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Role of thyroid function tests in women with abnormal uterine bleeding

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Abstract
Background: Abnormal uterine bleeding is a common but complicated clinical presentation. It is one of the most frequently encountered conditions in gynecology and is defined as abnormal bleeding from the uterus.
Material and Methods: Present prospective study was conducted on 100 patients who presented with abnormal uterine bleeding
Results: Out of 35 hypothyroid patients, 21 had menorrhagia, 3 had oligomenorrhea and out of 9 patient with hyperthyroidism Patients, 6 had oligomenorrhea, 3 had Hypomenorrhoea.
Conclusion: The menstrual irregularities are significantly more frequent in patients with thyroid dysfunction and menorrhagia was the commonest menstrual abnormality. The study concludes that biochemical evaluation of thyroid function should be made mandatory in all cases of AUB.

Keywords: abnormal uterine bleeding (AUB), endometrial hyperplasia, menorrhagia, thyroid dysfunction

Introduction

A relationship between the thyroid gland and the gonads is suggested by the far more frequent occurrence of thyroid disorders in women than in men and by the common appearance of goiter during puberty, pregnancy and the menopause [1]. While activity of the thyroid is closely linked with the process of ovarian maturation, the thyroid gland is itself dependent on direct and indirect stimuli from the ovary to discharge its own function [2].

It is recognized universally that menstrual disturbances may accompany and even may precede thyroid dysfunction. In the present study thyroid status of patients presenting with abnormal uterine bleeding was assessed by TSH, T3, and T4 assay. Both hypothyroidism and hyperthyroidism may result in menstrual disturbances. Hyperthyroidism reduces menstruation and hypothyroidism causes menorrhagia. Hyperthyroidism in contrast is associated with a menorrhagia and oligomenorrhoea and the decrease in flow is proportional to the severity of the thyrotoxicosis [3].

The menstrual pattern is influenced by thyroid hormones directly through impact on the ovaries and indirectly through impact on SHBG, PRL and GnRH secretion and coagulation factors. Severe hypothyroidism is commonly associated with ovulatory dysfunction due to numerous interactions of thyroid hormones with the female reproductive system. Both hyperprolactinaemia, due to increased TRH production, and altered GnRH pulsatile secretion, leading to a delay in LH response and inadequate corpus luteum, have been reported [4-6]. Thyroid responsivity by the ovaries could be explained by the presence of thyroid hormone receptors in human oocytes [7]. Thyroid hormones also synergize with the FSHmediated LH/hCG receptor to exert direct stimulatory effects on granulosa cell function (progesterone production) [8], and in *in vitro* studies effects on differentiation of the trophoblast have been shown [9]. Another pathway through which hypothyroidism may impact on fertility is by altering the peripheral metabolism of oestrogen and by decreasing SHBG production. Both pathways may result in an abnormal feedback at the pituitary level. Independently of hormonal changes, hypothyroidism can also lead to menorrhagia by altered production of coagulation factors (decreased levels of factors VII, VIII, IX and XI) [10].

Materials and Methods

Study Design: Hospital based prospective study

Study Population: The study group comprise of females presenting with abnormal uterine bleeding.

Inclusion Criteria: Females presenting with abnormal uterine bleeding, with thyroid dysfunction.

Exclusion Criteria: Patients who will be pregnant, had an IUCD, will be known to have cervical or uterine malignancy, fibromyoma, polyp, etc, any coagulation disorders, liver/renal diseases or were on medications like steroids, neuroleptics, anticoagulants and cytotoxic drugs, etc.

Sampling Methods: convience sampling

Data Collection: After taking a detail history, including the menstrual and obstetric history, vitals will be taken and systemic examination will be done. Per abdomen examination, local examination, per speculum and per vaginum examination will be done. Ultrasonography will be done for all patients. Baseline investigations like Hb, platelet count, TLC, DLC, RBS, S. Creat, BT, CT and PT

will be done. S. TSH, FT3 and FT4 will be done.

Data Analysis

To collect required information from eligible patients a pre-structured pre-tested Proforma will be used. For data analysis Microsoft excel and statistical software SPSS will be used and data will be analyzed with the help of frequencies, figures, proportions, measures of central tendency, appropriate statistical test.

Results

Table 1: Age distribution of the patients.

Age (Years)	No. of cases	Percentage
15-19	9	9
20-25	22	22
26-30	25	25
31-35	19	19
36-40	15	15
41-45	10	10
Total	100	100

There were 100 women who were included in the study. Most of patients (25%) in 26-30 years age groups.

Table 2: Thyroid status

Thyroid Status	No. of cases	Percentage
Euthyroid	56	56.00
Hypothyroid	35	35.00
Hyperthyroid	9	9.00
Total	100	100

Among 100 women, 35 had hypothyroidism, 9.00 patient had hyperthyroidism rest 56were euthyroid.

Table 3: Pattern of Bleeding

Pattern of Bleeding	Hypothyroid (n=35)	Hyperthyroid (n=9)
Menorrhagia	21	0
Polymenorrhea	6	0
Acyclic	3	0
Oligomenorrhoea	3	6
Hypomenorrhoea	0	3
Metrorrhagia	2	0

Out of 35 hypothyroid patients, 21 had menorrhagia, 3 had oligomenorrhea and out of 9 patient with hyperthyroidism Patients, 6 had oligomenorrhea, 3 had Hypomenorrhoea.

Discussion

Among 100 women, 39 had hypothyroidism, 8 patient had hyperthyroidism rest 53 were euthyroid. Which was similar to study done by Joschi *et al*. [11] and N Bhavani *et al* [12]. One of the explanations is activity of thyroid is closely linked with the process of ovarian maturation. The thyroid gland is itself dependent on direct and indirect stimulation from the ovary to discharge its own function.

Out of 39 hypothyroid patients, 23 had menorrhagia, 3 had oligomenorrhea and out of 8 patient with hyperthyroidism Patients, 6 had oligomenorrhea, 2 had Hypomenorrhoea. Which was similar to study done by Scott and Mussey [13] and Kaur T *et al* [14].

Thyroid disorders are more common in women with menstrual irregularities ranging from menorrhagia to oligomenorrhea as compared to general population. Woman with hypothyroidism, commonly presents with anovulation and unopposed oestrogen activity causes endometrial hyperplasia which may outgrow the blood supply and may cause local areas of necrosis that breaks down and produces bleeding. In hypothyroid patients the menstrual abnormality is much more severe and anovulatory cycles are common.

Conclusion

The menstrual irregularities are significantly more in patients with thyroid dysfunction and may precede thyroid dysfunction. Thyroid dysfunction should be considered as an important etiological factor for menstrual abnormality. Biochemical estimation of T3, T4, TSH should be made mandatory in abnormal uterine bleeding.

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