

## A Study of Hormonal profile in Hirsutism patients- A prospective observational study in a Tertiary Care Hospital

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### Abstract

**Background:** Hirsutism is defined as the presences of excessive terminal hair in androgen-dependent areas of a woman's body i.e. face, chest, abdomen, upper thigh and areola.

**Aim:** To study the hormonal profile (T3, T4, TSH, LH:FSH, Prolactin, Testosterone) in hirsutism patients.

**Objectives:** To study the hormonal imbalance (T3, T4, TSH, LH:FSH, Prolactin, Testosterone) in hirsutism patients attending Dermatology OPD of C.R Gardi Hospital over a period of 1 year.

**Materials & Methods:** Thirty patients were enrolled in the study between the age group of 18-45 years who had hirsutism and investigated for various hormone levels i.e.- T3, T4, TSH, LH:FSH, Prolactin & Testosterone.

**Results:** Out of Thirty patients, Testosterone level was raised in 13 (43.3%) and normal in 17 (56.7%) patients. LH/FSH ratio was raised in 14 (46.7%) while normal in 16 (53.3%) patients. TSH level was raised in 2(6.7%) and normal in 28(93.3%) patients. Prolactin level was raised in 10 (33.3%) patients. T3 level was normal in 28(93.3%) and decreased in 2 (6.7%). T4 level was normal in 28 (93.3%) and decreased in 2 (6.7%).

**Conclusion:** It was concluded that hormonal imbalance is seen in patients presenting with hirsutism and hormones like Testosterone was raised in 13 (43.3%), LH:FSH was raised in 14 (46.7%) and Prolactin level was raised in 10 (33.3%) cases.

**Keywords:** Hirsutism, Hormone, LH:FSH, Testosterone, Prolactin.

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### Introduction

Hirsutism is defined as the presences of excessive terminal hair in androgen-dependent areas of a woman's body i.e. face, chest, abdomen, upper thigh and areola. Hirsutism is a relatively common condition affecting about 5-10% of women of child bearing age group. Hirsutism can be classified broadly into 2 groups viz. androgen induced and non-androgen induced. Androgen induced can either be due to excessive endogenous androgen production (ovarian/adrenal) or exogenous due to drugs. Central over production of androgens, increased peripheral conversion of androgens, decreased metabolism and enhanced receptor binding are potential causes of hirsutism. Non-androgen induced hirsutism can be idiopathic, familial or drug induced.<sup>[1]</sup> Idiopathic hirsutism is diagnosable in women who have normal ovulatory function and normal androgen level.<sup>[2]</sup> The modified Ferriman-Gallwey (F-G) score is used to determine the severity of hirsutism by assessing the extent of hair growth in nine key anatomical sites.<sup>[3]</sup> Studies indicate that hirsutism in Indian women is not uncommon.<sup>[4]</sup> Idiopathic hirsutism is the most common presentation in them.<sup>[5,6]</sup> Face, chest and lower abdomen have a higher impact on hirsutism score, whereas areas like upper back, abdomen and lower back are rarely involved in Indian women.<sup>[6]</sup>

### Materials & Methods

The present study was a prospective observational study conducted among patients attending Dermatology OPD in C.R Gardi Hospital, Ujjain, Madhya Pradesh

with a diagnosis of hirsutism. A total of 30 cases of clinically diagnosed hirsutism patients of reproductive age group(18-45 years) constituted the subject material for the present study. These patients belonged to Ujjain and its adjoining areas. Prior approval for the study and the protocol was obtained from the ethical committee. Pregnant or lactating women and those who received oral contraceptive pills and/or other anti-androgen drugs in the past three months were excluded. Informed written consent was taken from the cases for inclusion in the study. Detailed history and clinical examination was done. Routine investigations and hormonal profile i.e.- T3,T4,TSH, LH:FSH, Testosterone and Prolactin was sent to the biochemistry laboratory of the C.R. Gardi Hospital.

The data's were collected and transferred to SPSS version 16 and analyzed accordingly. Conclusion was established on the grounds of all findings.

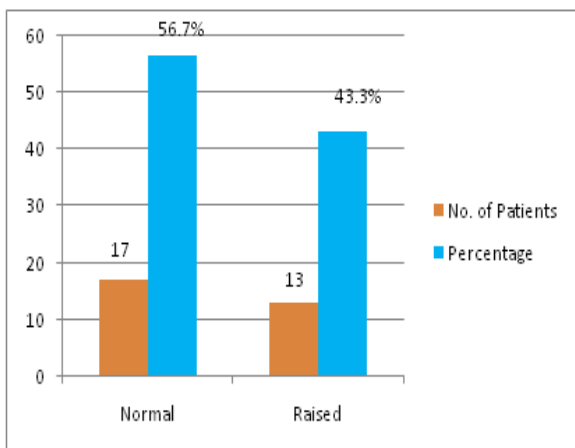
### Results & Observations:

This study was carried out in department of Dermatology, Venereology and Leprology, R.D. Gardi Medical College and C.R Gardi Hospital, Ujjain over a period of one year. Thirty patients with an age range of 18-45 years were enrolled.

**Table 1: Distribution of cases according to Testosterone Level**

Testosterone level	No. of patients	Percentage
Normal	17	56.7
Raised	13	43.3
Total	30	100.0

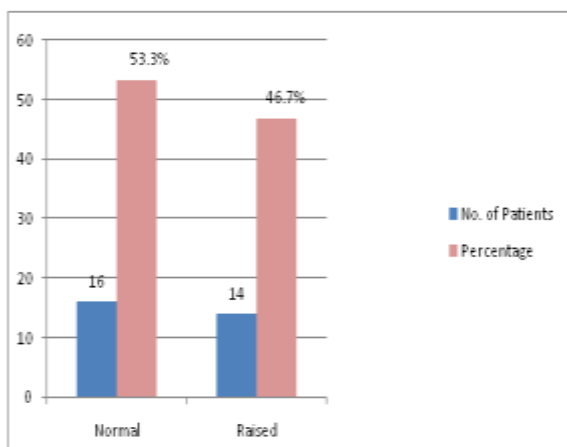
Out of 30 patients, Testosterone level was found to be raised in 13 (43.3%) patients and normal in 17 (56.7%).



**Table 2: Distribution of cases according to LH:FSH Level**

LH/FSH Ratio	No. of patients	Percentage
Normal	16	53.3
Raised	14	46.7
Total	30	100.0

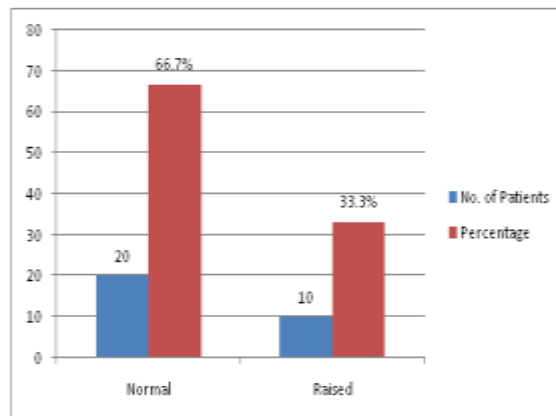
In this study, LH/FSH Ratio was raised in 14 (46.7%) and was normal in 16 (53.3%) patients.



**Table 3: Distribution of cases according to Prolactin Level**

Prolactin level	No. of Patients	Percentage
Normal	20	66.7
Raised	10	33.3
Total	30	100.0

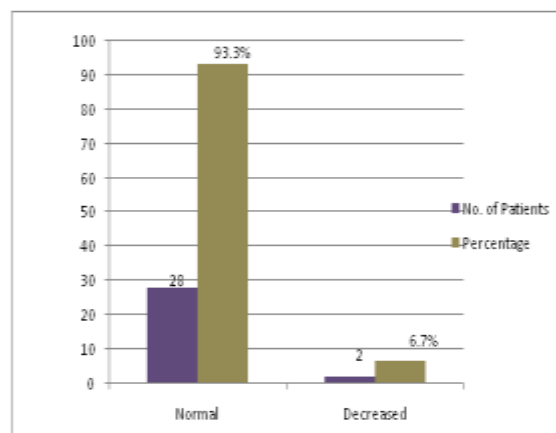
Prolactin level was raised in 10 (33.3%) patients and was found to be normal in 20 (66.7%).



**Table 4: Distribution of cases according To T3 Level**

T3 Level	No. of patients	Percentage
Normal	28	93.3
Decreased	2	6.7
Total	30	100.0

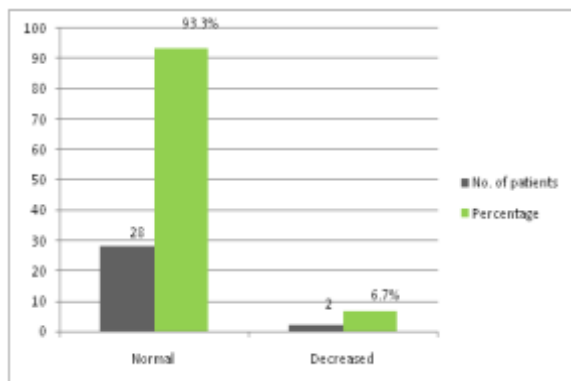
T3 level was normal in 28 (93.3%) and decreased in 2 (6.7%).



**Table 5: Distribution of cases according To T4 Level**

T4 level	No. of patients	Percentage
Normal	28	93.3
Decreased	2	6.7
Total	30	100.0

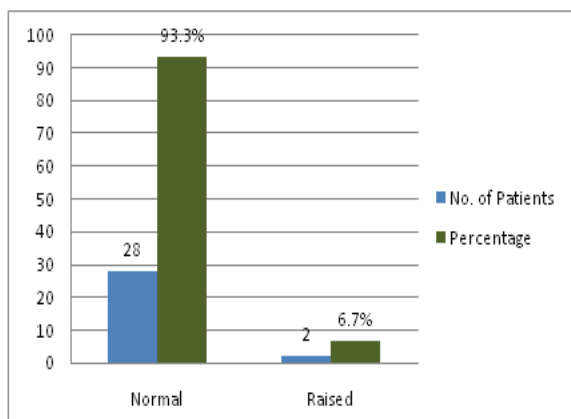
T4 level was normal in 28 (93.3%) patients and decreased in 2 (6.7%).



**Table 6: Distribution of cases according to TSH Level**

TSH Level	No. of Patients	Percentage
Normal	28	93.3
Raised	2	6.7
Total	30	100.0

TSH level was raised in 2 (6.7%) and normal in 28 (93.3%) patients.



## 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. This study was carried out in the Department of Dermatology, Venereology and Leprology of C.R. Gardi Hospital, Ujjain over a period of one year. Thirty patients of hirsutism who presented in our hospital as outdoor were included in our study.

## Testosterone

In the present study, out of 30 patients, testosterone level was found to be raised in 13 (43.3%) patients and normal in 17 (56.7%). This is in accordance with the study of **Sunny Chhabra, Ram Krishnan Gautam, Bindu Kulshreshtha et al** where it was raised in 45% patients<sup>[7]</sup>, while **Al-Khawajah MM, Neel MA** reported increase in 36.5% patients<sup>[8]</sup> and **Zena Saeed Al-Fadhily** in 63% patients<sup>[9]</sup>.

## LH:FSH

In our study, LH/FSH ratio was raised in 14 (46.7%) patients and was normal (<2:1) in 16 (53.3%) patients. This is in accordance with the study of **Steinberger E, Smith KD, Rodriguez-Rigau LJ et al** where it was raised in 50% patients<sup>[10]</sup>. **Nand Lal Sharma, Vikram K Mahajan, Rashmi Jindal et al** reported rise in 34% patients<sup>[11]</sup>, while **Sunny Chhabra, Ram Krishnan Gautam, Bindu Kulshreshtha et al** reported raised levels in 60% patients<sup>[7]</sup>.

## Prolactin

In the present study, Prolactin level was found to be raised in 10 (33.3%) and normal in 20 (66.7%), while **Zena Saeed Al-Fadhily** reported prolactin level raised in 20% patients<sup>[9]</sup> and **Sunny Chhabra, Ram Krishnan Gautam, Bindu Kulshreshtha et al** reported raised in 32.5% patients<sup>[7]</sup>.

## T3, T4, TSH

In our study, thyroid profile was done for all hirsute patients enrolled for study. T3 level was decreased in 2 (6.7%) and normal in 28 (93.3%) patients. T4 level was decreased in 2 (6.7%) and normal in 28 (93.3%) patients. TSH level was found to be raised in 2 (6.7%) and normal in 28 (93.3%) patients.

In our Study, hypothyroidism was present in 6.7% patients, which is in accordance with the studies of **Ahmad QM, Shah IH, Sameem F, Kamili QU, Sultan J Indian J Dermatol** where it was 5.7% patients<sup>[12]</sup> and **Malik LM, Khurshed K, Haroon TS, Malik MA** where it was 4% patients<sup>[13]</sup>.

## Conclusion

Thirty patients of Hirsutism who presented in our hospital in one year were included in our study. Testosterone level was found to be raised in 13 (43.3%), LH/FSH ratio raised in 14 (46.7%) and increased Prolactin level in 10 (33.3%) cases. By knowing this we can plan out proper management for patients with hirsutism.

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