

# Etiologic Aspects of Hirsutism in Kashmiri Women Presenting to a District Hospital in Northern State of India

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## ABSTRACT

**Background:** To assess the etiological aspects of hirsutism in Kashmiri women presenting to a district hospital in the northern state of India. **Methods:** Design: Prospective evaluation of hirsute patients referred to our endocrinology clinic. Setting: District-level primary care hospital. Patient(s): 150 consecutive women referred for hirsutism. Intervention(s): Assessment of body hair as per the Ferriman and Gallwey scoring system and an investi-gative protocol including detailed clinical assessment with endocrinologic workup including estimations of gonadotropins, PRL, T, and 17-hydroxyprogesterone and abdominopelvic ultrasound. Main Outcome Measure: Cause of hirsutism. **Results:** The etiology of hirsutism revealed idiopathic hirsutism in 35%, polycystic ovary syndrome (PCOS) in 35%, postmenopausal state in 12%, adrenal and ovarian tumors in 5 %, congenital adrenal hyperplasia in 2 %, and drug-induced hirsutism in 6 %. The cause remained undetermined in 5 % of patients for whom the available information was not adequate. **Conclusion:** Hirsutism is as common a problem in the Kashmir Valley (India) as elsewhere in the world. Idiopathic hirsutism (35 %), PCOS (35 %), and postmenopausal state ( 12 %) are common causes of hirsutism. Late-onset congenital adrenal hyperplasia is a relatively uncommon cause of hirsutism in the Kashmir Valley.

**Keywords:** Idiopathic hirsutism, polycystic ovary syndrome, postmenopausal state, Congenital adrenal hyperplasia.

## INTRODUCTION

Hirsutism is a common endocrinological complaint. The causes of this complaint can vary from dissatisfaction with a normal pattern of hair growth on the one hand, to the first clinical manifestation of androgen overproduction by an adrenal adenocarcinoma on the other. It is a common clinical condition seen in female patients of all ages characterized by the excessive growth of terminal hair in a male pattern. It is defined as the presence of terminal coarse hairs in females in a male-like distribution. Like acne or anovulation, it is a variably expressed manifestation of androgen excess and thus may be a cutaneous sign of an androgenic disorder.<sup>[1]</sup> Careful endocrinologic evaluation of women defined as having hirsutism has shown increased androgen metabolism in up to 90%.<sup>[2]</sup> The majority of hirsute women will seek advice from a beautician before seeking medical advice. Because of the wide variation in the perceptions of body and facial hair

due to personal, social, and cultural factors, only a proportion of hirsute women will present for medical advice. Although more than 95% of the women with hirsutism have a relatively benign condition like idiopathic hirsutism or polycystic ovary syndrome (PCOS), more sinister causes like congenital adrenal hyperplasia, Cushing’s syndrome, and benign and malignant androgen-secreting adrenal or ovarian tumors may underlie hirsutism.<sup>[3]</sup>

The large range of familial and racial differences in the extent and acceptability of hair on various body sites makes objective assessment essential. Various methods have been used to quantitate the degree of hirsutism.<sup>[4-6]</sup> Clinical problems related to hirsuties in women have usually been approached as if there were a clear dividing line between hirsuties and the normal state. Body hair growth appears, however, to be a graded characteristic. So a method for assessing hair growth which is needed and is quantitative and, at the same time, suitable for clinical use is ferriman and galway method. The prevalence of hirsutism as defined by physicians examining hospital patients has been reported at 1.2%– 18%.<sup>[7]</sup> Abnormal hair distribution seems to be a common problem among Kashmiri women.

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**MATERIALS AND METHODS**

In this study, we evaluated the most common androgenic etiologies of hirsutism in 150 consecutive women presenting with hirsutism to our endocrinology OPD. The selected women were interviewed about age, marital status, obstetric history, drug ingestion, and family history of hirsutism. The women were examined in detail for hirsutism and features of virilization, if any. Physical examination focused on secondary sexual characteristics, presence of galactorrhea, frontal balding, increase in shoulder girdle muscles, coarsening of voice, acne, loss of female body contours, and clitoromegaly. Hirsutism was assessed and quantitated according to the method of Ferriman and Gallwey.<sup>[4]</sup> Any woman with a score of 6 or more was considered hirsute.<sup>[8]</sup> The routine investigations that were performed included detailed hemogram and serum chemistry including liver and kidney function tests. The hormonal estimations were comprised of basal levels of serum cortisol, LH, FSH, PRL, total T, and 17-hydroxyprogesterone. Blood samples were taken at 08:00 hours after an overnight fast. Three samples, taken 20 minutes apart, were pooled for estimation of LH, FSH, and PRL. A dexamethasone suppression test was done in women in whom Cushing's syndrome was suspected.<sup>[9]</sup>

All hormone estimations were performed in the follicular phase (days 3– 8) of the menstrual cycle or, in the event that the patient was amenorrheic, when the serum P level was 2.5 ng/mL.<sup>[10]</sup> A pregnancy test was performed on all amenorrheic women. All samples for hormone estimation were stored at 20° C before being analyzed. All hormone estimations were performed by CLIA. The imaging procedures included a detailed abdominopelvic ultrasound examination for all women, with particular attention to ovaries and adrenals.

**Definitions of Diagnostic Groups**

**Polycystic ovary syndrome:** clinical features of hyperandrogenism together with either an increased serum concentration of LH or increased LH/FSH ratio or polycystic ovaries on ultrasound.<sup>[11,12]</sup>

**Congenital adrenal hyperplasia:** a basal serum 17-hydroxyprogesterone concentration of 6 nmol/L or 2ng/ml.<sup>[10]</sup> **Idiopathic hirsutism:** hirsutism in association with regular menstrual cycles and normal hormonal levels.<sup>[8]</sup> **Postmenopausal hirsutism:** hirsutism with onset in the post-menopausal period.

**RESULTS**

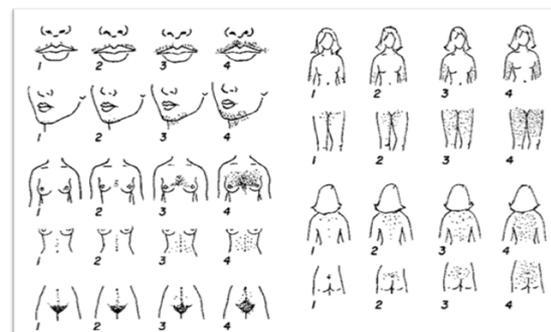
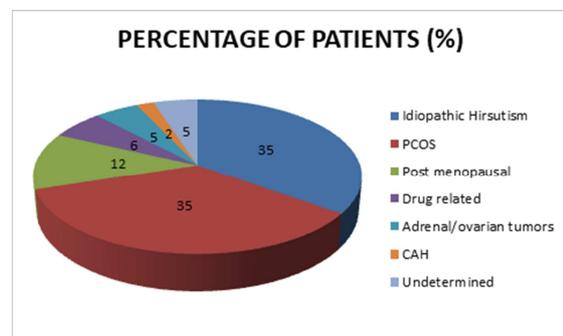
Of the 150 subjects initially enrolled for the study, adequate clinical and investigative data were available for 142 subjects. The age of these women ranged between 14 and 56 years, with a mean of 24.1± 8.5 years and a median of 24 years. Of these

142 study subjects, 131 (92.3%) had no suggestion of virilization, 74 (52.1%) had regular cycles, and 36 (25.4%) had a family history of hirsutism. The hirsutism score ranged between 5 and 28 with a mean (SD) score of 14 ± 4.6 (median, 16). The most common cause of hirsutism in our subjects was idiopathic hirsutism and PCOS followed by postmenopausal hirsutism, seen in 35%, 35%, and 12 % subjects, respectively. Drug induced was seen in 6%, adrenal and ovarian tumors was seen in 5%, CAH was seen in 2 % and cause remained undetermined in 5%.

Testosterone levels were significantly higher in women with PCOS and menopausal women. Understandably, subjects with CAH had significantly greater levels of 17-hydroxyprogesterone than any other group.

**Etiology Groups and Their Clinical Characteristics**

Diagnosis	Percentage (%)	Age (Yrs) Mean± Sd	Hirsutism Score (Mean ± Sd)
Idiopathic Hirsutism	35	24 ±3	12± 5
Pcos	35	23± 5	13±5
Post Menopausal	12	49±6	9 ±4
Drug Related	6	30± 4	12± 4
Adrenal/Ovarian Tumors	5	35±3	13 ±5
Cah	2	22 ±5	14± 6
Undetermined	5	35± 5	12 ±4



Hirsutism scoring system of Ferriman and Gallwey. The nine body areas possessing androgen-sensitive pilosebaceous units are graded from 0 (no terminal hair) to 4 (frankly virile).

R. L. Rosenfield: Clin Endocrinol Metab 15: 341-362, 1986

## DISCUSSION

Hirsutism is a common clinical condition in women and is characterized by the excessive growth of terminal hair in a male pattern. Ferriman and Gallwey examined women presenting for nonendocrine reasons and proposed that 1.2% of females in London were hirsute using a score more than 10.<sup>[4]</sup> 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 35 % of all study subjects. Adams et al.<sup>[8]</sup> however, have seriously challenged this diagnosis, after reporting a high prevalence of PCOS (92%) in a sample of women with hirsutism and normal menses.

Similar results have been published in a study on a Middle Eastern population.<sup>[13]</sup> These rates are operator dependent and possibly represent the more accurate assessment provided by the use of a vaginal transducer that usually allows closer access to ovaries.<sup>[14]</sup> Such a procedure was not possible in our patients for socioreligious reasons. Routine abdominopelvic ultrasound undoubtedly could have missed some women with polycystic ovaries. However, we do believe that idiopathic hirsutism is a common disorder in Kashmiri women. The findings of a study from Alabama showed that if idiopathic hirsutism is defined by presence of hirsutism, regular ovulation, and normal androgen levels, only 17% of consecutive hirsute patients could be diagnosed with the disorder. Alternatively, if idiopathic hirsutism is based solely on the presence of hirsutism and regular ovulation, regardless of androgen levels, then 29% of the total hirsute population can be considered as having idiopathic hirsutism.<sup>[15]</sup>

Nonclassical late-onset forms of adrenal hyperplasia (LOAH) have been described in which sexual ambiguity is not present but virilization occurs during childhood or after puberty.<sup>[21]</sup>

12 % women 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. Occasional cases of hirsutism and even virilization have been reported in postmenopausal women with non-neoplastic lesions of the ovary.<sup>[23-26]</sup>

The task inherent in the differential diagnosis of hirsutism is to determine whether the hirsutism is androgen mediated, whether the site of excess production of androgen is the adrenal gland or the ovary, and in most cases, whether the overproduction of androgen is dependent upon

trophic hormone support, i.e. ACTH or LH and FSH. When this is done, appropriate therapy can be prescribed.<sup>[27]</sup>

## CONCLUSION

Hirsutism is as common a problem in the Kashmir Valley (India) as elsewhere in the world. Idiopathic hirsutism (35 %), PCOS (35 %), and postmenopausal state (12 %) are common causes of hirsutism. Late-onset congenital adrenal hyperplasia is a relatively uncommon cause of hirsutism in the Kashmir Valley.

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