

Original research article

Study of Etiology of Hirsutism

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Abstract

Hirsutism is a condition of unwanted, male-pattern hair growth in women. Hirsutism is defined as excessive terminal hair growth in androgen-dependent areas of the body in women, which grows in a typical male distribution pattern. Hirsutism is a common clinical problem in women, and the treatment depends on the cause. The condition is often associated with a loss of self-esteem. Hirsutism reflects the interaction between circulating androgen concentrations, local androgen concentrations, and the sensitivity of the hair follicle to androgens. Objective of study was to assess the characteristics and etiology of hirsutism . A cross sectional study was conducted on 50 females aged 16 years and above in the outpatient department of Dermatology. Age of onset of hirsutism was between 18 to 34 years. 20 % patients were married. 35 % subjects had family history of hirsutism.40% patients had menstrual irregularities .30 % patients were found to be obese . Usg findings showed 7 patients had normal Usg. 30 patients showed polycystic ovaries. 12 patients had Unilateral cysts. 1 patient had adrenal pathology. 15 patients showed not etiology of hirsutism. In 24 patients etiology was polycystic ovarian syndrome. Menopause was reason of hirsutism in 4 patients. Congenital adrenal hyperplasia was etiology in 3 patients. 4 patients showed Hypothyroidism was reason for hirsutism . Since hirsutism can adversely affect a woman's life, the dermatologists should consult such patients with care. Although most causes of hirsutism are benign, treatment is important to improve the self-esteem of the patients.

Keywords: Etiology, hirsutism, polycystic ovarian syndrome, Congenital adrenal hyperplasia, idiopathic hirsutism , postmenopausal state.

Introduction

Hirsutism is defined as excess terminal hair that commonly appears in a male pattern in women. It is generally associated with hyperandrogenemia.[1] Hirsutism occurs in approximately 7 percent of women.[2,3]Hirsutism should be distinguished from hypertrichosis, which is generalized excessive hair growth not caused by androgen excess. Hypertrichosis may be congenital or caused by metabolic disorders such as thyroid dysfunction, anorexia nervosa, and porphyria.[4] Hirsutism is often classified in terms of the distribution and degree of hair growth, such as through pictorial scales. The most widely recognized scoring method is the Modified Ferriman-Gallwey scale . [5,6]Androgens, including testosterone, dihydrotestosterone, and their prohormones dehydroepiandrosterone sulfate and androstenedione, are the key factors in the growth and development of sexual hair. Androgens act on sex-specific areas of the body, converting small, straight, fair vellus hairs to larger, curlier, and darker terminal hairs.[7] Men have higher androgen levels during and after puberty, and thus a greater degree of terminal hair development in sex-specific areas compared with women. Hirsutism develops in women when there is excessive growth of terminal hair in these

areas, typically due to androgen excess.[8]In addition to hirsutism, hyperandrogenemia can manifest as acne, menstrual dysfunction, or alopecia, or could be asymptomatic. The severity of hirsutism is variable at a given level of androgen excess, suggesting that hirsutism is also related to the sensitivity of hair follicles to androgens.[9]Hirsutism can be caused by unusually high androgen levels released from ovaries/adrenal gland or because of increased sensitivity of hair follicles to normal androgen levels. Ovarian hyperandrogenism is caused by PCOS and ovarian neoplasms while androgenic causes of hyperandrogenism are congenital adrenal hyperplasia, late onset adrenal hyperplasia, Cushing's syndrome, pituitary adenoma and acromegaly. When there is increased responsiveness of the hair follicles to normal circulating levels of androgens or ovarian hormones, hirsutism is termed as idiopathic. Hirsutism is a frequent reason of cosmetic embarrassment, poor self esteem, and psychological distress for women world over. Although hirsutism is not a serious or life threatening disease, it produces social, psychological and emotional disability, it is more appropriate to offer effective medical treatment for hirsutism plus psychotherapy. Hence, it is important to evaluate every patient who complains of unwanted facial or body hair. In this study, we have tried to analyze the underlying causes for hirsutism along with the associated clinical manifestations.



Figure 1: Hirsutism (Excess terminal hair that commonly appears in a male pattern in women)

Material and Methods

A cross sectional study was conducted on 50 females aged 16 years and above in the outpatient department of Dermatology. Informed consent was taken from all 50 participants. Patients who were pregnant or lactating and who were on medications known to cause hair growth were not included in the study. Also patients diagnosed with hypertrichosis due to local diseases, systemic illnesses like adrenal tumor, late onset congenital adrenal hyperplasia, Cushing's syndrome were excluded. Modified Ferriman and Gallwey score (mF-G score) was used as a method of evaluating and quantifying hirsutism in women. Nine androgenic areas (upper lip, chin, chest, upper back, lower back, upper abdomen, lower abdomen, upper arms, thighs) were taken into consideration. A detailed medical history along with physical examination was undertaken in all patients. History was obtained from each patient using a proforma which included age of onset of hirsutism, duration, rate of progression of disease, marital status, parity, age at menarche, menstrual irregularities and presence of symptoms of virilization, i.e., deepening of voice, increased muscularity, thinning of scalp hair, seborrhea, decreased breast size, and oligomenorrhea. Patients were examined for clinical evidence of acne, androgenetic alopecia (AGA), acanthosis nigricans, signs of virilization including loss of female body contours and atrophy of breast. Body mass index (BMI) was also measured. The blood samples were drawn after overnight fasting between 5th and 6th day of menstrual cycle. Free and total testosterone, dehydroepiandrosterone sulfate (DHEAS), and 17-hydroxyprogesterone (17-OHP) levels were measured using enzyme-linked immunosorbent assay (ELISA) and luteinizing and follicle stimulating hormone (LH/FSH ratio), Prolactin, free tri-iodothyronine (fT3), free tetra-

iodothyronine (fT4), and thyroid stimulating hormone (TSH) levels were measured. Pelvic ultrasound for ovaries was carried out between day 3 and 5 of menstrual cycle in all patients. The USG criteria to define polycystic ovaries were presence of twelve or more follicles in each ovary measuring two to nine mm in diameter, and/or increase in ovarian volume (>10 mL) and only one ovary fitting this definition is sufficient for diagnosis [10]. Presence of regular ovulation and normal hormonal profile were diagnostic of IH, whereas PCOS was diagnosed on the basis of Rotterdam Criteria 2003. Hirsutism secondary to hypothyroidism was diagnosed when all investigations were within normal limit except for increased serum TSH. Data were coded manually and analysis was conducted. The results were presented in tables. Descriptive analysis was done. Qualitative data: number and percentage were used.

Results

Table 1 : Observations in patients .

Age of onset in years	18-34 years
Mean duration of Hirsutism in years	5 ±4.2 years
Marital status (%)	20 % Married
Family history (%)	35 %
Menstrual irregularities (%)	40 %
Obesity (%)	30 %
Acanthosis nigricans (%)	36 %

Age of onset of hirsutism was between 18 to 34 years. 20 % patients were married. 35 % subjects had family history of hirsutism. 40% patients had menstrual irregularities. 30 % patients were found to be obese.

Table 2 : USG Findings

USG findings	Number of patients n= 50	Percentage
Normal	07	14 %
Polycystic ovaries	30	60 %
Unilateral cysts	12	24 %
Adrenal pathology	01	02 %

Usg findings showed 7 patients had normal Usg. 30 patients showed polycystic ovaries. 12 patients had Unilateral cysts. 1 patient had adrenal pathology.

Table 3 : Etiology

Etiology	Number of patients n= 50	Percentage
Idiopathic	15	30 %
PCOS	24	48 %
Menopause	04	08 %
Congenital adrenal hyperplasia CAH	03	06 %
Hypothyroidism	04	08 %

15 patients showed not etiology of hirsutism. In 24 patients etiology was polycystic ovarian syndrome. Menopause was reason of hirsutism in 4 patients. Congenital adrenal hyperplasia was etiology in 3 patients. 4 patients showed Hypothyroidism was reason for hirsutism.

Discussion

Hirsutism is a common clinical condition that usually has a benign course. In rare cases, however, it may be the presenting feature of a serious underlying disease which needs proper etiological diagnosis and appropriate treatment. The severity of hirsutism in particular areas of

the body varies in different patients and depends on the rate of androgen excess, or increased sensitivity of hair follicles to normal androgen levels in the serum. Hirsutism with regular cycles and no feature of virilization in absence of any hormonal alterations has been called idiopathic. This was the most common form of hirsutism in our series, accounting for 30% of all study subjects.

Polycystic ovary syndrome was seen in 48% of the subjects. Stein and Leventhal [11] were the first to describe the clinical features of hirsutism, amenorrhea, infertility, and obesity in association with bilaterally enlarged cystic ovaries. The term PCOS has been since applied to a heterogeneous spectrum of clinical and endocrine features. Hyperandrogenism [12] or polycystic ovaries on ultrasound currently are the usual diagnostic criteria for what is termed PCOS [13]

8 % patients in our series developed hirsutism during the postmenopausal period. Etiopathogenesis and clinical implications of hirsutism in elderly women remain unclear. In the postmenopausal period, the ovarian stromal cells continue to secrete variable amounts of steroids, mainly androgens. The endocrine activity of the postmenopausal ovary is generally too low to cause clinical symptoms.

In summary, the commonest cause of hirsutism is PCOS which is in keeping with what is found in the medical literature.[14,15] The term idiopathic hirsutism is probably overused in the diagnosis of hirsutism, and it should therefore be reserved only for those patients who have negative findings after a thorough investigation. Hirsute women should be thoroughly investigated for the cause of problem. We believe such a workup will unravel a cause for the hirsutism in most if not all women afflicted with this problem. Since hirsutism can adversely affect a woman's life, the dermatologists should consult such patients with care and not treat such cases like any other disease. The clinicians should answer the doubts regarding long duration of treatment and motivate them. Hirsutism requires simultaneous involvement of dermatologists, psychologists, endocrinologists, gynaecologists.

Conclusion

Hirsutism is a common clinical problem in women, and hyperandrogenemia is the key trigger for excess hair growth. Although most causes of hirsutism are benign, treatment is important to improve the self-esteem of the patients.

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