Hirsutism and virilism

Hirsutism: defined as the growth of terminal hair on the body of a woman in the same pattern and sequence as that which develops in the post pubertal male.

Normal hair growth: human hair grows in three phases:

1. Anagen: growing phase, lasts for several months to 2-5 years on the scalp.
2. Catagen: follows anagen and lasts for about 2 weeks; during this period the hair stops growing and the lower portion of the hair follicles involutes.
3. Telogen: resting phase that lasts about 3 months.

*Incidence: about 9%, hirsutism should not be confused with hypertricosis, which refers to non-androgen-dependent hair growth.

* Pathogenesis: The dermal papillas androgen receptors interact with dihydrotestosterone, the active metabolite of testosterone, this interaction results in an increase in the size of the hair follicle and the type of hair produce by the follicle.

* Clinical features: The most common system used is the Ferriman and Gallwey grading system, which scores 11 areas of the body on a scale of 1 to 4 according to the degree of terminal hair growth, the scores are then added together, other clinical features according to the cause of hirsutism.

Causes of Hirsutism:

1. Poly cystic ovarian syndrome: the commonest cause.
2. Idiopathic
3. Androgenic causes:
   a. congenital adrenal hyperplasia.
   b. Androgen secreting tumors.
   c. Drugs; e.g. DANAZOL
4. Xy gonadal dysgenesis.

Most commonly cause virilism
5. Cushing syndrome.
6. Hyper-prolactinemia.

* **Virilism**: whereas Hirstim may be the result of excessive androgen stimulation or excessive end organ response, virilism is almost always due to excessive androgenic stimulation and presented in addition to excessive hair growth with ((secondary amenorrhea, loss of subcutaneous fat, breast atrophy, size of clitoris, deepening of the voice and temporal recession of hair growth)).

* Initial investigation in case of hirsutism: after taking a full history and full examination to diagnose a different cause of hirsutism, we send for:
   1. FSH, LH.
   2. Prolactin, testosterone (normal 0.5 - 3.5 mol/L).

If the patient presented with virilizing symptoms.

If rapid onset of hirsutism.

If serum concentration of testosterone is > 5 nmol/L, so further investigation should be undertaken in order to differentiate between various conditions which mentioned previously.

**Further IX includes:**

1. 17 Hydroxy progesterone
2. Cortisol "morning & evening"
3. Dexamethasone suppression test
4. ACTH level
5. Differential types of androgen (Androstendione Dehydroepiandrosterone)
6. MRI of adrenal gland
7. Chromosomal analysis.

**Treatment:**
Treatment depend on the cause of the hirsutism and virilisme.g Cushing syndrome by cortisol, hyperprolactinemia by bromocriptine... ect ... and after exclusion of these pathological causes the management of hirsutism usually done by 2 methods.

A. **Physical methods of hair removal**:  
- Bleaching: by using hydrogen peroxide.  
- Shaving: this does not affect the rate of hair growth.  
- Electrolysis: this may be an effective means of permanent hair growth.  

Weight loss: hirsutism is more common in obese women with pcos "60-70%" than in thin women, consequently, wt. loss in obese women may result in reduction in body hair.

B. **pharmacological methods**:  
The oral contraceptive pill: it will suppress ovarian androgen activity and increase sex hormone – binding globulin that decreasing free testosterone. Oral contraception containing norethisterone and levonorgesteral "progesterone with androgen activity", however the commonest OCP user for treatment of hirsutism is that contain anti-androgen cyproterone acetate "Dianette".

**Cyproterone acetate**: it will act in two ways: antagonist of the androgen receptors in the skin and it inhibits gonadotropin secretion from pituitary gland, it used either in OCP or alone in patient has contra-indication for OCP.

**Spironolactone**: is an oral aldosterone antagonist with anti-androgenic properties by increase the metabolic clearance and reducing the cutaneous 5-alpha reductase activity the serum potassium level should be monitored at the start of treatment.

**Flutamide**: is a pure non-steroidal anti-androgen.
Hepatotoxicity: is an infrequent but serious side effect, and therefore liver function tests should be performed.

**Finastride**: is a 5-alpha reductase inhibitor.
All these drugs are tetratogenic so effective contraction should be used.

**Notes**:

Metformin could be used for RX of hirsutism in case of obese, PCOS women, however it shouldn't use alone, but with combination with other drug it 50% effective in this condition.

Treatment of hirsutism need long course of treatment approximately ≈ 6-9 months.