

HIRSUTISM IN GYNAECOLOGIC ENDOCRINOLOGY

by

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Excessive facial and body hair is usually associated with loss of cyclic menstrual function and anovulation. Out of a total of 59 cases with hirsutism, menstrual disturbances were noted in 56 (94.9%) cases. Twenty-four (40.7%) cases were married but infertile. Severe grades of hirsutism were observed only in 11 (18.6%) cases while plasma testosterone varied from 0.2 ng/ml to 1.5 ng/ml with a mean value of 0.5 ng/ml. Bilateral adrenal hyperplasia were observed in 12 (20.2%) cases. An association of polycystic ovarian disease with hyperprolactinaemia was observed.

Introduction

A continuing challenge to both the clinician and the investigator exists in the diagnosis and treatment in women with hirsutism and/or virilization. To the clinician, the challenge is primarily that of establishing the presence of an endocrine dysfunction and ultimately of prescribing effective therapy. The investigator, however finds in these women and children both incentive and opportunity to pursue his studies of the increasingly intricate bio-synthetic and metabolic pathway of steroid hormones.

However, in spite of recent advances, there remains a significant number of patients who are labelled as cases of idiopathic hirsutism because of the lack of specific diagnosis.

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Material and Methods

There were a total of 59 cases of hirsutism attending the gynaecological endocrine clinic in the department of Obst. & Gynaec., PRIMER, Chandigarh, during the period from January, 1979 to December, 1980.

The clinical evaluation included detailed history and examination, routine blood studies, bone age determination, thyroid assessment with T_3 , T_4 and TSH, prolactin assay, plasma cortisol, plasma estradiol and plasma testosterone. Adrenal hyperfunction was thought of whenever basal plasma cortisol exceeded 25 microgram%. Dexamethasone suppression test was carried out in addition, to isolate the adrenal component in hirsutism.

Serum FSH and LH determinations were also performed by double antibody homologous radio-immuno assay (RIA).

Results

TABLE I
Age Distribution

Age	Number	Percentage
10-20	12	20.3%
21-30	40	67.8%
31-40	7	11.9%
More than 40	Nil	Nil

Forty (67.8%) belonged to 21-30 years of age.

TABLE II
Marital Status and Parity

Parity	Number	Percentage
Parous	13	22.0%
Nulliparous	24	40.7%
Unmarried	22	37.3%

Out of a total of 59 cases only 13 (22.0%) were parous, while 24 (40.7%) cases were married but infertile.

TABLE III
Distribution of Secondary Sex (Tanner 1962)

	I	II	III	IV	V
Breast	Nil	Nil	1 (1.7%)	12 (20.4%)	46 (77.9%)
Pubic hair	Nil	Nil	1 (1.7%)	3 (13.5%)	50 (84.8%)

Almost all patients had well developed secondary sex characters.

TABLE IV
Different Grades of Hirsutism (Garn 1951)

Grades	Number	Percentage
I	Nil	Nil
II	48	81.4%
III	8	13.5%
IV	3	5.1%

TABLE V
Menstrual Status

Status	Number	Percentage
Secondary		
amenorrhoea	30	50.8%
Oligomenorrhoea	16	27.2%
Hypomenorrhoea	6	10.2%
Primary		
amenorrhoea	4	6.7%
Normal cycle	3	5.1%

TABLE VI
Etiological Classification

Diagnosis	Number	Percentage
1. Polycystic ovarian disease	27	45.9%
2. Polycystic ovarian disease with hyperprolactinaemia	9	15.3%
3. Cushing's Syndrome	11	18.5%
4. Cushing's syndrome with hyperprolactinaemia	1	1.7%
5. Hypogonadotropic Hyperprolactinaemia	2	3.4%
6. Hypergonadotropic hyperprolactinaemia	1	1.7%
7. Gonadal dysgenesis	4	6.7%
8. Hypothyroidism with hyperprolactinaemia (TRH induced)	2	3.4%
9. Hyperprolactinaemia (Stress induced)	1	1.7%
10. Genital tuberculosis	1	1.7%

Table IV shows various grades of distribution of abnormal hair. Moderate to severe degrees of hirsutism were observed only in 11 (18.6%) of cases while 48 (81.4%) had mild degree of hirsutism.

The most common menstrual disturbances observed were secondary amenorrhoea followed by oligomenorrhoea and hypomenorrhoea respectively. Three (5.1%) cases had normal regular cycle.

Polycystic ovarian disease was the most frequent diagnosis and it was found in 36 (61.2%) cases. Nine (15.3%) cases of these had associated hyperprolactinaemia. Cushing's syndrome was found in 12 (20.2%) cases and only 1 (1.7%) of them had associated hyperprolactinaemia. Two (3.4%) cases had hypogonadotropic hyperprolactinaemia and 1 (1.7%) had hypergonadotropic hyperprolactinaemia. There were 4 (6.7%) cases of gonadal dysgenesis with hirsutism and the chromosomal karyotyping in 3 of them showed 46XX and one had mosaic 45X/46XX. Two (3.4%) cases had hypothyroidism. Both of them showed associated hyperprolactinaemia.

Plasma testosterone in the present study ranged from 0.2 ng/ml to 1.5 ng/ml (mean 0.5 ng/ml), while plasma LH ranged from 1.25 mIU/ml to 74 mIU/ml (mean 37.6 mIU/ml) and serum prolactin from 29 ng/ml to 78 microgram% (mean 37.5 microgram%).

Discussion

Excessive facial and body hair is usually associated with loss of cyclic menstrual function. The most severe state of virilism are rarely seen and are usually associated with adrenal hyperplasia or androgen producing tumour of adrenal or ovarian origin. Plasma testosterone levels (normal 0.2 to 0.8 ng/ml) are elevated in the majority of women with anovulation and hirsutism but individual variation is great. It is directly related to changes in the testosterone binding globulin in the blood and the metabolic clearance of testosterone (Speroff *et al*, 1978).

In contrast to characteristic picture of fluctuating estradiol level in the normal cycle, in polycystic ovaries a state of tonic gonadotropin and estrogen production is

associated with persistent anovulation. In chronic anovulation, the average daily production of estrogen and androgen is increased. This is reflected in higher circulating levels of testosterone and androstenedione and higher levels of estrogen. When compared with normal women, patients with this syndrome have higher levels of LH but low or low normal levels of FSH. In response to elevated LH level, androgen production is increased from the functional stromal tissue of the ovary.

Recently an association of hyperprolactinaemia with polycystic ovarian disease has been observed by Alger *et al* (1980). In order to explain its association, it is suggested that either the abnormal hormonal status acts on the hypothalamic regulation or the hyperprolactinaemia per se may induce disorder of ovarian steroidogenesis leading to morphologic changes in the ovaries, characteristic to polycystic ovarian disease.

In the present study, the most frequent cause of hirsutism was noted in cases with polycystic ovarian disease. Cushing's syndrome with or without hyperprolactinaemia was found only in 12 (20.2%) cases in contrast to 36 (61.2%) cases with polycystic ovarian disease with or without hyperprolactinaemia. There were 4 (6.7%) cases of gonadal dysgenesis, 3 of them had 46XX karyotype while 1 had 45X/46XX mosaic. However, in these cases the possibility of inclusion of small fragment of Y chromosome cannot be excluded. Two (3.4%) cases had hypothyroidism associated with hyperprolactinaemia (TRH induced), while 1 case had stress induced hyperprolactinaemia and Hirsutism (Table V).

In this series, 13 (22.0%) cases were

parous women, in contrast to 24 (40.0%) who were infertile (Table II). Fifty-six (94.9%) cases had menstrual disturbance and secondary amenorrhoea was the most common observation followed by oligomenorrhoea and hypomenorrhoea. Only 3 (5.1%) women had normal menstrual cycle.

References

1. Alger, M., Vazquez-Matute, L., Mason, M., Canales, E. S., and Zarate, A.: *Fertil. Steril.* 34: 70-71, 1980.
2. Speroff, L., Glass, R. H. and Kase, N. G.: *Clinical Gynaecologic endocrinology and in Fertility.* 2nd ed (The Williams & Wilkens Company, Ballimore, USA) 1978, P. 135-149.