



HIRSUTISM; ETIOLOGICAL PROFILE IN ABBOTTABAD, PAKISTAN

1. Assistant Professor,
Department of Pathology,
Frontier Medical & Dental College,
Abbottabad, Pakistan.
2. Assistant Professor,
Department of Gynecology,
Frontier Medical & Dental College,
Abbottabad, Pakistan.
3. Assistant Professor,
Assistant Professor/Research
Coordinator,
Al-Shifa School of Public Health,
Pakistan Institute of Ophthalmology,
Rawalpindi, Pakistan.
4. Professor, Department of
Pathology,
Frontier Medical & Dental College,
Abbottabad, Pakistan.

Correspondence Address:

Dr. Muhammad Usman Anjum
Assistant Professor,
Department of Pathology,
Frontier Medical & Dental College,
Abbottabad, Pakistan.
usmanziyai@gmail.com

Article received on:

01/04/2016

Accepted for publication:

30/05/2016

Received after proof reading:

26/05/2016

Dr. Muhammad Usman Anjum¹, Dr. Surriya Yasmin², Dr. Hashim Riaz³, Dr. Syed Humayun Shah⁴

ABSTRACT: Hirsutism is a clinical condition which commonly affects women. This is associated with loss of self-esteem, psychological distress and cosmetic embarrassment. **Objective:** To study the clinical, biochemical and etiological profile of patients with hirsutism in Abbottabad, Pakistan. **Duration and place:** This descriptive study was performed in Frontier Medical & Dental College, Abbottabad from January, 2015 to December, 2015. **Methods:** Fifty patients were included in the study. Complete clinical assessment and abdominal and pelvic ultrasonography was carried out. Ferriman and Gallwey score was used to assess the extent and pattern of hirsutism. Endocrinological investigations performed in these patients included prolactin, testosterone, luteinizing and follicular stimulating hormone (LH, FSH), thyroid function tests and cortisol. **Results:** Fifty patients were included in the study. Their mean age was 28.30 ± 5.83 years. About 88% of the women were married and 70% were obese. The polycystic ovarian syndrome (58%) was diagnosed as the main cause of hirsutism followed by idiopathic hirsutism (38%) and drug-induced hirsutism (4%). Majority of patients, 50%, had hirsutism for 1-5 years while 22% and 20% had hirsutism for 6-10 years and > 10 years respectively. The rate of infertility among hirsute women was 70% (35 cases), out of which, 24 (48%) cases had primary infertility while 11 (22%) had secondary infertility. Most of the hirsute patients, 26 (52%), presented with the complaints of infertility and menstrual disturbances followed by infertility alone in 9 (18%) cases, hirsutism in 6 (12%) cases and menstrual irregularities in 5 (10%). The 60% of patients belonged to moderate category according to FG score, (FG score 17-24). The 26% belonged to mild category (FG score 8-16) and 14% belonged to severe category (FG score 25-30). About 72% of our patients used treatment of any kind for their disease. The common hair removing practices used by these patients included bleaching (22%), waxing (20%), epilation (20%), electrolysis (6%) and shaving (4%). Serum free testosterone levels were elevated in 44% of our patients, LH/FSH ratio was more than 2 in 42.1% patients and prolactin levels were raised in 10% of the patients. **Conclusion:** Hirsutism is not uncommon in Pakistan. The most common cause of hirsutism was polycystic ovarian syndrome and idiopathic hirsutism. There is a need to conduct large scale studies to determine the true prevalence and etiological profile of patients with hirsutism.

Key words: Hirsutism, Etiology, Polycystic ovarian syndrome.

Article Citation: Anjum MU, Yasmin S, Riaz H, Shah SH. Hirsutism; etiological profile in Abbottabad, Pakistan. Professional Med J 2016;23(6):741-745. DOI: 10.17957/TPMJ/16.3382

INTRODUCTION

Hirsutism is a clinical condition which is characterized by the presence of excessive coarse and terminal body hair in females.¹ It is a male pattern hair growth in androgen dependent parts of a female body.² The area's most commonly involved are upper lips, areola and chest.³ Its prevalence is different among different races. For example, hirsutism is more prevalent in South Americans, Mediterranean and Caucasians than Asians.^{3,4} Rate of prevalence of

hirsutism is 7% in United States of America (USA) with annual economic burden of approximately 600 million dollars.⁵ Beside this, hirsutism is also associated with other costs for women like loss of self-esteem, psychological distress and cosmetic embarrassment.¹

The pathogenesis of hirsutism is multi-factorial. It could be due to the excessive production of androgens in the body or it could be due to the excessive sensitivity of hair follicles to the

circulating normal androgens within the body.^{2,6} But, usually it is caused by hyper-androgenemia.⁷ In majority of cases, hirsutism is either idiopathic or caused by polycystic ovarian syndrome (PCOS). But in some cases, it is caused by adrenal and ovarian tumors, Cushing's syndrome and congenital adrenal hyperplasia.^{3,5,8} Due to this, hirsutism is associated with acanthosis nigricans, alopecia, acne and galactorrhea.^{2,3} The degree and distribution of hirsutism was determined by a pictorial scale which is developed by Ferriman and Gallwey, (FG).^{5,8}

The studies conducted on hirsutism and its etiology are scarce in Pakistan. Therefore, we have conducted this study to investigate the prevalence, etiological factors and clinical features associated with hirsutism.

MATERIAL AND METHODS

The study was conducted at Frontier Medical & Dental College, Abbottabad from January, 2015 to December, 2015. It was a descriptive study with a consecutive non-probability sampling.

All premenopausal patients presenting with the complaints of hirsutism were included in the study. Peri- and post-menopausal women, patients on hormonal therapy, or those who were pregnant and/or lactating were excluded from the study. Informed consent was taken. Detailed history was taken especially about the age of menarche, any menstrual problems, marital status, past medical history especially about medical conditions e.g. diabetes, hypertension, etc., drug history, family history of hirsutism, obstetric history, signs and symptoms suggesting virilization, age of onset and progression of hirsutism. Complete physical examination was performed with special emphasis on breast, abdominal and pelvic examination. Body mass index (BMI) was also checked and patient was said to be obese if BMI was $\geq 25\text{kg}/\text{m}^2$. The degree of hirsutism was determined by using Ferriman & Gallwey scale.⁵ Patients were divided into following categories according to their degree of hirsutism; i) Mild, (FG score of 8-16), ii) Moderate, (FG score of 17-24) and iii) Severe, (FG score of 24-30).³ Endocrinological investigations performed in these patients were

as follows; Prolactin, testosterone, luteinizing and follicular stimulating hormone (LH, FSH), thyroid function tests and cortisol. Fasting blood samples were taken (between 08-09AM after overnight fasting) during proliferative phase of menstrual cycle and these tests were performed using radioimmunoassay.

Ultrasonography (USG) was conducted to look for any abdominal and pelvic mass and specifically for ovaries. Polycystic ovarian disease (PCOS) was labeled when there were ≥ 10 microcysts, (each having a diameter of 2-9 mm), and/or $> 10\text{ml}$ of ovarian volume on USG.²

Statistical package for social sciences (SPSS, version 17) was used to record and analyze data. Mean \pm Sd was used to express continuous data and frequencies and percentages were used to express categorical data.

RESULTS

Fifty patients were included in the study based on the inclusion and exclusion criteria. The mean age of women was 28.30 ± 5.83 years. About 88% of the women were married and 70% were obese. The PCOS was diagnosed as the main cause of hirsutism in 58% of the patients, followed by idiopathic hirsutism in 38% of the patients and drug-induced hirsutism, (danazol and dilantin), in 4% of the patients, (Table-I)

Mean Age	28.30 \pm 5.83 years
Marital Status	
Married	44, (88%)
Un-married	6, (12%)
Presence of Obesity	
Obese	35, (70%)
Non-obese	15, (30%)
Cause of hirsutism	
PCOS	29, (58%)
Idiopathic	19, (38%)
Drug-induced	2, (4%)
Table-I. Characteristics of study population, (n=50)	

Maximum number of patients, 50%, had hirsutism for 1-5 years while 22% and 20% had hirsutism for 6-10 years and more than 10 years respectively.

Only 8% of the patients complained to have hirsutism for less than a year, (Table-II).

Duration	No of patients
Less than an year	4, (8%)
1-5 years	25, (50%)
6-10 years	11, (22%)
> 10 years	10, (20%)
Total	50, (100%)

Table-II. Distribution of patients according to duration of hirsutism, (n=50)

The rate of infertility among hirsute women was 70%. Out of these 35 cases, 24 (48%) cases had primary infertility while 11 (22%) had secondary infertility, (Table-III). Similarly, out of these 35 patients who complained of infertility, 13 had normal menstrual cycles while 22 had oligomenorrhoea.

Prevalence of Infertility, (n=50)	
Fertility	15, (30%)
Infertility	35, (70%),
Total	50, (100%)
Type of Infertility, (n=35)	
Primary infertility	24, (48%)
Secondary infertility	11, (22%)
Total	35, (70%)

Table-III. Incidence of infertility among hirsute patients, (n=50)

Most of the hirsute patients, 26 (52%), presented with the complaints of infertility and menstrual disturbances, followed by infertility alone in 9 (18%) cases, hirsutism in 6 (12%) cases and menstrual irregularities in 5 (10%), (Table-IV). Features of virilization have not been observed in any of our patients.

Presenting Complaint/s	Number, Percentage
Infertility and menstrual disturbances, (both)	26, (52%)
Infertility	9, (18%)
Hirsutism	6, (12%)
Menstrual irregularities	5, (10%)
Others	4, (8%)
Total	50, (100%)

Table-IV. Presenting complaints of the hirsute patients

The 60% of patients belonged to moderate category according to FG score and their score was between 17-24. The 26% belonged to mild category (FG score 8-16) and 14% belonged to severe category (FG score 25-30), (Table-V)

FG Grade	FG Score	Number, Percentage
Mild	8-16	13, (26%)
Moderate	17-24	30, (60%)
Severe	25-30	7, (14%)
Total	--	50, (100%)

Table-V. Stratification of patients according to FG score, (n=50)

The results of hormonal assays of these patients are shown in Table-VI.

Hormone Assay	Number, Percentage
Raised Testosterone	22, (44%)
Low FSH & High LH	13, (26%)
High FSH & High LH	5, (10%)
High FSH & Normal LH	5, (10%)
Raised Prolactin	5, (10%)
Total	50, (100%)

Table-VI. Hormonal assays of the hirsute patients, (n=50)

About 72% of our patients used treatment of any kind for their disease. The common hair removing practices used by these patients included bleaching (22%), waxing (20%), epilation (20%), electrolysis (6%) and shaving (4%) while 28% patients hadn't used any kind of treatment, (Table-VII).

Practice Used	Number, Percentage
Bleaching	11, (22%)
Waxing	10, (20%)
Epilation	10, (20%)
Electrolysis	3, (6%)
Shaving	2, (4%)
No Treatment	14, (28%)
Total	50, (100%)

Table-VII. Common hair removal practices prevalent in hirsute patients, (n=50)

DISCUSSION

Hirsutism is a clinical condition commonly present in women. But, it must be differentiated from hypertrichosis. Hypertrichosis is characterized by excessive hair growth which is generalized in nature and is not associated with excess androgen levels.⁵

The mean age of patients in our study was 28.30 ± 5.83 years, (range: 13-40 years). This finding is similar to other studies conducted on hirsutism. Malik et al have reported the mean age to be 23 ± 5 years (range: 16-35 years) in their study which was conducted in Lahore, Pakistan.⁹ The mean age of patients was 25.84 ± 8.30 years, (range: 13-47 years) in a study conducted in India by Sharma et al.¹ Similarly, another study conducted in India by Chhabra et al has shown that the mean age of their study subjects was 24.18 ± 5.61 years.² Moran et al have reported in their study from Mexico that the mean age of their study subjects was 25.5 years, (range: 13-38 years), and mean age of Saudi hirsute women was 24.5 ± 6.6 years.^{10,11}

The main cause of hirsutism in our study was PCOS (58%), idiopathic hirsutism (38%) and drug-induced hirsutism (4%). Our results are similar to other studies. Ansarin et al in their study conducted in Iran have reported that the Incidence of PCOS was 62.5% and that of idiopathic hirsutism to be 35.2%.³ Another study from Iran by Noorbala et al have reported that the PCOS was responsible for hirsutism in 60% of cases and idiopathic hirsutism for 29% cases.⁴ A Mexican study by Moran et al have shown that PCOS was responsible for 53% cases and idiopathic hirsutism for 25% cases.¹¹ Quite contrary to our findings, Zargar et al have reported the prevalence of PCOS in Indian Kashmiri women to be 37.3% while Gatee et al have found it to be 91% in United Arab Emirates.^{8,12} Similarly, Al-Ruhaily et al have reported that the incidence of PCOS and idiopathic hirsutism in Saudi women to be 82% and 11% respectively.¹⁰ This wide variation could be due to difference in the racial and genetic factors among people belonging to different geographical areas.

The majority of patients, 60%, in our study belonged to moderate category based on their FG scores followed by 26% to mild and 14% to severe category. Our finding is comparable to what Chhabra et al have reported in their study conducted in India. They have reported that 32.5% had mild hirsutism, 52.5% of their patients had moderate hirsutism and 15% had severe hirsutism.² Similarly, Adams et al have found these rates to be 39%, 45%, and 11% respectively.¹³ On the contrary, In an Iranian study by Ansarin et al, the reported rate of mild hirsutism was 65%, moderate hirsutism was 32.5%, and severe hirsutism was 2.5% based on FG criteria.^{2,3} In Kashmiri women, the prevalence of mild hirsutism was 10.1% and that of moderate hirsutism to be 0.4%.⁸ This dissimilarity in findings could be due to the subjective nature of the FG criteria as well as its limitation to consider all androgenic sites.⁵

Our study has shown that the serum free testosterone levels were elevated in 44% of our patients, LH/FSH ratio was more than 2 in 42.1% patients and prolactin levels were raised in 10% of the patients. Sharma et al have reported these levels to be raised in 22%, 34% and 20% of their Indian hirsute patients.¹ The 45% of the patients have raised free testosterone levels in a study conducted in India by Chhabra et al. They have also shown a significant relationship between the raised LH/FSH ratio and PCOS in hirsute patients.² This implies that PCOS in hirsute patients is associated with endocrinological abnormalities.

In our study, 72% of our patients had treatment for their disease while 28% haven't had any kind of treatment. An Iranian study by Noorbala et al has reported that only 37.1% of their patients used treatment for their condition. The methods most commonly employed were physical ones; plucking, shaving and electrolyzing.⁴ This discrepancy in our findings could be due to the availability, cost and access to medical facilities as well as personal preferences of the patients about their choice as whether and when to have a treatment for their condition.

CONCLUSION


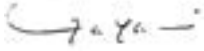

Hirsutism is common in Pakistan. The most common cause of hirsutism was PCOS and idiopathic hirsutism. Because of many factors .e.g. racial, cultural, social and personal, not all the patients suffering from hirsutism present for diagnosis and treatment. There is a need to conduct more and large scale studies to determine the true prevalence and etiological profile of patients with hirsutism.

Copyright© 30 May, 2016.

REFERENCES

- Sharma NL, Mahajan VK, Jindal R, Gupta M, Lath A. **Hirsutism: clinico-investigative profile of 50 Indian patients.** Indian journal of dermatology. 2008;53(3):111-4.
- Chhabra S, Gautam RK, Kulshreshtha B, Prasad A, Sharma N. **Hirsutism: A clinico-investigative study.** International Journal of Trichology. 2012;4(4):246-50.
- Ansarin H, Aziz-Jalali MH, Rasi A, Soltani-Arabshahi R. **Clinical presentation and etiologic factors of hirsutism in premenopausal Iranian women.** Archives of Iranian medicine. 2007;10(1):7-13.
- Noorbala M, Kefaeie P. **The Prevalence of Hirsutism in Adolescent Girls in Yazd, Central Iran.** Iran Red Crescent Med J. 2010;12(2):111-7.
- Bode D, Seehusen DA, Baird D. **Hirsutism in women.** American family physician. 2012;85(4):373-80.
- Ahmad QM, Shah IH, Sameem F, Kamili Q-u-a, Sultan J. **Hirsutism in Kashmir: An etiological study.** Indian journal of dermatology. 2009;54(1):80-2.
- Martin KA, Chang RJ, Ehrmann DA, Ibanez L, Lobo RA, Rosenfield RL, et al. **Evaluation and treatment of hirsutism in premenopausal women: an endocrine society clinical practice guideline.** The Journal of clinical endocrinology and metabolism. 2008;93(4):1105-20.
- Zargar AH, Wani AI, Masoodi SR, Laway BA, Bashir MI, Salahuddin M. **Epidemiologic and etiologic aspects of hirsutism in Kashmiri women in the Indian subcontinent.** Fertility and sterility. 2002;77(4):674-8.
- Malik L, Khursheed K, Haroon T, Malik M. **An aetiologic study of moderate to severe hirsutism.** Paistan Journal of Medical Sciences. 2007;23(2):167-71.
- Al-Ruhaily AD, Malabu UH, Sulimani RA. **Hirsutism in Saudi females of reproductive age: a hospital-based study.** Annals of Saudi medicine. 2008;28(1):28-32.
- Moran C, Tapia MC, Hernandez E, Vazquez G, Garcia-Hernandez E, Bermudez JA. **Etiological review of hirsutism in 250 patients.** Archives of medical research. 1994;25(3):311-4.
- Gatee OB, Al Attia HM, Salama IA. **Hirsutism in the United Arab Emirates: a hospital study.** Postgraduate medical journal. 1996;72(845):168-71.
- Adams J, Polson DW, Franks S. **Prevalence of polycystic ovaries in women with anovulation and idiopathic hirsutism.** British medical journal (Clinical research ed). 1986;293(6543):355-9.

AUTHORSHIP AND CONTRIBUTION DECLARATION

Sr. #	Author-s Full Name	Contribution to the paper	Author=s Signature
1	Dr. Muhammad Usman Anjum	Principal Author	
2	Dr. Surriya Yasmin	Co-author	
3	Dr. Hashim Riaz	Co-author	
4	Dr. Syed Humayun Shah	Conveive the idea, Supervised & proof read the manuscript	