks then STOP.

-After the first 2 weeks of treatment you should then use as follows:
• 2 drops of solution only in whichever ear itches, whenever it itches.

If you have been advised to continue using the drops in the long term
it is better to dilute them. This will not affect its ability to work:

- Dilute the Betnovate with equal parts of sterile / cooled boiled water (50:50). Store the made up solution in your refrigerator for up to one month. Discard the made up solution after a month.

- Do not use the drops more than twice a day.

How to instil your ear drops

1- Lie on a bed with the ear to be treated uppermost.

2. Take a firm hold of the ear; pull it gently backwards, then up and away from the head. This will make the ear canal straighter, so
that the drops go in more easily. Put the prescribed amount of ear drops into the ear canal.

3. Lie on your side for at least 5 minutes - time it by the clock. This gives the drops time to soak in.

4. Place a piece of cotton wool in the outer canal, just to prevent any of the drops running out. Remove the cotton wool after 20 minutes.

5. Sit up slowly.

6. If both ears need drops, wait for 10 minutes before treating the second ear.

**Reference**

Oxford University Hospitals NHS


Unusual Uses of Bromocriptine
Bromocriptine

• Bromocriptine is a dopamine agonist, it is indicated for Amenorrhea, female infertility, galactorrhea, hypogonadism, and acromegaly may all be caused by pituitary problems, such as hyperprolactinaemia, and therefore, these problems may be treated with this drug.

Unusual uses of Bromocriptine

1-Bromocriptine in type 2 diabetes (FDA APPROVED USE)

• In 2009, bromocriptine mesylate was approved by the FDA for treatment of type 2 diabetes as an adjunct to diet and exercise to improve glycemic control in adults.

• Note:- it is not used to treat type 1 diabetes
Mechanism

It's not clear how bromocriptine improves glycemic control in humans. But studies in diabetic animals show that boosting dopamine activity at a particular time of day can "reset" the biological clock to improve metabolism problems related to diabetes, according to VeroScience, the company that developed the first brand of bromocriptine for type 2 diabetes mellitus.

Dose

The recommended dose is 1.6 mg to 4.8 mg administered once daily within two hours after waking in the morning and should be taken with food.

Reference


http://www.drugs.com/cycloset.html

2- Bromocriptine in improvement of erectile dysfunction

- Bromocriptine can be used to treat men who have high prolactin levels, which can reduce the amount of testosterone produced by the body and may lead to problems such as infertility or erection problems.

- Erectile function improved significantly. Sexual desire, orgasmic function, and the patient's and his partner's sexual satisfaction were also enhanced. Bromocriptine may be an effective and safe alternative agent for men with psychogenic ED.

**Dose**

- 2.5–5 mg daily

**Reference**

http://ndt.oxfordjournals.org/content/15/10/1525.full
http://www.webmd.com/erectile-dysfunction/hormonal-therapy-for-erection-problems
Unusual Uses of Bupropion
Bupropion

- Bupropion is antidepressants drug used to treat seasonal affective disorder (SAD; episodes of depression that occur in the fall and winter each year.

Unusual uses of bupropion

**Bupropion used in Smoking Cessation**

Bupropion reduce the craving for tobacco. The way it does this is not entirely known.

Bupropion does not contain nicotine and does not help you quit smoking in the same way that nicotine replacement therapy does. But like
other medicines, it decreases cravings and withdrawal symptoms.

**Dose:**

Bupropion: 150 mg orally every Day for 3 days, THEN Increase to 150 mg every 12hr; should continue treatment for 7-12 weeks; if patient successfully quits after 7-12 weeks, consider ongoing maintenance therapy based on individual patient risk/benefit

**Dosing considerations**

Begin therapy 1 week before target quit date (usually second week of treatment)

May be used in combination with nicotine patch

**Reference**

http://www.webmd.com/smoking-cessation/bupropion-hydrochloride-zyban-for-quitting-smoking


http://www.medicinenet.com/smoking_and_quitting_smoking/article.htm#smoking_and_quitting_smoking_facts

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2528204/
Unusual Uses of Calcium
Calcium

Calcium is a chemical element is essential for living organisms, in particular in cell physiology, where movement of the calcium ion into and out of the cytoplasm functions as a signal for many cellular processes. As a major material used in mineralization of bone and teeth.

**Unusual uses of Calcium**

**Calcium in hyperkalemia**

* Muscle cramps → weakness → paralysis
* Drowsiness
* ↓ BP
* EKG changes
* Dysrhythmias
* Abdominal cramping
* Diarrhea
* Oliguria

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• Calcium polystyrene sulphonate is a calcium salt. Polystyrene sulphonate is polymer and also available as sodium salt.

It binds with potassium in the gut, forming a complex that cannot be absorbed into the blood, thus decreasing potassium level in blood.

Note: it is used orally or rectally as an enema.

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http://www.netdoctor.co.uk/.../medicines/calcium-resonium.html
http://www.drugs.com/.../calcium-polystyrene-sulphonate-powde...
http://reference.medscape.com/.../sps-kayexalate-sodium-polys...
http://www.mayoclinic.org/.../sodium.../description/drg-20073487
Unusual Uses of Cabergoline
Cabergoline in improvement of erectile dysfunction
cabergoline can be used to treat men who have high prolactin levels, which can reduce the amount of testosterone produced by the body and may lead to problems such as infertility or erection problems.

Erectile function improved significantly. Sexual desire, orgasmic function, and the patient's and his partner's sexual satisfaction were also enhanced. cabergoline may be an effective and safe alternative agent for men with psychogenic ED.

Dose
0.5-1 mg weekly for 6 months

Reference
http://ndt.oxfordjournals.org/content/15/10/1525.full
http://www.webmd.com/erectile-dysfunction/hormonal-therapy-for-erection-problems
http://www.health.harvard.edu/blog/a-new-option-for-orgasm-problems-in-men-201205294804
http://www.rxlist.com/dostinex-drug.htm
Unusual Uses of
Combined oral contraceptive
The combined oral contraceptive pill (COCP), often referred to as the birth-control pill, includes a combination of an estrogen (estradiol) and a progesterone (progestin). When taken by mouth every day, these pills inhibit female fertility.

Estrogen and progesterone combined in OCs act in a synergistic manner in the gonadotropin axis. They decrease the secretion of hypophysial-luteinizing hormone and follicle-stimulating hormone by negative feedback, thereby inhibiting ovulation.
Unusual uses of combined oral contraceptive

1- Combined oral contraceptive in treatment of acne for women. (FDA APPROVED USE)

- Acne is triggered by an excess production of sebum. Sebum is an oil made by glands in your skin. Along with skin cells, sebum can clog pores and promote the growth of bacteria that contribute to acne. Androgens, a group of hormones that includes testosterone, stimulate your skin to produce sebum.

- A woman's ovaries and adrenal glands normally produce a low level of androgens. Higher levels of androgens can lead to excess sebum.
**Mechanism**

- Estrogen and progesterone decrease the secretion of luteinizing hormone and follicle-stimulating hormone by negative feedback.
- Gonadotropin inhibition by oral contraceptive reduce androgen production of ovarian theca cells and adrenal gland.
- An additional anti androgenic effect of estrogens comes from their stimulation of liver production of sex hormone binding globulin (SHBG), a globulin that binds free-circulating androgens and reduces free available testosterone to peripheral tissues.

**Note:**

- Only three types of birth control pills have been approved by the FDA for treating acne.
- ethinyl estradiol+ norgestimate, ethinyl estradiol+ drospirenone and ethinyl estradiol+ norethindrone
- These three oral contraceptives have been approved for treating moderate acne in women who:
• Are at least 14 or 15 years old, Have already started menstruating and Need contraception

• Combination oral contraceptives may be used as second-line therapy in pubertal females with moderate-to-severe acne

• Birth control pills work on only one acne-related factor -- excess sebum. Doctors often prescribe other forms of acne treatment -- topical medications or antibiotics -- to be used alongside them for best results in clearing the skin.

• Spironolactone may be used in combination with OCPs in women who have limited response to OCPs alone.
References


Links


http://www.medscape.org/viewarticle/578285

http://www.medicinenet.com/oral_contraceptives/article.htm


http://www.webmd.com/sex/birth-control/combination-hormonal-birth-control-methods-pills-patch-or-ring

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2-Oral contraceptive in treatment of hirsutism for women.

- Hirsutism is a common, often distressing condition in which a person develops excessive growth of hair.
Causes of hirsutism

- In many cases, the exact cause of hirsutism is not known. However, there are several conditions that are known to cause hirsutism. These conditions include:
  - The natural production of male hormones (androgens). Women naturally produce androgen, however, if a woman's androgen levels are higher than normal, or if her hair follicles are more sensitive to androgens, she may develop hirsutism.
  - Polycystic ovarian syndrome (PCOS) is a common hormonal condition that causes a woman to produce too many androgens. Women with PCOS may also have acne, irregular or absent menstrual periods, diabetes, weight gain, and/or problems with fertility.
  - The hormonal changes of menopause may lead to increased facial hair (mustache and whiskers).
  - Hirsutism that occurs suddenly along with other male characteristics, such as a deeper voice, acne, or
increased muscle mass, may be caused by a more serious condition, such as disorders of the adrenal glands or ovaries.

- The following medications can cause hirsutism: Anabolic steroids, testosterone, glucocorticoids, minoxidil, danazol, and phenytoin.

**Mechanism**

- Estrogen and progesterone decrease the secretion of luteinizing hormone and follicle-stimulating hormone by negative feedback.
- Gonadotropin inhibition by oral contraceptive reduce androgen production of ovarian theca cells and adrenal gland.
- An additional antiandrogenic effect of estrogens comes from their stimulation of liver production of sex hormone binding globulin (SHBG), a globulin that binds free-circulating androgens and reduces free available testosterone to peripheral tissues.
- Oral contraceptive can be used in combination with one of the antiandrogens or other forms of therapy.
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http://www.nhs.uk/Conditions/hirsutism/Pages/treatment.aspx
http://my.clevelandclinic.org/disorders/hirsutism/hic_hirsutism.aspx

Unusual uses of common drugs by Ahmed Yossef
3-Combined oral contraceptive Treat polycystic ovary syndrome (PCOS) problems

- Polycystic ovary syndrome (PCOS) is one of the most common endocrine disorders among females. PCOS has a diverse range of causes that are not entirely understood, but there is strong evidence that it is largely a genetic disease.

- The most common immediate symptoms are anovulation, excess androgenic hormones, and insulin resistance. Anovulation results in irregular menstruation, amenorrhea, and ovulation-
related infertility. Imbalance generally causes acne and hirsutism. Insulin resistance is associated with obesity, Type 2 diabetes, and high cholesterol levels. The symptoms and severity of the syndrome vary greatly among affected women.

**Mechanism**

- Oral contraceptive pills are typically the first line of therapy for management of irregular bleeding in women with PCOS who are not interested in conception.
- Cyclic withdrawal of estrogen and progesterone leads to complete endometrial shedding and resolution of most abnormal bleeding.
- Exposure to the progestin in oral contraceptives leads to reduction in the risk of endometrial cancer and hyperplasia. In addition, the steroids cause a decrease in LH levels and a subsequent decrease in androgen production.
• Finally, they also increase SHBG production, and the resulting decreased free testosterone levels lead to diminished hirsutism and acne

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http://www.webmd.com/sex/birth-control/combination-hormonal-birth-control-methods-pills-patch-or-ring
http://www.medicinenet.com/polycystic_ovary/page5.htm
4-Combined oral contraceptive in treatment of Dysmenorrhea

- Dysmenorrhea is the medical term for pain with menstruation. There are two types of dysmenorrhea: "primary" and "secondary".
- Primary dysmenorrhea is common menstrual cramps that are recurrent and are not due to other diseases. Cramps usually begin one to two days after a woman starts getting her period. Pain usually begins 1 or 2 days before or when menstrual bleeding starts and is felt in the lower abdomen, back, or thighs and can range from mild to severe. Pain can typically last 12 to 72 hours and can be accompanied by nausea, vomiting, fatigue, and even diarrhea. Common menstrual cramps usually become less painful as a woman ages and may stop entirely if the woman has a baby.
• Secondary dysmenorrhea is pain that is caused by a disorder in the woman's reproductive organs, such as endometriosis, adenomyosis, uterine fibroids, or infection. Pain from secondary dysmenorrhea usually begins earlier in the menstrual cycle and lasts longer than common menstrual cramps. The pain is not typically accompanied by nausea, vomiting, fatigue, or diarrhea.

**CAUSE OF DYSMENORRHEA**

• Prostaglandins are chemicals that are formed in the lining of the uterus during menstruation. These prostaglandins cause muscle contractions in the uterus, which cause pain and decrease blood flow and oxygen to the uterus. Similar to labor pains, these contractions can cause significant pain and discomfort. Prostaglandins may also contribute to the nausea and diarrhea that some women experience.
**DYSMENORRHEA SYMPTOMS**

- The pain of dysmenorrhea is crampy and usually located in lower abdomen above the pubic bone (the suprapubic region); some women also have severe pain in the back or thighs. The pain usually begins just before or as menstrual bleeding begins, and gradually diminishes over one to three days. Pain usually occurs intermittently, ranging from mild to disabling.

**Mechanism**

- Combined oral contraceptive work by thinning the lining of the uterus, where prostaglandins are formed, thereby decreasing the uterine contractions and menstrual bleeding that contribute to pain and cramping. Women may choose to use NSAIDs and hormonal contraceptives simultaneously to control dysmenorrhea.

- Obviously, hormonal methods of birth control do not make sense for women who are trying to become pregnant. However, women who are not
actively trying to become pregnant usually have significantly less dysmenorrhea after using a hormonal birth control treatment for two to three months, even if the woman does not need to prevent pregnancy (eg, if the woman is not sexually active or if she or her partner has had a sterilization procedure).
References


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7. Urogenital Pain in Clinical Practice edited by Andrew P. Baranowski, Paul Abrams, Magnus Fall

8. In a Page: Signs & symptoms edited by Scott Kahan, Ellen G. Smith


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- [http://www.medicine.ox.ac.uk/bandolier/booth/painpag/dysmen/COCPdysmen.html](http://www.medicine.ox.ac.uk/bandolier/booth/painpag/dysmen/COCPdysmen.html)

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5-Combined oral contraceptive in treatment of female pattern hair loss (androgenetic alopecia)

• Life cycle of hair is divided into three phases
  Anagen -- active hair growth that lasts between two to six years
  Catagen -- transitional hair growth that lasts two to three weeks
  Telogen -- resting phase that lasts about two to three months; at the end of the resting phase the hair is
shed and a new hair replaces it and the growing cycle starts again.

- As people age, their rate of hair growth slows

Almost every woman eventually develops some degree of female pattern hair loss. It can start any time after the onset of puberty, but women tend to first notice it around menopause, when hair loss typically increases. The risk rises with age, and it's higher for women with a history of hair loss on either side of the family.

- As the name suggests, androgenetic alopecia involves the action of the hormones called androgens, which are essential for normal male sexual development and have other important functions in both sexes, including sex drive and regulation of hair growth. The condition may be inherited and involve several different genes. It can also result from an underlying endocrine condition, such as overproduction of androgen or an androgen-secreting tumor on the ovary, pituitary, or adrenal gland. In either case, the alopecia is
likely related to increased androgen activity. But unlike androgenetic alopecia in men, in women the precise role of androgens is harder to determine. On the chance that an androgen-secreting tumor is involved, it's important to measure androgen levels in women with clear female pattern hair loss.

- In either sex, hair loss from androgenetic alopecia occurs because of a genetically determined shortening of anagen, a hair's growing phase, and a lengthening of the time between the shedding of a hair and the start of a new anagen phase. That means it takes longer for hair to start growing back after it is shed in the course of the normal growth cycle. The hair follicle itself also changes, shrinking and producing a shorter, thinner hair shaft — a process called "follicular miniaturization." As a result, thicker, pigmented, longer-lived "terminal" hairs are replaced by shorter, thinner, non-pigmented hairs called "vellus."
• FIRST-LINE THERAPY — for female pattern hair loss (FPHL), topical minoxidil

**Mechanism**

• Estrogen and progesterone pills and creams are probably the most common systemic form of treatment for androgenetic alopecia for women in menopause or whose estrogen and/or progesterone are lacking for other reasons.

• Estrogens are indirect anti-androgens, and are sometimes used for the treatment of androgenetic alopecia in women in the form of a birth control pill. When used systemically, estrogens increase SHBG production, which binds to androgens, including testosterone, reducing their bioavailability. Topical estrogen compounds are also commercially available in Europe.
Hair follicles have estrogen receptors and it is believed that topical compounds may act on the hair follicles as direct hair growth promoters as well as by antagonizing androgen activity. However, large clinical studies demonstrating efficacy are lacking and topical treatment is not generally available in North America.

**Notes**

- Only low androgen index birth control pills should be used to treat hair loss. High androgen index birth control pills actually contribute to hair loss by triggering it or enabling it once it's been triggered by something else.
- Low-dose combined oral contraceptives with minimal androgen effect. These contain ethinylestrodiol and desorgestrel, gestodene or norgestimate.
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Unusual uses of common drugs by Ahmed Yossef
6- Combined oral contraceptive in treatment of osteoporosis in post-menopausal women (FDA APPROVED USE)

- Osteoporosis is a disease that weakens bones, increasing the risk of sudden and unexpected fractures. Literally meaning "porous bone," it results in an increased loss of bone mass and strength. The disease often progresses without any symptoms or pain. Generally, osteoporosis is not discovered until weakened bones cause painful fractures (bone breakage) usually in the back (causing chronic back pain) or hips.

- Unfortunately, once you have an osteoporotic fracture, you are at high risk of having another. These fractures can be debilitating. Fortunately, there are steps you can take to prevent osteoporosis from ever occurring. Treatments can also slow the rate of bone loss if you have osteoporosis.
**Mechanism**

- Estrogen reduces the rate of bone resorption but does not restore bone loss

- Estrogen cause Reduction in hip fractures by 25%; reduction in vertebral fractures by 50%.

**Dose:**

- For 17 beta-estradiol and norgestimate
  - Adults—Oral, 1 mg estradiol for three days followed by 1 mg of estradiol combined with 0.09 mg of norgestimate for three days. The regimen is repeated continuously without interruption.

- For ethinyl estradiol and norethindrone
  - Adults—Oral, 2.5 mcg (0.025 mg) ethinyl estradiol and 0.5 mg norethindrone once daily.

- For estradiol and norethindrone
  - Adults—Oral, 1 mg estradiol and 0.5 mg norethindrone once daily.
• 1. Raloxifene (Selective estrogen receptor modulator)
Dose: 60 mg/day orally

• 2. Conjugated estrogens and bazedoxifene (Duavee) (Selective estrogen receptor modulator plus estrogen)
Dose: Conjugated estrogen 0.45 mg and bazedoxifene 20 mg/day orally
Links

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Unusual Uses of
Dexamethasone
and
betamethasone
Dexamethasone and betamethasone in pregnancy

Dexamethasone and betamethasone used in pregnancy to

1- speed up a preterm fetus's lung development.
2- It helps prevent respiratory distress syndrome (RDS) and related complications following premature birth.

**Mechanism**

-Betamethasone and dexamethasone cause an immature fetus's lungs to produce a compound called surfactant. A full-term baby's lungs naturally produce surfactant, which lubricates
the lining of the air sacs within the lungs. 
-This allows the inner surfaces of the air sacs to slide against one another without sticking during breathing. Premature infants whose lungs have begun producing surfactant are more able to breathe on their own, or with less respiratory treatment, after birth.

**When it used?**

Optimal gestational age for use of dexamethasone therapy is 31 to 34 weeks of gestation. 
But Betamethasone or dexamethasone is most effective if delivery occurs at least 24 hours after the first dose of the medicine has been given and less than 7 days after the last dose of the medicine.

**references**

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Unusual Uses of Diltiazem
Diltiazem

Diltiazem is calcium channel blocker used in hypertension, angina pectoris and some types of arrhythmia.

**Unusual uses of Diltiazem**

**Diltiazem in anal fissure**

Mechanism

Diltiazem relaxes the smooth muscle around the rectum and promotes blood flow to help
the growth of new skin over the tear in the lining of the rectum. The ointment reduces anal canal pressure, which diminishes pain and spasm.

its pharmaceutical form in some countries diltiazem 2% ointment it can be prepared by mix 600 mg of Diltiazem in 30 gm of petroleum jelly we may also add lidocaine ointment to the preparation.

reference

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Unusual Uses of Domperidone
Domperidone is a peripheral, specific blocker of dopamine receptors. Domperidone is given in order to relieve nausea and vomiting; to increase the transit of food through the stomach as a prokinetic agent Through increase in gastrointestinal peristalsis.

**Unusual uses of Domperidone**

**Domperidone Increase Breast Milk Production**

Domperidone causes the increased production of the hormone prolactin as a side effect to its normal uses. Prolactin is the hormone which stimulates the cells in the mother's breast to produce milk.
**Mechanism**

Domperidone increases prolactin secretion indirectly, by interfering with the action of dopamine. One of the actions of dopamine is to decrease the secretion of prolactin by the pituitary gland.

Domperidone is generally used for disorders of the gastrointestinal tract and is not licensed for use as a stimulant for milk production, though this does not mean that it cannot be prescribed for this reason.

**Dose**

Domperidone has no officially established dosage for increasing milk supply. Most published studies have used domperidone in a dosage of 10 mg 3 times daily for 4 to 10 days. Two small studies found no statistically significant additional increase in milk output with a dosage of 20 mg 3 times daily compared to a dosage of 10 mg 3 times daily and that women who failed to respond to the low dosage did not respond to the higher dosage.
Notes

Domperidone is not approved for marketing in the United States by the US Food and Drug Administration, but is available in Canada, Australia, UK and other countries.

In some nations, including Australia, domperidone is used off label, based on uncertain and anecdotal evidence of its usefulness, as a therapy for mothers who are having difficulty breastfeeding.

Effects in Breastfed Infants

One paper reported 2 studies. In one, 8 women received domperidone 10 mg 3 times daily from day 2 to 5 postpartum. In the other, 9 women received domperidone 10 mg 3 times daily for 10 days from week 2 postpartum. No side effects were reported in any of the breastfed (extent not stated) infants.

Eleven women took domperidone 10 mg 3 times daily for 7 days to increase the supply of pumped milk for
their preterm neonates. No side effects were reported in their infants.

Very small amount of Domperidone were detected in breast milk samples.

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Unusual Uses of Erythromycin
Erythromycin

• Erythromycin belongs in macrolide antibiotics. Macrolide antibiotics slow the growth of, or sometimes kill, sensitive bacteria by reducing the production of important proteins needed by the bacteria to survive.

• Antibiotic macrolides are used to treat infections caused by Gram-positive bacteria and Haemophilus influenza infections such as respiratory tract and soft-tissue infections.

• The antimicrobial spectrum of macrolides is slightly wider than that of penicillin, and, therefore, macrolides are a common substitute for patients with a penicillin allergy. Beta-hemolytic streptococci, pneumococci, staphylococci, and enterococci are usually susceptible to macrolides. Unlike penicillin, macrolides have been shown to be effective against Legionella pneumophila, mycoplasma, mycobacteria, some rickettsia, and chlamydia.
Erythromycin as A prokinetic in the treatment of gastro-paresis

- Gastro-paresis, also called delayed gastric emptying, is a medical condition consisting of a paresis (partial paralysis) of the stomach,
resulting in food remaining in the stomach for an abnormally long time.

- Normally, the stomach contracts to move food down into the small intestine for additional digestion. The vagus nerve controls these contractions. Gastro-paresis may occur when the vagus nerve is damaged and the muscles of the stomach and intestines do not properly function. Food then moves slowly or stops moving through the digestive tract.

**Symptoms**

- The most common symptoms of gastroparesis are the following
- Chronic nausea (93%)
- Vomiting (especially of undigested food) (68-84%)
- Abdominal pain (46-90%)
- A feeling of fullness after eating just a few bites (60-86%)
- Other symptoms include the following:
• Palpitations
• Heartburn
• Abdominal bloating
• Erratic blood glucose levels
• Lack of appetite
• Gastro esophageal reflux
• Spasms of the stomach wall
• Weight loss and malnutrition
• Morning nausea may also indicate gastroparesis. Vomiting may not occur in all cases, as sufferers may adjust their diets to include only small amounts of food

**Mechanism**

• It enhances gastrointestinal motility by increasing the frequency of contractions in the small intestine or making them stronger, but without disrupting their rhythm. They are used to relieve
gastrointestinal symptoms such as abdominal discomfort, bloating, constipation, heart burn, nausea, and vomiting.

- They are used to treat a number of gastrointestinal disorders, including irritable bowel syndrome, gastritis, acid reflux disease, gastroparesis, and functional dyspepsia.
- Erythromycin is the most potent prokinetic drug when given intravenously in the acute setting and is therefore useful in the initial management of hospitalized patients with severe gastroparesis.

**Dose**

- Erythromycin 200 mg was infused I.V. initially followed by 250 mg orally 3 times/day 30 minutes before meals. Lower dosages have been used in some trials.

- Orally 250-500 mg PO three times daily before meals.
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Unusual Uses of Finasteride
Finasteride

- Finasteride is a synthetic drug for the treatment of benign prostatic hyperplasia (BPH). It is a type II 5α-reductase inhibitor. 5α-reductase is an enzyme that converts testosterone to dihydrotestosterone (DHT).

**Unusual uses of Finasteride**

1-Finasteride is indicated for the treatment of male pattern hair loss (FDA APPROVED USE)

![Image of hair loss patterns in men](Unusual uses of common drugs by Ahmed Yossef)
Notes:

- Safety and efficacy were demonstrated in men between 18 to 41 years of age with mild to moderate hair loss of the vertex and anterior mid-scalp area.

**Life cycle of hair is divided into three phases**

- Anagen -- active hair growth that lasts between two to six years
- Catagen -- transitional hair growth that lasts two to three weeks
- Telogen -- resting phase that lasts about two to three months; at the end of the resting phase the hair is shed and a new hair replaces it and the growing cycle starts again.

As people age, their rate of hair growth slows

**What is Androgenic alopecia??**

- Androgenic alopecia (also known as male pattern baldness) is hair loss that occurs due to an underlying susceptibility of hair
follicles to androgenic miniaturization. It is the most common cause of hair loss and will affect up to 70% of men and 40% of women at some point in their lifetime. Men typically present with hairline recession at the temples and vertex balding while women normally diffusely thin over the top of their scalps. Both genetic and environmental factors play a role, and many etiologies remain unknown.

- Classic androgenic hair loss in males begins above the temples and vertex, or calvaria, of the scalp. As it progresses, a rim of hair at the sides and rear of the head remains and rarely progresses to complete baldness.

**Mechanism**

- Finasteride is a competitive and specific inhibitor of Type II 5α-reductase, an intracellular enzyme that converts the androgen testosterone into DHT.
- Two distinct isozymes are found in humans: Type I and II. Each of these isozymes is differentially expressed in tissues and developmental stages. In
humans, Type I 5α-reductase is predominant in the sebaceous glands of most regions of skin, including scalp, and liver. Type I 5α-reductase is responsible for approximately one-third of circulating DHT. The Type II 5α-reductase isozyme is primarily found in prostate, seminal vesicles, epididymides, and hair follicles as well as liver, and is responsible for two-thirds of circulating DHT.

- In humans, the mechanism of action of finasteride is based on its preferential inhibition of the Type II isozyme. Using native tissues (scalp and prostate), in vitro binding studies examining the potential of finasteride to inhibit either isozyme revealed a 100-fold selectivity for the human Type II 5α-reductase over Type I isozyme.

- For both isozymes, the inhibition by finasteride is accompanied by reduction of the inhibitor to dihydrofinasteride and adduct formation with NADP+. The turnover for the enzyme complex is slow (t½ approximately 30 days for the Type II enzyme complex and 14 days for the Type I
Inhibition of Type II 5α-reductase blocks the peripheral conversion of testosterone to DHT, resulting in significant decreases in serum and tissue DHT concentrations.

- In men with male pattern hair loss (androgenetic alopecia), the balding scalp contains miniaturized hair follicles and increased amounts of DHT compared with hairy scalp. Administration of finasteride decreases scalp and serum DHT concentrations in these men.

- The relative contributions of these reductions to the treatment effect of finasteride have not been defined. By this mechanism, finasteride appears to interrupt a key factor in the development of androgenetic alopecia in those patients genetically predisposed.

**Dose:**

- Finasteride may be administered with or without meals.
- The recommended dose of PROPECIA is one tablet (1 mg) taken once daily.
In general, daily use for three months or more is necessary before benefit is observed. Continued use is recommended to sustain benefit, which should be re-evaluated periodically. Withdrawal of treatment leads to reversal of effect within 12 months.

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Unusual uses of common drugs by Ahmed Yossef
2-Finasteride in hirsutism

Notes

- In women, Finasteride used in hirsutism (only postmenopausal women with no chance of becoming pregnant.)
- The main concern with finasteride, in women is the risk of ambiguous genitalia in male fetuses exposed to the enzyme inhibitor during the first trimester.
Introduction

- Hirsutism is a common, often distressing condition in which a person develops excessive growth of hair.

Causes of hirsutism

- In many cases, the exact cause of hirsutism is not known. However, there are several conditions that are known to cause hirsutism. These conditions include:
  - The natural production of male hormones (androgens). Women naturally produce androgen, however, if a woman's androgen levels are higher than normal, or if her hair follicles are more sensitive to androgens, she may develop hirsutism.
  - Polycystic ovarian syndrome (PCOS) is a common hormonal condition that causes a woman to produce too many androgens. Women with PCOS may also have acne, irregular or absent menstrual periods, diabetes, weight gain, and/or problems with fertility.
• The hormonal changes of menopause may lead to increased facial hair (mustache and whiskers).
• Hirsutism that occurs suddenly along with other male characteristics, such as a deeper voice, acne, or increased muscle mass, may be caused by a more serious condition, such as disorders of the adrenal glands or ovaries.
• The following medications can cause hirsutism:
• Anabolic steroids, testosterone, glucocorticoids, minoxidil, danazol, and phenytoin.

Notes
• None of the drugs used to treat hirsutism have US Food and Drug Administration (FDA) approval for such use

Mechanism
• Finasteride is a type of medication known as a 5-alpha-reductase inhibitor. It works by preventing testosterone (an androgen) from turning into a stronger form of testosterone inside body’s cells.
Dose:

- Finasteride dose (2.5 mg/day)

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Links

- http://www.nhs.uk/Conditions/hirsutism/Pages/treatment.aspx
Unusual Uses of Folic acid
Folic acid (vitamin B9)

- Folic acid is a form of the water-soluble vitamin B9. Folate is a naturally occurring form of the vitamin, found in food, while folic acid is synthetically produced, and used in fortified foods and supplements.
- Folic acid is itself not biologically active, but its biological importance is due to tetrahydrofolate and other derivatives after its conversion to dihydrofolic acid in the liver.
Vitamin B9 (folate converted from folic acid) is essential for numerous bodily functions. Humans cannot synthesize folate; therefore, folate has to be supplied through the diet to meet their daily requirements.

The human body needs folate to synthesize DNA, repair DNA, and methylate DNA as well as to act as a cofactor in certain biological reactions.

It is especially important in aiding rapid cell division and growth, such as in infancy and pregnancy. Children and adults both require folate to produce healthy red blood cells and prevent anemia.

Folate occurs naturally in many foods, and among plants are especially plentiful in dark green leafy vegetables.

A lack of dietary folates can lead to folate deficiency. A complete lack of dietary folate takes months before deficiency develops as normal individuals have about 500–20,000 µg of folate in body stores.
• This deficiency can result in many health problems, the most notable one being neural tube defects in developing embryos.

• Common symptoms of folate deficiency include diarrhea, macrocytic anemia with weakness or shortness of breath, nerve damage with weakness and limb numbness (peripheral neuropathy), pregnancy complications, mental confusion, forgetfulness or other cognitive deficits, mental depression, sore or swollen tongue, peptic or mouth ulcers, headaches, heart palpitations, irritability, and behavioral disorders.

• Low levels of folate can also lead to homocysteine accumulation. DNA synthesis and repair are impaired, which could lead to cancer development.
Folic acid in male infertility

- Folic acid with zinc role in sperm quality and in sperm count
- New research also shows that men who have a folic acid deficiency could notice a 90% reduction in their sperm count. If men suffering with partial infertility take folic acid it is proclaimed to increase the quality and quantity of their sperm.
- Folate is necessary for fertility in both men and women. It contributes to spermatogenesis.
Therefore, it is necessary to receive sufficient amounts through the diet to avoid subfertility.

- Zinc and folic acid are elements essential to the formation of DNA and creation of sperm. However, the underlying mechanisms by which they affect spermatogenesis are not known. Combination of zinc and folic acid led to an increase in sperm concentration, having an endocrine-independent mechanism, as evidenced by an unchanged follicle-stimulating hormone, testosterone, and inhibin.

- According to many studies, Total normal sperm count found to be increases after combined zinc sulfate and folic acid treatment in both sub fertile and fertile men.

**Dose**

- Folic acid once daily dose of 5 mg
Some other interesting folic acid facts

- Folic acid from supplements and fortified products is absorbed easier by the body (100% from supplements). Eating foods high in folic acid is just as important as they also contain other important essential nutrients (estimated 50% absorption rate). We recommend a combination of both.

- Stress and illness increase the body’s need of folate.

- Folate works very closely together with vitamin B12 so a deficiency of one may result in a deficiency of the other, resulting in anemia (low levels of healthy red blood cells). If very high doses of folic acid supplements are taken, this can mask the symptoms of pernicious anemia. Therefore it's usually recommended to supplement both B9 and B12 together.

- The daily upper limit from supplements should not exceed 1,000 micrograms per day
(usually only taken if prescribed by a health professional). This includes consuming large amounts of fortified food. This is to avoid risking neurological damage in case a B12 deficiency occurs.

- As well as the folic acid co-dependency with B12, the two vitamins also work along with vitamin C for the breakdown, utilization and formation of new proteins.

- Because folic acid is absorbed through the gastrointestinal tract, any conditions such as celiac disease, colitis, diarrhea, vomiting or any other disorder of the digestive system can result in a deficiency.

- This vitamin is primarily stored in the liver, so alcohol interferes with folate absorption and increases the excretion of the vitamin from the body.

- Folic acid can be destroyed by high temperatures, light exposure or from being left at room temperature for a long period of time.
Only lightly steam vegetables or eat them raw whenever possible.

*Please note - The risk of folic acid toxicity is extremely low as this is a water soluble vitamin (although still possible). Caution is advised like with all supplements. Do not exceed the recommended dosage stated on the label.
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Unusual uses of common drugs by Ahmed Yossef
Unusual Uses of Gonadotropins

Unusual uses of common drugs by Ahmed Yossef
Gonadotropins

- Gonadotropins (or glycoprotein hormones) are protein hormones secreted by gonadotrope cells of the anterior pituitary of vertebrates.
- This is a family of proteins, which include the mammalian hormones follicle-stimulating hormone (FSH), luteinizing hormone (LH), placental chorionic gonadotropins hCG and eCG and chorionic gonadotropin (CG), as well as at least two forms of fish gonadotropins.
- These hormones are central to the complex endocrine system that regulates normal growth, sexual development, and reproductive function. The hormones LH and FSH are secreted by the anterior pituitary gland, while hCG and eCG are secreted by the placenta.

In women:

- Luteinizing hormone (LH) and follicle-stimulating hormone (FSH) are needed for egg production (ovulation). Early in the menstrual cycle, a woman
with low hormone levels who is not ovulating can have daily human menopausal gonadotropin (hMG) or recombinant human FSH (rFSH) injections for an average of 12 days. If this helps develop mature follicles, the ovary is ready to ovulate. One dose of human chorionic gonadotropin (hCG) is then used to stimulate ovulation.

**In women** Gonadotropins may be used:

- To stimulate ovulation related to low natural gonadotropin or estrogen levels. (This is most commonly seen in women with excessive exercise or eating disorders.)
- When clomiphene alone or clomiphene combined with another medicine has been ineffective for correcting irregular or no ovulation caused by polycystic ovary syndrome (PCOS).
- For developing multiple egg follicles on the ovaries. Multiple eggs are harvested and used in assisted reproductive techniques such as in vitro fertilization or gamete intrafallopian transfer.
• In combination with intrauterine insemination for couples with unexplained infertility when clomiphene has not worked.

**Unusual uses of Gonadotropins**

1-Gonadotropins in men (FDA APPROVED USE)

- Gonadotropin therapy can treat low sperm counts caused by low levels of natural gonadotropins.

**Mechanism**

- In men with low testosterone and FSH. LH stimulates the production of testosterone, and FSH promotes the formation of sperm. If a semen analysis, LH testing, and FSH testing suggest that abnormal hormone levels are preventing sperm production, these gonadotropins may be prescribed together to promote sperm formation.
**Dose**

- The man gets an HCG injection 3 times weekly until blood testosterone level is within the normal range (this may take 4 to 6 months). Treatment continues with injections of HCG 2 times a week and hMG or FSH 3 times a week until the sperm count rises to normal levels.
- Male Patients with Hypo-gonadotropic Hypogonadism
  - Pretreat with HCG (1,000- 2,250 USP Units 2-3 x/week) until serum testosterone within normal range (may require 3-6 months of treatment)
  - Treatment- FSH used in conjunction with HCG, FSH 150 international units SC 3 x/week
  - HCG 1000 USP Units (or dose to maintain normal serum testosterone levels) 3 x/week
  - If azoospermia persists, may increase FSH to maximum of 300 international units 3 x/week
  - May need to administer for up to 18 months for adequate response.
**HCG in Prepubertal cryptorchidism Young boys**

- HCG is used in young boys when their testicles have not dropped down into the scrotum normally. This can be caused by a pituitary gland disorder.

**Dose**
- Therapy is usually instituted in children between the ages of 4 and 9
- 4,000 USP Units three times weekly for three weeks.
- 5,000 USP Units every second day for four injections.
• 15 injections for 500 to 1,000 USP Units over a period of six weeks.
• 500 USP Units three times weekly for four to six weeks. If this course of treatment is not successful, another series is begun one month later, giving 1,000 USP Units per injection.
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http://www.webmd.com/drugs/2/drug-11192/hcg-intramuscular/details
Unusual Uses of Insulin
Regular insulin in management of hyperkalemia.

**Mechanism**

Regular insulin stimulates cellular uptake of potassium within 20-30 minutes and lasts for 4-6 hours. The serum potassium concentration typically drops by 0.5-1.2 mEq/L.
Notes

1- Administer glucose along with insulin to prevent hypoglycemia.
2- Monitor blood sugar levels frequently. It is temporary effect; therefore, insulin therapy should be followed by therapy that actually enhances potassium clearance.

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Unusual Uses of Liraglutide
Liraglutide is a long-acting glucagon-like peptide-1 agonist (GLP-1 agonist) injection for the treatment of type 2 diabetes.

- **Unusual uses of Liraglutide**

**Liraglutide for Obesity Treatment** *(FDA APPROVED USE)*

**Mechanism**

liraglutide improves control of blood glucose. It reduces meal-related hyperglycemia (for 24 hours after administration) by increasing insulin secretion, delaying gastric emptying, and suppressing prandial glucagon secretion.
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Unusual Uses of Megestrol Acetate
Megestrol Acetate

Usually we deal with progesterone as an oral contraceptive or Breast Cancer or Endometrial Cancer but we will discuss unusual use of progesterone 17α-acetoxy-6-dehydro-6-methylprogesterone (Megestrol Acetate).

**Unusual uses of Megestrol Acetate**

*Megestrol Acetate as appetizer* (FDA APPROVED USE)

Megestrol Acetate used as appetizer, Management of anorexia, cachexia, or an unexplained, substantial weight loss in HIV-infected individuals.

Also has been used to stimulate appetite and promote weight gain in a limited number of patients with cachexia associated with neoplastic disease.
**Dose:**

Clinically effective dosages are expected to range from 312.5–625 mg daily

**References**

http://www.webmd.com/breast-cancer/megestrol-acetate
Unusual Uses of Metformin
Metformin

- Metformin is an oral ant diabetic in the biguanide class. It is the first-line drug of choice for the treatment of type 2 diabetes.

- Metformin decreases glucose production in the liver, increases insulin sensitivity and enhances peripheral glucose uptake. It doesn't stimulate secretion of endogenous insulin.

- Metformin decreases hyperglycemia primarily by suppressing glucose production by the liver (hepatic gluconeogenesis).
The condition, polycystic ovarian syndrome, known as PCOS, is a common condition and is the commonest cause of ovulation disorders in women of reproductive age and usually present in late teens or early twenties.

(PCOS) characterized by the presence of many minute cysts in the ovaries, excess production of androgens and menstrual irregularities.
• Polycystic ovarian syndrome can be found in apparently normal.

• Polycystic ovarian syndrome is frequently associated with weight gain, excessive hair growth in the face and body, irregular and infrequent periods or absent periods, infrequent or absent ovulation, miscarriage and infertility.

• Women with PCOS have both abnormally elevated luteinizing hormone (LH) secretion and hyperinsulinemia as a result of insulin resistance. The combination of hyper-secretion of LH and insulin causes ovarian androgen overproduction. In turn, ovarian androgen overproduction causes hirsutism and prevents normal ovarian follicle growth, preventing regular ovulation.

• PCOS can be treated by lowering LH hypersecretion (oral contraceptive pills or GnRH agonist analogues) or by reversing the hyperinsulinemia that is caused by insulin resistance by Metformin or weight loss if she is overweight.
**Mechanism**

- Many women with PCOS have decreased sensitivity to insulin, and their bodies overcompensate by over-producing insulin. Elevated levels of insulin are common in women with PCOS, whether they are obese or thin compared with weight matched controls. Some experts believe that this excess insulin is the underlying cause of PCOS because insulin stimulates androgen production and affects follicular development. As a consequence
- Metformin lowers insulin, androgen, and cholesterol levels. It also improves metabolism in women who are insulin-resistant, it increases sensitivity of receptor to insulin and used in weight loss.
- Metformin may help start ovulation in women with PCOS who have not responded to treatment with clomiphene. Some doctors may recommend taking Metformin in addition to clomiphene to start ovulation.
**Dose**

500-850 mg orally every 8hr

**Links**

http://www.drugs.com/sfx/metformin-side-effects.html


http://www.webmd.com/women/metformin-glucophage-for-polycystic-ovary-syndrome

http://www.nhs.uk/Conditions/Polycystic-ovarian-syndrome/Pages/Treatment.aspx

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3475283/


http://humrep.oxfordjournals.org/content/19/12/2718.full

2- Metformin in NIDDM patients with obesity.

**Mechanism**

- Metformin may be useful in aiding weight loss. In diabetic patients, it suppresses endogenous glucose production and may also act as an insulin sensitizer. It also helps diabetic patients lose weight or at least keep their weight stable.
• Metformin decreases calorie intake in a dose-dependent manner and leads to a reduction in bodyweight in NIDDM patients with obesity, in addition to that one of the metformin side effect is loss of appetite.

**Dose**

• According to several studies, Metformin dose made little difference, with 1 g daily being only marginally less effective than 2 g.

**References**


**Links**

http://www.fda.gov/ohrms/dockets/dailys/02/May02/053102/800471e6.pdf
http://www.diabetes.co.uk/diabetes-medication/metformin-weight-loss.html
http://www.crd.york.ac.uk/crdweb/ShowRecord.asp?LinkFrom=OAI&ID=12013026896#.U27WD_m

SyPs
Unusual Uses of
Metronidazole
Metronidazole in treatment of acne rosacea

- Metronidazole is used to treat acne rosacea (adult acne), a chronic condition in which the facial skin is inflamed and sores develop. Metronidazole decreases the redness and number of sores.
- Metronidazole comes as a cream, lotion, or gel to be applied to skin, it usually used once or twice a day.
• Symptoms probably will improve within 3 weeks and continue to improve over the following 6 weeks or more.

• For acne, wash the affected skin area with mild soap about 15-20 minutes before applying the medication. Apply a thin layer of cream, lotion and rub it gently into the affected area.

references

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3401842/
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3401842/
http://www.medicinenet.com/metronidazole_cream/article.htm
http://www.webmd.com/skin-problem.../rosacea-treatment-and-you
http://www.nhs.uk/Conditions/Rosacea/Pages/Treatment.aspx

Unusual uses of common drugs by Ahmed Yossef
Unusual Uses of

Nifedipine
Nifedipine

• Nifedipine is a dihydropyridine calcium channel blocker that primarily blocks L-type calcium channels. Its main uses are as an antianginal (especially in Prinzmetal's angina) and antihypertensive.

• Nifedipine is on the World Health Organization's List of Essential Medicines, a list of the most important medication needed in a basic health system.

Unusual Uses of Nifedipine

1- Nifedipine as a Tocolytic in Preterm Labor.

• Preterm labor remains a difficult issue in current obstetrics. Preterm birth still plays a major role in perinatal mortality and morbidity in developed countries, accounting for 60% to 80% of all
neonatal deaths among infants without congenital anomalies.

- Tocolysis is the use of medication to prevent preterm delivery. Preterm labor is defined as regular uterine contractions causing cervical dilation.
- According to WHO, dihydropiridine class of calcium channel blockers (e.g. nifedipine and nicardipine) are preferred to other agents for stopping labor contractions.
**Mechanism**

- Smooth muscle tissue, like the uterus, needs calcium to contract. Nifedipine blocks the passage of calcium into certain tissues, relaxing the uterine muscles and smooth muscles of blood vessels throughout the body.

**Dose**

- According to New South Wales (NSW) health Australia (Quality & Patient Safety Committee)
- Initial dose 20 mg orally stat, If contractions persist after 30 minutes further 20 mg orally may be given at 30 min intervals for a further two doses.
- Maintenance 20-40 mg orally (four times daily) for up to 48 hours.

**MAXIMAL DOSE IS 160 mg per day.**

- According to several studies have ranged from 10 to 40 mg as an initial "one time" dose. Subsequent dosages have ranged from 10 to 20 mg every 6 to 8 hours as needed and tolerated to delay delivery.
**Notes**

- Nifedipine tablets should be swallowed whole,
- Nifedipine is highly light sensitive.

**References**

- High Risk Pregnancy: Management Options - Expert Consult By David K. James, Philip J. Steer, Carl P.
- Pharmacology for Nursing Care By Richard A. Lehne
- Principles of Pharmacogenetics and Pharmacogenomics By Russ B. Altman, David Flockhart, David B. Goldstein.
- Meyler's Side Effects of Cardiovascular Drugs By Jeffrey K. Aronson.

**Links**

- http://apps.who.int/iris/bitstream/10665/93142/1/EML_18_eng.pdf?ua=1
- http://www.webmd.com/baby/nifedipine-for-preterm-labor
- http://www.drugs.com/dosage/nifedipine.html

*Unusual uses of common drugs by Ahmed Yossef*
2-Nifedipine in treatment of Raynaud's disease

- Raynaud's phenomenon is a blood vessel disorder. When healthy people are in a cold environment, the tiny blood vessels in their skin constrict, or narrow. This is an effort by the body to conserve heat.
- In people with Raynaud's phenomenon, that natural response to cold is exaggerated. The tiny blood vessels go into spasm, narrowing and reducing the blood flow to the affected areas. This response, called vasospasm, is seen most often in the fingers and toes. But it also can occur in the ears, cheeks and nose.
- In some people, the constriction also can occur in response to emotional stress or a rapid change of temperature from warm to cool. Or, it may occur for no apparent reason.
- The effect of this vasospasm can be dramatic and frightening. But it is temporary and rarely dangerous. Once the affected area is warmed, the blood vessels relax and expand. This allows more blood flow.
• People who do not have any other symptoms or disease are said to have primary Raynaud's. People who have Raynaud's as part of another disease are said to have secondary Raynaud's.

• Secondary Raynaud's is commonly linked to connective-tissue disorders, such as scleroderma and lupus. It also can result from blood vessel damage due to injury, frostbite or use of jarring machinery, such as jackhammers or chainsaws.

**Symptoms**

• People with Raynaud's see and feel changes in their fingers and toes when exposed to cold. The skin blanches, or turns white, then blue. Fingers and toes can tingle or feel numb.

• When rewarmed, the skin flushes pink or red. And there can be throbbing or soreness as the blood surges back into the tiny blood vessels.

• People with secondary Raynaud's often have symptoms related to their underlying rheumatic
disease such as: Arthritis, Rash and thickening or hardening of the skin

**Mechanism**

- Nifedipine makes blood vessels relax and widen. This should help the blood flow to fingers and toes.
- A summary of lots of randomised controlled trials has shown that nifedipine can help prevent...
Raynaud's attacks or reduce the symptoms of an attack.

**Dose**

- Nifedipine  10–30 mg 3 times daily orally
- Sustained-release nifedipine 30–120 mg/day orally
References

- Raynaud's Phenomenon By Jay Denton Coffman

Links

http://www.mayoclinic.org/diseases-conditions/raynauds-disease/basics/definition/con-20022916
http://www.nhs.uk/medicine-guides/pages/medicineoverview.aspx?condition=raynaud%60s%20disease&medicine=nifedipine
http://www.columbia.edu/itc/hs/medical/pathophys/immunology/readings/Raynaud%27s_phenomenon_review.pdf
http://www.webmd.boots.com/a-to-z-guides/raynauds-phenomenon-nifedipine
http://my.clevelandclinic.org/disorders/reynauds_phenomenon/rheumatology_overview.aspx

Unusual uses of common drugs by Ahmed Yossef
3- Nifedipine for anal fissure

• An anal fissure or rectal fissure is a break or tear in the skin of the anal canal. Anal fissures may be noticed by bright red anal bleeding on toilet paper, sometimes in the toilet. If acute they may cause pain after defecation but with chronic fissures pain intensity is often less.

• Anal fissures usually extend from the anal opening and are usually located posteriorly in the midline, probably because of the relatively unsupported nature and poor perfusion of the anal wall in that location. Fissure depth may be superficial or sometimes down to the underlying sphincter muscle.

• The goal of treatment for anal fissures is to break the cycle of spasm of the anal sphincter and its repeated tearing of the anoderm.
**Mechanism**

- Nifedipine relax the muscles of the internal sphincter. They also expand the blood vessels of the anoderm and increase the flow of blood. Although healing of chronic fissures has been reported in up to 67% of patients treated with nifedipine, they are most effective with acute fissures.

**Dose**

- Nifedipine 0.2% ointment should be used twice a day, once in the morning and once at night for 3-6 weeks.
- Oral nifedipine 20mg twice daily
References

12. Lund JN, Nyström PO, Coermans G et al. An evidence-based treatment algorithm for anal fissure, Tech Coloproctol 2006;10;177-180
25. Leinonen PT, Riekki R, Olkarinen A. Contact allergy to diltiazem cream. Contact Dermatitis 2010; 63: 228-30

Unusual uses of common drugs by Ahmed Yossef


33. The Ascrs Textbook of Colon And Rectal Surgery By James W. Fleshman-Bruce G. Wolff-American Society of Colon and Rectal Surgeons

Links

NHS Evidence website www.evidence.nhs.uk

http://www.medicinenet.com/anal_fissure/page3.htm
http://www.med.umich.edu/bowelcontrol/patient/teaching/NifedipineOintment.pdf
**4-Nifedipine (as secondary therapy) in expulsion ureteral stones**

- Nifedipine has been used for facilitating the spontaneous expulsion of ureteral stones. It several studies without significant biases showed higher expulsion rates in comparison with control groups, and events of renal colic were not reduced.
- The expulsion of the stones required an average time of up to 12 days. It should be noted that the majority of the studies include distal ureteral and vesicoureteral stones.
References


Links


http://www.medicinenet.com/nifedipine/article.htm


5- Nifedipine used in prevention of migraine headaches in adults

- Migraine is a chronic neurological disorder characterized by recurrent moderate to severe headaches often in association with a number of autonomic nervous system symptoms.

**Dose**

- Extended release tablets: 30 mg orally once a day
- Immediate release capsules: 10 mg orally 3 times a day

**References**

- The Headaches By Jes Olese
- Drug Treatment of Migraine and Other Headaches by Hans-Christoph Diener
- Migraine : Manifestations, Pathogenesis, and Management: Manifestations ...
- By Physiology and Biophysics Robert A. Davidoff Professor of Neurology, and Molecular and Cellular Pharmacology at University of Miami School of Medicine
- PROGRESS IN MEDICINAL CHEMISTRY, By Gwynn Pennant Ellis-Geoffrey Buck

**Links**

http://www.drugs.com/nifedipine.html
http://www.medicinenet.com/nifedipine/article.htm
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1071161/#!po=41.6667

Unusual uses of common drugs by Ahmed Yossef
Unusual Uses of Prednisolone
Prednisolone in IVF AND pregnancy

Why Predisposition used in IVF AND pregnancy??

This is related to (Natural Killer Cell)
What (Natural Killer Cells) are??

It is immune cells in the uterus are important in the early detection and elimination of foreign cells, such as infections or cancer.

Natural Killer Cells bind themselves to the diseased or infected target cells and release a potent cytotoxic chemical called tumour necrosis factor (TNF) that kills these cells.

Natural Killer Cells form a normal part of our blood and play an important role in our bodies’ defence mechanism.

Women who have fertility problems, specifically miscarriage or unsuccessful IVF are more likely to have higher levels of activity of these Natural Killer cells than other women. High natural killer cell activity is a form of immunological infertility.
What is the role of Prednisolone in higher levels of Natural Killer cells ??

Prednisolone used to suppress Natural Killer cells and inflammation.

For many of patients, Prednisolone are commenced on day 5-7 of your cycle or IVF stimulation and continued until 12 weeks of pregnancy.

references
http://www.fertility-academy.co.uk/recurrent-failure/immune-treatments/
http://www.infertility-guidance.co.uk/blog/2009/03/natural-killer-cells/
http://ebooks.cambridge.org/chapter.jsf?bid=CBO9780511777851&cid=CBO9780511777851A016&tabName=Chapter
http://humrep.oxfordjournals.org/content/14/11/2727.full.pdf
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http://www.jci.org/articles/view/68991
https://books.google.com.sa/books?id=S-iURx4w2r4C&pg=PA415&lpg=PA415&dq=natural-killer-cells+and+pregnancy&source=bl&ots=vWigvNIQ3P&sig=yUEb6LdxQ5Z3Dv1fnAHfu3QVXc&hl=ar&sa=X&ei=zNmtVMcBcarUbcrkJg_AJ&ved=0CGcQ6AEwCTge#v=onepage&q=corticosteroid&f=false

Unusual uses of common drugs by Ahmed Yossef
Unusual Uses of Propranolol

Unusual uses of common drugs by Ahmed Yossef
Unusual uses of propranolol for migraine prevention. (FDA APPROVED USE)

• Sufficient evidence and consensus exist to recommend propranolol, timolol, amitriptyline, divalproex, sodium valproate, and topiramate as first-line agents for migraine prevention.
• The mechanism of the anti-migraine effect of Propranolol has not been established. Beta-adrenergic receptors have been demonstrated in the pial vessels of the brain.

Prophylaxis dose

• 80 mg/day orally divided every 6-8hr initially; may be increased by 20-40 mg/day every 3-4 weeks; not to exceed 160-240 mg/day divided every 6-8hr
• Withdraw therapy if satisfactory response not seen after 6 weeks
Reference

http://www.drugs.com/inderal.html
http://www.americanheadachesociety.org/assets/1/7/Alan_Rapoport_-_Migraine_Prevention_Medications.pdf
http://brain.oxfordjournals.org/content/128/1/86
http://www.drugs.com/pro/propranolol.html

Unusual uses of common drugs by Ahmed Yossef
Unusual Uses of Sildenafil
Sildenafil

• A drug used to treat erectile dysfunction, It acts by inhibiting cGMP-specific phosphodiesterase type 5 (PDE5), an enzyme that promotes degradation of cGMP, which regulates blood flow in the penis.

Unusual Uses of Sildenafil

1-Sildenafil help Women with Antidepressant-Related Sexual Problems:

• Sexual dysfunction is a well-known side effect of some antidepressants, with up to 70% of women on antidepressants reporting sexual problems.

Unusual uses of common drugs by Ahmed Yossef
• According to study in the University of New Mexico School of Medicine in Albuquerque. This study was published in The Journal of the American Medical Association.

• Before starting the study, the women reported a variety of sexual problems, including lack of libido, difficulty becoming aroused or becoming lubricated, lack of orgasm, or delay in achieving orgasm

**Dose**

• Sildenafil doses started at 50 milligrams a day, taken one or two hours before expected sexual activity, and could be increased to 100 milligrams.

**Mechanism**

• Sildenafil found to increase the orgasm and the time to orgasm. Sildenafil also improved the satisfaction of the partner. But it didn't increase drive and desire.
• The higher a woman's testosterone levels, the researchers also found, the more likely a positive treatment response occurred.

• Sildenafil in women with normal testosterone levels is engorge their clitoris with blood, which allows them to have orgasm.

Notes

• Evaluating a woman's hormone levels before prescribing Viagra for sexual problems is important.

References

Irwin Goldstein, MD, director, sexual medicine, Alvarado Hospital, San Diego; clinical professor of surgery, University of California, San Diego; editor-in-chief, The Journal of Sexual Medicine; director, San Diego Sexual Medicine.
Harry A. Croft, MD, medical director, San Antonio Psychiatric Research Center.

Links

http://www.webmd.com/sexual-conditions/news/20080722/viagra-for-her
2- Sildenafil improve uterine artery blood flow and endometrial development in patients undergoing IVF.

- In order for successful implantation to occur, an adequately prepared endometrium has to be built up during the menstrual cycle. Endometrial development is regulated by steroid hormones and various growth factors and cytokines.
• Some of these factors are produced locally and act via paracrine mechanisms; others have to be transferred to the endometrium. Sufficient uterine blood supply is required for these factors to reach the endometrium, especially to its functional layer.

• Most studies agree that the endometrium has to reach a certain thickness for successful pregnancy to occur.

**Mechanism**

• Nitric oxide relaxes vascular smooth muscle, an effect that is mediated by cyclic guanosine monophosphate (cGMP). Guanylate cyclase and cGMP have been detected in human myometrium obtained from both non pregnant and pregnant women.

• Sildenafil is a selective inhibitor of the type V cGMP-specific phosphodiesterase. With the use of sildenafil, cGMP levels remain elevated, which leads to vascular relaxation and increased blood flow.
• Sildenafil increase the blood flow to the uterus and to improve both the pattern and thickness of the endometrium.

• Sildenafil improved pelvic blood flow can have a beneficial effect on ovarian function. Sildenafil suppositories rather than oral tablets were used in order to reduce the side effects such as headaches and low blood pressure because it deliver the drug near the proximity of the uterus.
References

- Manuscript which appeared in Fertility & Sterility (The official journal of The American Society of Reproductive Medicine) in October 2002.

Links

http://humrep.oxfordjournals.org/content/15/4/806.long#ref-list-1
3- Sildenafil in the treatment of pulmonary arterial hypertension in infants and adults.

- Pulmonary arterial hypertension (PAH) is a progressive, and often fatal, debilitating disorder.
- The increased pulmonary artery pressure found in PAH is due to disturbances in key vascular mediator pathways including relative deficiencies of vasodilators such as nitric oxide (NO) and...
prostacyclin, as well as exaggerated production of vasoconstrictors such as endothelin and thromboxanes.

**Symptoms**

- Progressive breathlessness, exertion limitation, frequent decline and failure of the right ventricle.

**Mechanism**

- Sildenafil is a selective inhibitor of phosphodiesterase type 5 (PDE5). Present throughout the body, PDE5 is found in high concentrations in the lungs. Inhibition of PDE5 enhances the vasodilatory effects of nitric oxide in pulmonary hypertension by preventing the degradation of cyclic guanosine monophosphate (cGMP), which promotes relaxation of vascular smooth muscle and increases blood flow.

- In animal models and human trials, sildenafil has been found to produce a relatively selective reduction in pulmonary artery pressure without
adverse systemic hemodynamic effects after 3 months of oral therapy.

- Inhibition of PDE5 by sildenafil may also enhance the platelet antiaggregatory activity of nitric oxide and inhibit thrombus formation.

**Infant’s dose**

- A single dose of sildenafil in infants prevented rebound pulmonary hypertension and significantly reduced the duration of mechanical ventilation in intensive care unit (ICU) infants being withdrawn from inhaled nitric oxide therapy.

**Adult’s dose**

- Oral: 5 mg or 20 mg three times a day taken at least 4 to 6 hours apart.
- Injection: 2.5 mg or 10 mg administered as an intravenous bolus injection three times a day. The injection dose does not need to be adjusted for body weight.
At 2012 The U.S. Food and Drug Administration (FDA) is recommending that sildenafil not be prescribed to children (ages 1 through 17) for pulmonary arterial hypertension. This recommendation against use is based on a recent long-term clinical pediatric trial showing that: (1) children taking a high dose of sildenafil had a higher risk of death than children taking a low dose and (2) the low doses of sildenafil are not effective in improving exercise ability.

References


Links


http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1772024/

http://thoracic.org/career-development/residents/ats-reading-list/pulmonary-hypertension.php

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http://www.globalrph.com/sildenafil.htm
http://www.fda.gov/drugs/drugsafety/ucm317123.htm


http://eurheartj.oxfordjournals.org/content/25/5/431.full


http://www.drugs.com/dosage/sildenafil.html
4- Sildenafil for Raynaud’s syndrome

- Raynaud's phenomenon is a blood vessel disorder. When healthy people are in a cold environment, the tiny blood vessels in their skin constrict, or narrow. This is an effort by the body to conserve heat.
• In people with Raynaud's phenomenon, that natural response to cold is exaggerated. The tiny blood vessels go into spasm, narrowing and reducing the blood flow to the affected areas. This response, called vasospasm, is seen most often in the fingers and toes. But it also can occur in the ears, cheeks and nose.

• In some people, the constriction also can occur in response to emotional stress or a rapid change of temperature from warm to cool. Or, it may occur for no apparent reason.

• The effect of this vasospasm can be dramatic and frightening. But it is temporary and rarely dangerous. Once the affected area is warmed, the blood vessels relax and expand. This allows more blood flow.

• People who do not have any other symptoms or disease are said to have primary Raynaud's. People who have Raynaud's as part of another disease are said to have secondary Raynaud's.
Secondary Raynaud's is commonly linked to connective-tissue disorders, such as scleroderma and lupus. It also can result from blood vessel damage due to injury, frostbite or use of jarring machinery, such as jackhammers or chainsaws.

**Symptoms**

- People with Raynaud's see and feel changes in their fingers and toes when exposed to cold. The skin blanches, or turns white, then blue. Fingers and toes can tingle or feel numb.
- When rewarmed, the skin flushes pink or red. And there can be throbbing or soreness as the blood surges back into the tiny blood vessels.
- People with secondary Raynaud's often have symptoms related to their underlying rheumatic disease such as: Arthritis, Rash and thickening or hardening of the skin
- Patients taking sildenafil, Raynaud's attacks were less frequent and shorter and the mean Raynaud's Condition Score was significantly lower. In
addition, capillary blood flow velocity increased more than quadrupled after treatment with sildenafil.

References

Pulmonary Arterial Hypertension: Diagnosis and Evidence-Based Treatment book

Links


http://www.nhs.uk/Conditions/Raynauds-phenomenon/Pages/Treatment.aspx

http://www.drugs.com/health-guide/raynaud-s-phenomenon.html

http://www.emedicinehealth.com/raynaud_phenomenon/page9_em.htm


Unusual Uses of
Sodium bicarbonate
**Sodium bicarbonate**

_Sodium bicarbonate As vaginal douche_

Sodium bicarbonate used one hour before intercourse to help in increase the vaginal ph.

thus may affect the gender of the baby. Ph of the vagina help in determine the type of gender

Higher pH or alkaline media of vagina for a Boy and lower pH or acidic media of vagina for a girl

**How to prepare sodium chloride vaginal douche**

Douche with baking soda one hour before intercourse. Mix two tablespoons of baking soda into one liter of warm tap water. Let stand for 10 minutes. Stir again and make sure the solution is fully dissolved. Insert into the vagina with a douche or large syringe while lying down.
References


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https://books.google.com.sa/books?id=hhBULeepgUC&pg=PA931&lpg=PA931&dq=Improvement+of+cervical+mucus+viscoelasticity+and+sperm+penetration+with+sodium+bicarbonate+douching&source=b&ots=1JIBT1IT&sig=bSLkgDDeP4ezXhW-h1PCYMIIUY&hl=en&sa=X&ei=1yAwVemiI46vaf3FgdAK&ved=0CEQQ6AEwBg#v=onepage&q=Improvement%of%cervical%20mucus%20viscoelasticity%20and%20sperm%20penetration%20with%20sodium%20bicarbonate%20douching&f=false
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Unusual Uses of Spironolactone
Spironolactone

- Spironolactone is used to treat high blood pressure. Lowering high blood pressure helps prevent strokes, heart attacks, and kidney problems.
- It is also used to treat swelling (edema) caused by certain conditions (e.g., congestive heart failure) by removing excess fluid and improving symptoms such as breathing problems.
- This medication is also used to treat low potassium levels and conditions in which the body is making too much of a natural chemical (aldosterone). Spironolactone is known as a "water pill" (potassium-sparing diuretic)
Unusual Uses of Spironolactone

1-Spironolactone in treatment of acne for women.

- Acne is triggered by an excess production of sebum. Sebum is an oil made by glands in your skin. Along with skin cells, sebum can clog pores and promote the growth of bacteria that contribute to acne. Androgens, a group of hormones that includes testosterone, stimulate your skin to produce sebum.
A woman's ovaries and adrenal glands normally produce a low level of androgens. Higher levels of androgens can lead to excess sebum.

**Mechanism**

- Spironolactone is an aldosterone antagonist with anti-androgenic properties.
- The mechanism of action includes competition for the androgen receptor, suppression of cytochrome P450, and inhibition of steroidogenesis, as well as reduction in 5-α-reductase activity.

- Spironolactone also decreases sebum production and improves acne.

**Dose:**

- The therapeutic dose for acne therapy is 50–100 mg per day
**Note**

- Spironolactone may be used in combination with combined oral contraceptive in women who have limited response to OCPs alone.

**References**


**Links**

- [http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3315877/](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3315877/)
2-Spironolactone in treatment of hirsutism for women:

- Hirsutism is a common, often distressing condition in which a person develops excessive growth of hair

**Causes of hirsutism**

- In many cases, the exact cause of hirsutism is not known. However, there are several conditions that are known to cause hirsutism. These conditions include:
- The natural production of male hormones (androgens). Women naturally produce androgen, however, if a woman's androgen levels are higher
than normal, or if her hair follicles are more sensitive to androgens, she may develop hirsutism.

- Polycystic ovarian syndrome (PCOS) is a common hormonal condition that causes a woman to produce too many androgens. Women with PCOS may also have acne, irregular or absent menstrual periods, diabetes, weight gain, and/or problems with fertility.

- The hormonal changes of menopause may lead to increased facial hair (mustache and whiskers).

- Hirsutism that occurs suddenly along with other male characteristics, such as a deeper voice, acne, or increased muscle mass, may be caused by a more serious condition, such as disorders of the adrenal glands or ovaries.

- The following medications can cause hirsutism: Anabolic steroids, testosterone, glucocorticoids, minoxidil, danazol, and phenytoin.
**Mechanism**

- Spironolactone blocks androgen receptors. Spironolactone also decreases testosterone production, making it additionally effective for hirsutism.

**Dose**

- Spironolactone, in daily doses of 50-200 mg.

**References**


**Links**

- [http://www.nhs.uk/Conditions/hirsutism/Pages/treatment.aspx](http://www.nhs.uk/Conditions/hirsutism/Pages/treatment.aspx)
- [http://my.clevelandclinic.org/disorders/hirsutism/hic_hirsutism.aspx](http://my.clevelandclinic.org/disorders/hirsutism/hic_hirsutism.aspx)

*Unusual uses of common drugs by Ahmed Yossef*
3-Spironolactone Treat polycystic ovary syndrome (PCOS) problems

- Polycystic ovary syndrome PCOS is one of the most common endocrine disorders among females. PCOS has a diverse range of causes that are not entirely understood, but there is strong evidence that it is largely a genetic disease.
- The most common immediate symptoms are anovulation, excess androgenic hormones, and insulin resistance. Anovulation results in irregular menstruation, amenorrhea, and ovulation-related infertility. Imbalance generally causes acne and hirsutism. Insulin resistance is
associated with obesity, Type 2 diabetes, and high cholesterol levels. The symptoms and severity of the syndrome vary greatly among affected women.

- Treatments for hirsutism in women with PCOS are similar to those in women without PCOS, such as patients with idiopathic hirsutism. Several medications have been studied for the treatment of hirsutism in women with PCOS. First-line agents include spironolactone and metformin.

**Mechanism**

- Spironolactone blocks androgen receptors. Spironolactone also decreases testosterone production, making it additionally effective for hirsutism.
References


Links

http://www.webmd.com/women/spironolactone-for-polycystic-ovary-syndrome-pcos
http://www.mayoclinic.org/diseases-conditions/pcos/basics/treatment/con-20028841
http://www.nhs.uk/Conditions/Polycystic-ovarian-syndrome/Pages/Treatment.aspx
http://clinicaltrials.gov/show/NCT01526616
http://www.medicinenet.com/spironolactone/article.htm
4-Spironolactone in treatment of female pattern hair loss
• Life cycle of hair is divided into three phases
• Anagen -- active hair growth that lasts between two to six years
• Catagen -- transitional hair growth that lasts two to three weeks
• Telogen -- resting phase that lasts about two to three months; at the end of the resting phase the hair is shed and a new hair replaces it and the growing cycle starts again.
• As people age, their rate of hair growth slows
• Almost every woman eventually develops some degree of female pattern hair loss. It can start any time after the onset of puberty, but women tend to first notice it around menopause, when hair loss typically increases. The risk rises with age, and it's higher for women with a history of hair loss on either side of the family.
• As the name suggests, androgenetic alopecia involves the action of the hormones called androgens, which are essential for normal male sexual development and have other important
functions in both sexes, including sex drive and regulation of hair growth.

- The condition may be inherited and involve several different genes. It can also result from an underlying endocrine condition, such as overproduction of androgen or an androgen-secreting tumor on the ovary, pituitary, or adrenal gland. In either case, the alopecia is likely related to increased androgen activity.

- But unlike androgenetic alopecia in men, in women the precise role of androgens is harder to determine. On the chance that an androgen-secreting tumor is involved, it's important to measure androgen levels in women with clear female pattern hair loss.

- In either sex, hair loss from androgenetic alopecia occurs because of a genetically determined shortening of anagen, a hair's growing phase, and a lengthening of the time between the shedding of a hair and the start of a new anagen phase. That means it takes longer for hair to start growing back
after it is shed in the course of the normal growth cycle.

- The hair follicle itself also changes, shrinking and producing a shorter, thinner hair shaft — a process called "follicular miniaturization." As a result, thicker, pigmented, longer-lived "terminal" hairs are replaced by shorter, thinner, non-pigmented hairs called "vellus."

**Mechanism**

- Spironolactone is an antiandrogen that works in two ways. Primarily it slows down the production of androgens in the adrenal glands and ovaries. Secondly it blocks the action of androgens in part by preventing dihydrotestosterone from binding to its androgenetic receptor.

**Dose:**

- 100 to 200 milligrams daily


References

Sauer's Manual of Skin Diseases edited by Brian J. Hall, John C. Hall

Links

http://www.americanhairloss.org/women_hair_loss/treatment.asp
http://www.drugs.com/female-pattern-baldness.html
http://www.americanhairloss.org/women_hair_loss/treatment.asp
http://www.americanhairloss.org/women_hair_loss/treatment.asp
http://www.drugs.com/hair-loss.html
http://www.webmd.com/skin-problems-and-treatments/guide/understanding-hair-loss-basics

Unusual uses of common drugs by Ahmed Yossef
Unusual Uses of Sulfasalazine
Sulfasalazine for treating ulcerative colitis.

Unusual uses of sulfasalazine in treatment of rheumatoid arthritis in adults and children whose disease has not responded well to other medications.
**Mechanism:**

It is a prodrug, that is, it is not active in its ingested form. It is broken down by bacteria in the colon into 5-aminosalicylic acid (5-ASA), and sulfapyridine. 5-aminosalicylic acid (5-ASA) may reduce inflammation by blocking the activity of cyclooxygenase thereby reducing the production of prostaglandins and relief rheumatoid arthritis pain.

**references :-**

http://www.medicinenet.com/sulfasalazine/article.htm
http://www.webmd.com/drugs/2/drug-6260/sulfasalazine-oral/details
http://www.mayoclinic.org/drugs-supplements/sulfasalazine-oral-route(description/drg-20066179
Unusual Uses of Tadalafil
Tadalafil and BENIGN PROSTATIC HYPERTROPHY (FDA APPROVED USE)

- Prostatic hypertrophy usually develops after age 40.
- By age 60, half of all men have BPH; by age 85, 90% have BPH.
- Growth of the prostate gland leads to narrowing of the urethra and obstruction of urinary flow.
**Mechanism:**

Tadalafil is Phosphodiesterase (PDE) type-5 inhibitors-induced smooth muscle relaxation in the bladder urethra, and prostate.

**Dose:**

5 mg once daily is approved for use in BPH.

**links**

http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm274642.htm
http://www.mayoclinic.org/drugs-supplements/tadalafil-oral-route(description/drg-20067204
http://www.cialis.com/about-bph.aspx
http://www.drugs.com/comments/tadalafil/for-benign-prostatic-hyperplasia.html
http://www.rxlist.com/cialis-tadalafil/drug.htm
..
Unusual Uses of Topiramate
1-Unusual uses of Topiramate for Migraine Prophylaxis in Adolescents (FDA APPROVED USE)

Sufficient evidence and consensus exist to recommend propranolol, timolol, amitriptyline, divalproex, sodium valproate, and topiramate as first-line agents for migraine prevention.

Patient selected for pharmacologic migraine prophylaxis

- Consider a first-line agent, if no contraindication:
  - Amitriptyline
  - Divalproex (Depakote) or valproic acid (Depakene)
  - Propranolol (Inderal) or timolol (Blocadren)
  - Topiramate (Topamax)

If not effective after two to three months, adjust dose successively until effective.

If initial agent not effective at maximum dose, or adverse effects make agent prohibitive, try a different first-line agent.

If no single first-line agent is effective and tolerable, consider a combination of two first-line agents.

If no first-line agent or combination is effective and tolerable, consider an alternative agent, if no contraindications:
  - Atenolol (Tenormin), metoprolol (Toprol XL), or nadolol (Corgard)
  - Candesartan (Atacand)
  - Dihydroergotamine mesylate timed-release (DHE-45)
  - Feverfew
  - Fluoxetine (Prozac)
  - Gabapentin (Neurontin)

- Hormone therapy
  - Lisinopril (Zestril)
  - Magnesium
  - Naproxen sodium (Anaprox) or naproxen (Naprosyn)
  - Verapamil (Calan)
  - Vitamin B₃ (riboflavin) or coenzyme Q10
**Dose**

The recommended total daily dose of Topiramate as treatment for adults and adolescents 12 years of age and older for prophylaxis of migraine headache is 100 mg/day administered in two divided doses (Table 1). The recommended titration rate for topiramate for migraine prophylaxis to 100 mg/day is:

<table>
<thead>
<tr>
<th>Week</th>
<th>Morning Dose</th>
<th>Evening Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>None</td>
<td>25 mg</td>
</tr>
<tr>
<td>Week 2</td>
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</tr>
<tr>
<td>Week 3</td>
<td>25 mg</td>
<td>50 mg</td>
</tr>
<tr>
<td>Week 4</td>
<td>50 mg</td>
<td>50 mg</td>
</tr>
</tbody>
</table>

**References**

http://www.aafp.org/afp/2006/0101/p72.html
http://www.drugs.com/dosage/topamax.html
http://www.topamax.com/
2- Topiramate AND phentermine as an addition to a reduced-calorie diet and exercise for chronic weight management. (FDA APPROVED USE)

- Qsymia is a combination of two FDA-approved drugs, phentermine and topiramate, in an extended-release formulation.

**MECHANISM**

- Phentermine is a sympathomimetic agent that has been used by itself for the treatment of obesity for quite some time.
- Although the exact mechanism by which phentermine works to promote weight loss is not understood, it is thought to stimulate the release of chemicals from the hypothalamus, the area of the brain known to have a major role in regulating hunger and food intake.
- Phentermine induced release of chemicals is thought to reduce appetite and decrease food intake, among other effects.
• Topiramate, the other medicine in Qsymia, is an anti-seizure medication that has been observed to be effective in causing weight loss. The precise mechanism by which topiramate works to stimulate weight loss is not yet understood. However, similar to the actions of phentermine, topiramate is also thought to suppress appetite and make a person feel full even after eating less food than usual.

**DOSE**

The recommended daily dose of Qsymia contains 7.5 milligrams of phentermine and 46 mg of topiramate extended-release. Qsymia is also available at a higher dose (15 mg phentermine and 92 mg of topiramate extended-release) for select patients.

**References**

http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm312468.htm

*Unusual uses of common drugs by Ahmed Yossef*
Unusual Uses of Trimethoprim-Sulfamethoxazole
**Trimethoprim-Sulfamethoxazole in treatment of acne vulgaris**

**Mechanism:**

many bacteria are not capable of incorporating exogenous folate, they are dependent on their own ability to synthesize folate that is needed for their own protein and deoxyribonucleic acid (DNA) production.

TMP-SMZ inhibits folate production in bacteria by blocking bacterial dihydrofolic acid reductase, which causes reduced production of purines and subsequently DNA.
Notes

1- this combination uses in Severe Acne. 2-it is less often used for acne BUT when other antibiotics have failed, especially when isotretinoin is not an option. 3-Some dermatologists claim that the response to trimethoprim-sulfamethoxazole is as impressive as the response to isotretinoin. However, unlike isotretinoin, the effect of trimethoprim-sulfamethoxazole is not sustained after it is stopped.

Dose

1 DS tab or 1 regular-strength tab orally every Day or every 12hr for up to 18 weeks.

references

http://reference.medscape.com/.../bactrim-trimethoprim-sulfam...
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3168244/...
Unusual Uses of Vitamin D
Women with lower serum levels of vitamin D during the first trimester of pregnancy are at greater RISK for developing gestational diabetes mellitus
**Mechanism**

The active metabolite, 1,25-dihydroxyvitamin D, formed from 25-hydroxyvitamin D (25OHD), is involved in calcium balance and bone metabolism, acts as a transcription factor, and functions in glucose metabolism.

**References**

http://www.who.int/…/guidelin…/vit_d_supp_pregnant_women/en/
http://onlinelibrary.wiley.com/…/14651858.CD008873…/abstract