Resistant Facial Hirsutism in Females

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Abstract:
Background: The pigmented and unwanted hair in females is a common issue. There are various treatment modalities available for facial hair removal, (temporary and permanent.) The client choice is invariably to remove facial hair permanently. The photoepilation laser and IPL treatment to remove unwanted facial hair is an acceptable universal method.

Objective: To determine the role of photo epilation in the treatment of female facial hirsutism patients.

Methods: In this prospective study, carried out from May 2014 to May 2016 in Aziz Fatimah Hospital & Faisal Hospital, Faisalabad, Pakistan. we have treated 140 female clients with the age of 19 Yrs to 55yrs (mean age 36.5 Yrs) having facial hirsutism with Ferriman-Galway score of 8 or more. All patients were treated with photoepilation hair removal system. Thirty four (24.29%) patients excluded from the study due to non-compliance. Normally 4 sessions of photoepilation treatment spaced 30 days deemed sufficient for permanent facial hair removal. With the first session we consider to have 50% reduction of facial hair and further 10-20% with every subsequent four to five sessions, spaced 30 days each session accumulating 100% removal of unwanted facial hair in 4 – 5 months. In patients, who did not achieved the desired results after 2nd sessions, we further evaluated for the medical diagnosis for resistant facial hair regrowth and 14 (10%) patients with the hormonal imbalance diagnosed were treated with medical therapy by a specialist endocrinologist.

Results: Overall results achieved are highly satisfactory (approximately 80%). All patients with hormonal imbalance had joint treatment from specialist Endocrinologist and Aesthetic/Cosmetic Surgeon. The results achieved after combined treatment with photoepilation and medical therapy were total elimination of resistant or regrowth of female facial hirsutism.

Conclusions: Where response is inappropriate after 2-3 photoepilation sessions for female facial hair removal then client should be evaluated further by an experienced endocrinologist. After making correct diagnosis of female facial hirsutism and treating medically, the results achieved to remove female facial hair with photoepilation remained satisfactory.

Key words: Hair, LASER, IPL, Permanent

Introduction:
The photoepilation consist of intense pulsed light therapy (IPL) and laser. LASER is a acronym for “light amplified by stimulated emission of radiation” which was first developed in 1960 based on Einstein's quantum theory of radiation 1. The Laser light is monochromatic, bright, coherent, unidirectional light emerges from the laser cavity. It has wide range of medical application including permanently unwanted hair removal from the body 2.
The Intense pulse light therapy (IPL) is a system that emits a broad spectrum of non-coherent, polychromatic light 3. It is a non invasive photorejuvenation system used for photo aging, telangiectasia, port wine stains, poikiloderma, red hypertrophic scars, hypertrichosis, irregular pigmentation, hair removal and post inflammatory hyperpigmentation.

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The treatment modalities available to remove unwanted hair from the body are temporary and permanent. The temporary methods are shaving, plucking, threading, waxing, bleaching, chemicals etc. The permanent methods include Electrolysis and Photoepilation (LASER and IPL).

Permanent hair removal requires LASER or light impact on one or more growth centers within the hair. Target or Chromophore identified is melanin. The mechanism involved by which the laser light can destroy hair follicle by three mechanisms - thermal (due to local heating), mechanical (due to shock waves or violent cavitation), or photochemical (due to generation of toxic mediators like singlet oxygen or free radicals) mechanisms.

**Material and Methods**

This is a prospective study of two years from May 2014 to May 2016 and this study was conducted at Aziz Fatimah Hosp and Faisal Hospital, Faisalabad, Pakistan. The inclusion criteria was all female with facial hirsutism where facial hair reduction fifty to seventy percent in first two photoepilation sessions not achieved and females with Ferriman Gallwey score above 4. The exclusion criteria included noncompliant patients or patients who discontinue medical treatment due to various reasons like; pregnancy.

A careful detailed history, thorough physical examination and relevant investigation either pre or intra photoepilation treatment performed.

**Results**

In this study total number of one hundred and forty patients were enrolled. Age distribution ranged from nineteen years to fifty five years (Fig.2). Ninety six patients had successful treatment and fourteen cases were found resistant to photoepilation treatment which required referral to physician for endocrine work up to find out the underlying cause and medical treatment along with regular four to six monthly photoepilation sessions (Fig.1).

The causes identified in resistant cases included Polycystic ovarian disease in five patients, ovarian cyst in three patients, prolactinoma in one patient, non Classic CAH in two patients and three patients, where no cause identified (Fig.2).

**Fig.1**

Title: Causes identified in resistant cases

Numbers: total fourteen resistant cases

Causes identified in Resistant Cases

- Polycystic ovarian disease: 36%
- Ovarian Cyst: 22%
- Prolactinoma: 14%
- Non Classic CAH: 7%
- Idiopathic: 21%
We perform four to six monthly sessions of photoepilation. The expected results are 50% hair volume reduction after 1st session and further 10-20% reduction in subsequent sessions.

Discussion

Hair is continually growing structure and growth cycle is divided into three phases. Growth phase (period of activity) – Anagen (80-90%) last for up to 6 yrs, Regression phase – Catagen (2%) last up to 3 weeks, Resting phase (period of quiescence) – Telogen (10-15%) last up to 3 months. Fig3

![Fig3](image)

During puberty androgen level increases which converts vellus hair (small, straight, fair) into terminal hair (larger, curlier, darker).

Hirsutism is a common disorder affecting up to 8% of women. It often results from conditions that are not life-threatening, such as chronic anovulation. Hirsutism is defined as the presence of excessive terminal hair in androgen-dependent areas of a woman's body.

Infrequently, hirsutism may signal more serious pathology, and clinical evaluation should differentiate benign causes from tumors or other conditions that require specific treatment. Most women who seek treatment for hirsutism do so for cosmetic reasons, because excess body hair outside of cultural norms can be very distressing. A careful detail history and thorough physical examination are essential. Family history is important; 50 percent of women with hirsutism have a positive family history of the disorder.

Treatment options for patients who have hirsutism can be divided into those measures targeting local manifestations of hirsutism and pharmacologic therapy aimed at the underlying cause. Therapy that targets local manifestations includes physical methods of hair removal ranging from shaving to laser therapy, topical treatment, and weight loss. For patients with mild hirsutism, local measures such as shaving, bleaching, depilatories, and electrolysis may suffice. Shaving is the easiest and safest method, but is often unacceptable to patients. Bleaching products are often ineffective for dark hair growth, and skin irritation may occur. Chemical depilatories produce results similar to shaving, but skin irritation is common. Electrolysis is one of the most effective and permanent methods of hair removal, and may be an adjunct to hormonal treatment.

Eflornithine (Vanika) topical cream has been shown to slow rates of terminal hair growth significantly in up to 32 percent of patients and can be used adjunctively with usual methods of hair removal. Once use of eflornithine is discontinued, hair growth usually returns to pre-treatment levels in...
For women with idiopathic hirsutism, PCOS, or late-onset CAH, appropriate treatment decisions depend on each patient’s desires and childbearing plans. Women who do not wish to become pregnant should use low-dose oral contraceptives (OCs). Containing less androgenic progestins, such as norgestimate, gestodene, and desogestrel, these agents increase the level of SHBG and therefore decrease ovarian androgen production while decreasing the risk of endometrial hyperplasia often seen in anovulatory women.

Antiandrogens may be combined with OCs for the treatment of hirsutism. Up to 75 percent of women report clinical improvement with combination therapy, but data have shown that combined therapy is not significantly better than single agents alone.

The most commonly used antiandrogen are spironolactone and flutamide. Spironolactone is most commonly used because of its safety, availability, and low cost. Flutamide has been shown to be as effective as spironolactone; however, hepatic function must be monitored. Finally, finasteride, a competitive inhibitor of 5α-reductase has been shown to be effective in treating hirsutism with relatively few side effects.

Response to antiandrogens is slow and may take up to 18 months. Duration of therapy is unclear, but treatment cessation generally is followed by recurrent hair growth.

Hirsutism is classified into various types, grades and scales. The most commonly used classification in practice is Ferriman-Gallwey Scale as shown in the Fig. 4.

Fig 4: Ferriman-Gallwey Scale
The expression of hair growth varies between racial/ethnic groups and should be noted in the clinical assessment. A Ferriman-Gallwey score >8 is considered to be abnormal in Asian women.
General principles of medical treatment of a female patient with facial hirsutism is guided by severity of hirsutism, amount of distress it is causing the patient, reproductive wishes of the patient, encourage weight loss in all obese patients, any medical therapy deserves a 6-months minimum trial. Little evidence to suggest combination therapy is superior to monotherapy.

Mechanism of action in hyperandrogenic hirsutism, testosterone is the major androgen secreted in a process that is largely luteinizing hormone (LH) and insulin-dependent. Oral contraceptive therapy reduces hyperandrogenism by the inhibition of LH secretion.

Stimulation of the hepatic production of sex hormone binding globulin (SHGB), thereby increasing androgen binding in serum and reducing serum free androgen concentrations. A slight reduction in adrenal androgen secretion, a modest inhibition in the binding of androgens to their receptor. The principal effect of oral contraceptive therapy on hair growth is to reduce or even stop the development of new terminal hairs. In addition, excess terminal hairs present at the beginning of therapy may become finer and grow at a slightly slower rate, and some hairs that are in the process of terminalization (ie, the process of converting from vellus to terminal hairs) may revert, resulting in a reduction in overall excess hair growth.

The diagnosis of polycystic ovary syndrome (PCOS) is made if two of the three following criteria are met: Androgen excess, Ovulatory dysfunction, or Polycystic ovaries (PCO), whereas disorders that mimic the clinical features of PCOS are excluded. These include, in all women: thyroid disease, hyperprolactinemia, hyperthecosis, and nonclassic congenital adrenal hyperplasia. In selected women with amenorrhea and more severe phenotypes, more extensive evaluation required to exclude other causes.

The congenital adrenal hyperplasia (CAH) is a group of inherited disorders (autosomal recessive) in which a defect in cortisol biosynthesis is present (each characterised by a deficiency or total lack of a particular enzyme involved in the biosynthesis of cortical steroids) with consequent overproduction of adrenocorticotropic hormone (ACTH) and secondary adrenal hyperplasia as a consequence.

Women with prolactinoma present with oligomenorrhea or amenorrhea, and 80% have galactorrhoea. One to two percent patients with prolactinoma have hirsutism. Men present with impotence or decreased libido. Fertility is decreased in men and women. Bone mineral density is decreased because of the hypogonadism. Men often present with larger tumours due to late diagnosis and probably because of underdiagnosis of small lesions.

Idiopathic is defined as when serum testosterone levels are normal. There is no menstrual irregularity and no other cause is identified.

The causes of female facial hirsutism identified in our prospective study are polycystic ovarian disease, ovarian cyst, prolactinoma, non-classic CAH and idiopathic. Other rare causes includes obesity, dietary habits, drugs (danazol), hyperthyecosis, severe insulin resistance syndrome, cushing's syndrome, acromegaly, thyroid dysfunction etc.

Conclusion
The case in which the response is inappropriate after 2-3 photoepilation sessions for female facial hair removal or Ferrymen-Galwey score more than 8, should be evaluated further by an experienced endocrinologist. After making correct diagnosis of female facial hirsutism and treating medically, then the results achieved with photoepilation to remove female facial hair permanently remained satisfactory.
References:


