

Thyroid Profile In Infertile Women And Menstrual Dysfunction

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Source: Indian Medical Gazette

Introduction

It is only over past few years that dysfunctions of thyroid has been recognised as an entity in a wide variety of Gynecological disorders ranging from abnormal sexual development to menstrual disorders, anovulations, infertility and reproductive wastage when pregnancy is achieved. Subclinical hypothyroidism which is equally pathogenic passes unrecognised. Menorrhagia was the commonest disorder observed by Scott and Mussey (1964). Singh et al (1990) found oligomenorrhoea as the prominent menstrual abnormality. A large number of traditional investigation and bioassay of hormones have been practiced in the diagnosis of menstrual disorders and infertility for a long time, so by doing the thyroid profile (T3, T4, TSH) in all the cases of menstrual disturbances, infertility and in repeated pregnancy losses will help in diagnosis and treatment in time.

Material and Methods

In the present study an attempt was made to evaluate the role of thyroid hormones and TSH in infertility and menstrual disorders in J. L. N. Medical College, Ajmer. Cases were divided in two groups.

65 cases of infertility in which other test done were, serum prolactin and eudiometrical biopsy as routine with diagnostic laproscopy.

69 cases of menstrual irregularities whose eudiometrical biopsy was done in all cases as routine and ultrasound for pelvic organs.

Discussion

Infertility is defined as the failure of a couple to achieve a pregnancy despite one year regular unprotected sexual intercourse. One of the oldest human problem with widespread prevalence is infertility. Apart from social and economic consequences, infertility has a serious impact on a couple's personal relations and on their physical and mental health. A woman who fails to conceive or carry a pregnancy to term was a source of concern to the society and she herself regarded her plight as a disgrace. Accordingly childlessness is challenging condition to a physician which he has to consider as a disease and to treat it accordingly.

A large number of traditional investigations and bioassay of hormones have been practiced in the diagnosis and management of infertility for a long time. By extensive studies it has been proved that for normal sexual function, thyroid secretion of T3, T4 needs to be approximately normal. The actions of thyroid hormones can not be pinpointed to a specific function but probably result from a combination of direct metabolic effects on gonads and excitatory and inhibitory effects operating through anterior pituitary hormones that control sexual functions.

Shalvey et al (1994) studied the routine thyroid functions tests in infertile women and reported the low incidence of hypothyroidism in the pregnant patient is related to the close association between infertility and hypothyroidism. Patient with hypothyroidism can have either primary or secondary amenorrhoea but may be in compensated state with normal thyroxin (T4) levels achieved by increased thyroid stimulating hormone (TSH) secretion.

Menon et al (1995) studied menstrual dysfunction and thyroid disease and reported that there are contradictory reports regarding the types of menstrual disturbances seen in hypothyroidism and hyperthyroidism and a paucity of information in the Indian literature on the subject.

In the present study, in normal women the mean value for T3, T4 and TSH were 1.34 ng/ml, 8.80 g% and 2.06 MIU/L respectively (Table-I). In primary sterile women the values were found to be 1.00 ng / ml, 9.51 g / ml, 3.61 MIC / L respectively (Table-II). Although the values are within the normal range, there is wide variation in the range of blood levels of three hormones. On statistically analysis T3 and TSH level, in these women were found to be statistically significant (Table-III). Our results are in accordance with other reports (Hassler et al, 1958, Singh et al, 1990 and Agarwal et al, 1994).

The results of the present study are given in Table Nos. I to X.

Table I

T3, T4 and TSH Levels in Normal Women No. of the cases studied 48

Hormones	Range	Mean ± S. D.
T3 ng / ml	0.7 - 2.0	1.34 ± 0.34
T4 g%	6.1 - 13.0	8.80 ± 1.60
TSH miu / L	0.7 - 4.9	2.06 ± 1.03

Table II

T3, T4 and TSH Levels in Primary Sterile Women No. of the cases studied 65

Hormones	Range	Mean ± S. D.
T3 ng / ml	0.48 - 1.9	1.0 ± 0.34
T4 g%	3.20 - >20.0	9.51 ± 2.87
TSH miu / L	0.15 - 15.0	3.16 ± 2.80

Table III

Serum T3, T4 and TSH Levels in Normal and Primary Sterile Women

Subject (No.)	Thyroid Hormone Profile		
	T3 * ng / ml	T4 ** g%	TSH *** miu / L
Normal Women (48)	1.34 ± 0.34	8.80 ± 1.60	2.06 ± 1.03
Primary Sterile Women (65)	1.00 ± 0.34	9.51 ± 2.87	3.16 ± 2.80

- P value < 0.001
- ** P value > 0.05
- *** P value < 0.01

On assessing thyroid status of primary sterile women in relation to age 21.4% of these women showed hypothyroidism, 3.6% hyperthyroidism and 75% were euthyroid in 20-25 years age. They were 23.3% hypothyroid women, 3.3% hyperthyroid, 73.4% euthyroid women belonging to 26-30 years age while in primary sterile women belong to 31-35 age group, all were euthyroid (Table-IV). These findings indicate that with the advancement of age, thyroid status play no significant role in primary sterility which could be attributed to the effect of other female sex organ.

Table IV

Different age group	No. of the cases	Thyroid status		
		Hypothyroidism (%)	Hyperthyroidism (%)	Euthyroid (%)
20-25 Years	28	6(21.4)	1(3.6)	21(75)
26-30 Years	30	7(23.3)	1 (3.3)	22(73.4)
31-35 Years	7	Nil	Nil	7(100)

* P value < 0.001

** P value > 0.05

*** P value < 0.01

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While exploring the thyroid factor responsible for primary sterility it was found that 77% of the primary sterile women had normal thyroid status. Among these women 16.9% were considered border line cases. Out of this 3.07% had higher values and 13.83% had low values. Only 23% of primary sterile women, thyroid factor play significant role. Twenty percent of primary sterile women showed hypothyroidism and 3% hypothyroidism (Table-V). This finding was substantiative that hypothyroidism is one of the factors responsible for primary sterility in these women. This is in agreement to the report of Hassler et al (1958), Singh et al (1990) and Agarwal et al (1994).

Table V
Thyroid Factor in Primary Sterile Women

Cases No.	Normal %	Thyroid Factor			Border Line		
		Total (%)	High (%)	Low(%)	Total (%)	High (%)	Low (%)
Primary Sterile	50	15	2	13	11	2	9
Women (65)	76.93	23.07	3.07	20.00	16.90	3.07	13.83

In women with menstrual irregularities, out of 69 women with different menstrual irregularities, 18 (26%) showed abnormal thyroid status (Table VI). In amenorrhoea women 12 8.3% showed hyperthyroidism, 25% showed hypothyroidism, 66.7% were euthyroid (Table VII). This indicates hypothyroidism is one of the major factors causing amenorrhoea in these women Singh et al (1990), Menon et al (1995). A similar finding has been found. For oligomenorrhic 16.2% had hyperthyroidism (Table-VIII). Contradictory hypothyroidism was observed in 20% of the women with menorrhagia and 10% had hypothyroidism (Table-IX). In polymenorrhic women 20% showed hypothyroidism, 10% hyperthyroidism and 70% euthyroid (Table-X). Our results are in accordance with other reports Singh et al (1990), Menon et al (1995).

Table VI
Thyroid Profile in Different Menstrual Irregularities

Total	Cases Studied	Abnormal Thyroid Factor	Percentage
	69	18	26.08

Table VII
Thyroid Profile in Amenorrhoea No. of Cases Studied 12

Thyroid Status	Number	Percentage
Hypothyroid	1	8.3
Hyperthyroid	3	25.0
Euthyroid	8	66.7

Table VIII
Thyroid Profile in Oligomenorrhoea No. of Cases Studied 37

Thyroid Status	Number	Percentage
Hypothyroid	2	5.4
Hyperthyroid	6	16.2
Euthyroid	29	78.4

Table IX
Thyroid Profile in Menorrhagia No. of Cases Studied 10

Thyroid Status	Number	Percentage
Hypothyroid	2	20
Hyperthyroid	1	10
Euthyroid	7	70

Table-X
Thyroid Profile in Polymenorrhoea No. of Cases Studied 10

Thyroid Status	Number	Percentage
Hypothyroid	2	20
Hyperthyroid	1	10
Euthyroid	7	70

Summary

The present study was carried out on 65 women clinically diagnosed for menstrual disorders attending the gynecology and obstetrics OPD / admitted in the wards of J. L. N. Hospital, Ajmer. In the women with primary sterility and menstrual disorder, although T4 and TSH levels were within normal limits, the levels were higher as compared to the normal women. T3 concentrations were slightly lower in these women.

In relation to age percentage of thyroid involvement in primary sterile women showed a decline trend.

20% of the primary sterile women showed hypothyroidism and 3.07% hyperthyroidism.

26% of a total women with menstrual irregularities showed abnormal values of the thyroid hormone.

In women with amenorrhoea 25% had hyperthyroidism, 8.3% hypothyroidism.

In women with oligomenorrhoea 16.2% had hyperthyroidism, 5.4% hypothyroidism.

In women with menorrhagia 20% had hypothyroidism and 10% hyperthyroidism.

In women with polymenorrhoea 20% had hyperthyroidism and 10% showed hyperthyroidism.

Implication of the results have been discussed.

So in our opinion T3, T4, TSH investigations are important for infertility cases and for menstrual irregularities. So that they can be treated according to medically and do not require any surgical intervention.

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