



THYROID PROFILE AND INFERTILITY IN WOMEN

Biochemistry

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ABSTRACT

Introduction: Low levels of thyroid hormone can interfere with the release of an egg from your ovary (ovulation), which impairs fertility.

Material and method: This prospective study was carried out in Obstetrics and Gynecology and biochemistry department of varun arjun medical college, shajahanpur, u.p., India. 50 subjects with 50 controls were enrolled for the study.

Result: we have found a significant p-value for thyroid profile.

Conclusion: So TSH screening of all females of early reproductive age group should be done so as to detect subclinical thyroid problem and to prevent infertility risk.

KEYWORDS

hypothyroid, infertile, menstrual disturbance, ovary dysfunction.

Introduction: Thyroid diseases are the most common endocrine disease in females at reproductive age.¹ Due to above mentioned features of thyroid hormones, evaluation of thyroid functions during both pregnancy and treatment of infertility and treating relevant pathologies become important. In early stage of pregnancy thyroid hormones are actively involved in the stage of placentation; because it was determined that T3 and epidermal growth factor have synergistic effect in the culture media.²

Hypothyroidism may lead to failure of sex steroids by disrupting the functioning of hypothalamo-pituitary ovarian axis. Thus, a clinical picture in close relationship with menstrual irregularity, infertility, miscarriage and complications of unwanted pregnancy may occur. The prevalence in the population is approximately 2-4%.³

Even though there are several rare causes of hypothyroidism as post-iodine 131 treatment, post thyroiditis and drug induced hypothyroidism, the main reason of hypothyroidism is immunological.⁴ Low levels of FT³ is the condition paving the way for symptoms of hypothyroidism and ovulatory dysfunction is the main clinical symptom of hypothyroidism. This condition leads to menstrual dysfunction 3 times more than the usual prevalence. The most common type of menstrual dysfunction is oligomenorrhea.⁵

Material and methods: This prospective study was carried out in Obstetrics and Gynecology and biochemistry department of varun Arjun medical college, shajahanpur, u.p., India.

Study participants & study period: All pregnant women admitted between october2017 - April 2018 in the hospital were examined.

Exclusion criteria: Patients with history of hyperuricemia, diabetes, renal diseases, cardiovascular illness, and symptomatic infectious diseases were excluded.

Sample size and sampling: 50 subjects with 50 controls were enrolled for the study.

Data collection: A after enrollment participants were grouped in normal and hypothyroid. Informed consent was taken from all the participants. The history of all participants was taken. Blood samples of participants were taken from right or left cubital vein and collected in plain and citrate tubes. We have done hormone profile by ELISA method.

Statistical Analysis: We used unpaired, t^{test} for comparing the mean level of thyroid profile in groups by online graph pad.

Results:

Table 1: Menstrual pattern in study groups:

parameters	case
Regular	15

oligomenorrhoea	30
amenorrhea	05
total	50

Table-2 serum thyroid profile in case and control

parameters	control	case	p-value
FT3 (1.4 - 4.2pg/ml)	2.34 + 1.6	1.01±0.4	0.0001
FT4 (0.8 - 2ng/ml)	1.25 + 0.17	0.35±0.13	0.0001
TSH (0.39-6.16µU/ml)	2.56 + 2.54	9.86±0.52	0.0001

Discussion:

The current study was designed to evaluate thyroid status in infertile women and its correlation with infertility. It is well known that in both sexes thyroid hormones influence sexual development and reproductive function.

Hypothyroidism from infancy, if untreated, leads to sexual immaturity and hypothyroidism beginning before puberty causes a delay in onset of puberty followed by anovulatory cycles.⁶ Thyroid dysfunction is a condition known to reduce the likelihood of pregnancy and to adversely affect pregnancy outcome. Findings of various studies correlate with findings of our study in which we get high prevalence of hypothyroidism in infertile as compared to control.^{1, 7} The prevalence of hypothyroidism in women of reproductive age (20-40 years) varies between 2% to 4%. Elahi et al (2007), in their study of infertile (140) and fertile women (152), also found most of the infertile women (89.3%), & control women (93.4%), were euthyroid.²

N. Akhter & S. A. Hassan (2009), in their study of 113 infertile women, they found that prevalence of sub-clinical hypothyroidism was 6.5% and 15%, in primary and secondary infertility respectively. Where as in our study we found 16.2 & 22.5% hypothyroid women in primary and secondary infertility respectively.^{6, 7}

The frequency of menstrual disturbances in hypothyroidism is approximately three times greater than in the normal population. The main menstrual irregularity observed in hypothyroid women was Oligomenorrhoea. This study was correlated with study of Goswami Binita et al (2009), study revealed that 62.5% of hypothyroid cases had menstrual disturbances.^{1, 8} Kumkum et al, had reported the menstrual abnormality to be 57.6% in their study.^{4, 10}

Oligomenorrhoea was observed in (50%). In the study done by Krasses et al (1999), the prevalence of menstrual irregularities (mainly Oligomenorrhoea) reached 23% among 171 hypothyroid patients, while being only 8% in 214 controls.¹¹

Conclusion: Identifying and treating hypothyroidism at an earlier stage before the appearance of ovulatory dysfunction and hyperprolactinemia, can have potentially great preventive value. So TSH screening of all females of early reproductive age group should be done so as to detect subclinical thyroid problem and to prevent infertility risk.

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