

## Clinico-Pathological Study in Women with Hirsutism in a Rural Tertiary Hospital of Bangladesh

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### Abstract

The objective of the study was to find out the status of clinical features, gonadotrophins, testosterone and ovarian ultrasonography with hirsutism in female of Bangladesh, in addition to socio-demographic characteristics of the respondents. A descriptive cross-sectional record review was done among 51 patients with hirsutism in Diabetic Association Medical College, Faridpur during the period from February, 2015 to April, 2017 using preformed checklist. History of ovarian dysfunction and BMI were assessed and testosterone, LH, FSH and ovarian ultrasonography findings were recorded. Inclusion criteria included hirsutism in reproductive age, between menarche to 40 years of age with exclusion of any known cause for hirsutism. Among the patients 16 (31.37%) were within twenty years and 30 (58.83%) were between twenty-one to thirty years of age. 7 (13.72%) patients were overweight and 31 (60.78%) patients were obese. 46 (90.2%) patients had either oligomenorrhoea or amenorrhoea. Only 5 (9.8%) of the patient had raised testosterone while 43 (84.31%) had LH:FSH >1. Abdominal ultrasonography showed 17 (33.33%) patients had obvious polycystic ovary and 20 (39.22%) had normal ovary. Polycystic ovarian syndrome is the commonest cause of hirsutism in Bangladesh. Usually the patients are below thirty years of age and above normal bodyweight, most of them have altered LH to FSH ratio but not raised testosterone.

**Keywords:** Hirsutism, Hyperandrogenism, Gonadotropins, polycystic ovarian syndrome.

### Introduction

Hirsutism, a feature of hyperandrogenism, is a common but generally overlooked disorder, especially in the rural area of Bangladesh. Hirsutism is defined as excessive terminal hair

that appears in a male pattern in a woman. Terminal body hairs are normally seen in men on the face, chest, abdomen and back, and which are not normal in women<sup>1</sup>. Numerous scoring systems are available for quantifying hirsutism. One of the most detailed scales was proposed by Ferriman and Gallwey<sup>2</sup>. It is a common clinical condition which affects 5–10% of women of reproductive age. Hirsutism is extremely distressing for patients and has a significant negative impact on their psychosocial health<sup>3</sup>. Polycystic ovary syndrome (PCOS) and idiopathic hirsutism (HI) are the two most common causes of hirsutism<sup>4</sup>.

PCOS is the most common endocrinopathy in women which is characterized by hyperandrogenemia and chronic anovulation. Rotterdam criteria have been generally used to describe PCOS, based on the exclusion of other androgen excess disorders and the presence of any two of oligoovulation or anovulation, clinical and/or biochemical hyperandrogenism, and polycystic ovaries on ultrasonography<sup>5</sup>.

HI, the second most common cause of hirsutism after PCOS, is considered when hirsutism is associated with normal ovulatory function and normal circulating serum androgen concentrations. The pathogenesis of HI is still unclear, although increased activity of peripheral 5-alpha reductase enzyme<sup>6</sup>, androgen receptor gene polymorphism<sup>7</sup>, and increased sensitivity of hair follicles to androgens have been proposed<sup>8</sup>.

In Bangladesh, especially in rural area, hirsutism is under-diagnosed and untreated condition due to lack of unawareness of the patients as well as lack of access to required health resources like specialist doctor and

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hormonal assessment<sup>9</sup>. The objective of the study was to find out the status of clinical features, gonadotrophins, testosterone and ovarian ultrasonography with patients with hirsutism.

## Materials and Methods

In the study total 51 patients of reproductive age were under record review in between the period of February, 2015 to April, 2017. All of them were outpatients at the Endocrinology of the Diabetic Association Medical College, Faridpur.

It was a descriptive cross-sectional record review. The patients with hirsutism were nonpregnant woman of reproductive age, between menarche to 40 years, not taking medication like oral contraceptive pill (OCP), antidiabetic or antihypertensive medicine for last six months. Exclusion criteria of the study group were primary amenorrhoea; pregnancy; systemic disease (liver, kidney, heart or any other systemic diseases); age >40 years and <13 years; patient taking any of the above mentioned medications and associated other endocrine disorders (e.g. hypothyroidism, hyperprolactinemia and congenital adrenal hyperplasia) related to hirsutism.

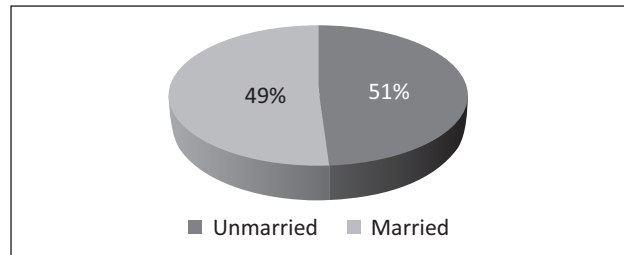
Detail history related to hirsutism, features of hyperandrogenism (i.e. acne, baldness) and menstruation was recorded. Height in cm (using free-standing stadiometer in bare foot), weight in kg (in a weighting scale, bare foot, light clothing) were recorded including body mass index (BMI) using the formula:  $BMI = \text{weight (in kg)} / \text{height (in metre}^2)$  and used Asia-Pacific guideline BMI cut off for categorizing patients into four groups: underweight (<18.5 kg/m<sup>2</sup>), normal weight (18.5–22.9 kg/m<sup>2</sup>), overweight (23–24.9 kg/m<sup>2</sup>), and obese (≥25 kg/m<sup>2</sup>)<sup>9</sup>. Hormone profile was recorded on between day two and day four of menstrual cycle. For amenorrhic patients, blood assayed record after menstruation induced using progesterone. FSH, LH and total testosterone were also taken in consideration. Adnominal ultrasonography was also taken into consideration to look for gonadal structure.

## Results

**Table 1:** Distribution of the patient according to age group (n=51)

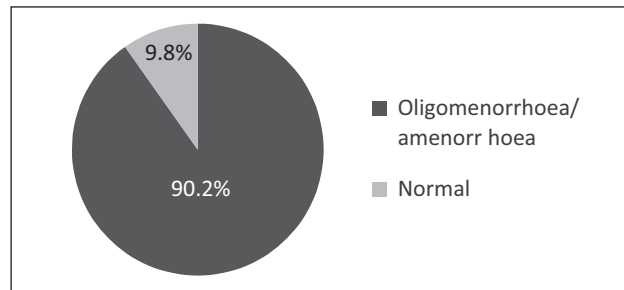
Age (in years)	Number	Percentage
≤20	16	31.37%
21 - 30	30	58.83%
31 - 40	5	9.80%
Total	51	100%

Table 1 shows that among the patients, seeking for the management of hirsutism, 16 (31.37%) were less than twenty years and 30 (58.83%) were twenty to thirty years of age.



**Figure 1:** Distribution of the patients according to Marital status.

Number of the married and unmarried patient was almost equal (26 vs 25).



**Figure 2:** Distribution of the patients according to menstrual pattern.

Figure 2 shows that 46 (90.2%) of the patients suffering from hirsutism had menstrual abnormalities, either oligomenorrhoea or amenorrhoea.

**Table 2:** Distribution of the patients according to Body Mass Index (BMI) (n=51)

Category	Number	Percentage
Underweight (<18.5 kg/m <sup>2</sup> )	2	3.92%
Normal weight (18.5–22.9 kg/m <sup>2</sup> )	11	21.57%
Overweight (23–24.9 kg/m <sup>2</sup> )	7	13.73%
Obese (≥25 kg/m <sup>2</sup> )	31	60.78%
Total	51	100%

Table 2 shows that about two-third of the patients were overweight to obese (13.73% + 60.78% = 74.51%) according to recorded BMI; lowest was 17.7kg/m<sup>2</sup> and highest was 37.6kg/m<sup>2</sup> with a median 25.6kg/m<sup>2</sup>.

**Table 3:** Distribution of the respondents according to hormonal profile (n=51)

Hormonal profile	Number (Multiple Answer)	percentage
Raised testosterone	5	9.80
Raised LH	12	23.53
LH:FSH >1	43	84.31
<b>Total</b>	<b>51</b>	<b>100%</b>

Table 3 shows that, only 9.8% of the patient had raised level of testosterone, 23.53% patient had raised luteinizing hormone but most of the patient (84.31%) had altered luteinizing and follicle stimulating hormone pattern that is LH to FSH ratio became >1.

**Table 4:** Distribution of the patients according to abdominal ultrasonography finding (n=51)

Finding	Number	Percentage
Polycystic	17	33.33
Prominent	9	17.65
Single cyst	5	9.80
Normal	20	39.22
<b>Total</b>	<b>51</b>	<b>100%</b>

Table 4 shows that, 33.33% of the patient had polycystic changes with another 17.65% prominent ovaries which is also suggesting PCO while 39.22% showed normal ovarian picture.

## Discussion

Hirsutism feels to be more a cosmetic problem and affects the patient psychology very adversely, especially in Bangladeshi socio-cultural context. As referral system is not adequately developed and endocrinologists are not yet well familiar and adequately found beyond metropolitan cities in Bangladesh and often female are not well aware of the disorder, patients with hirsutism are not commonly treated in rural areas. That's why we could include small number of patients in our study and this is an important limitation of our study.

Patients with hirsutism, seeking treatment, were relatively younger (90.2% were within thirty years aged) and half of them were unmarried. It reflects that hirsutism is a disease of young age and women are more concerned cosmetically at unmarried or early married life. This also shows the increased incidence of weight gain in young generations, even in rural areas of Bangladesh. Previous studies also reported an association between obesity and hirsutism<sup>10,11</sup>.

Hirsutism is a major clinical sign of hyperandrogenism<sup>12</sup>. In the study we found only 5(9.8%) patient had raised circulating testosterone level. According to the study finding 47 (92.16%) patients had polycystic ovarian disease. The 2003 Rotterdam consensus workshop concluded that PCOS is a syndrome of ovarian dysfunction along with the cardinal features hyperandrogenism and polycystic ovary (PCO) morphology<sup>5</sup>. Notably, only two small studies in patients with PCOS (n= 24 and 58 respectively) did not identify significant differences in circulating androgens between patients with hirsutism and those without hirsutism<sup>13-15</sup>. On the other hand, we should emphasize that circulating androgens were measured in multiple centers by immunoassay method which quality and accuracy could not be confirmed. This represents a limitation of our study as well.

In conclusion, besides hyperandrogenaemia, abdominal obesity and young age are independently associated with the presence of hirsutism. According to the study finding, 47 (92.16%) patients with hirsutism had polycystic ovarian disease. In the study by Carmin E (n= 950), PCOD was the cause of hirsutism in 72.1% of patients<sup>16</sup>. Higher number of PCOD cases was found as cause in this study may reflects ethnic susceptibility for hirsutism or failure to exclude some other important causes of hirsutism. Given the beneficial effects of lifestyle changes on both circulating androgens, obesity and PCOS<sup>17</sup>, they should be encouraged as the cost effective first-line intervention for the management as well as prevention of hirsutism in Bangladesh, especially in younger women.

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