



ORIGINAL RESEARCH PAPER

Gynaecology

A STUDY OF THYROID DYSFUNCTION IN WOMEN WITH ABNORMAL UTERINE BLEEDING

KEY WORDS: Thyroid, Abnormal uterine bleeding (AUB), Hypothyroidism, Hyperthyroidism, Menorrhagia, Oligomenorrhoea

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ABSTRACT

Objectives: To evaluate the incidence of thyroid dysfunction in women with abnormal uterine bleeding and to assess the different menstrual patterns associated with thyroid dysfunction.

Materials and Methods: Hospital based prospective study was conducted in the Department of Obstetrics and Gynaecology, Malabar Medical college, Modakkallur Kerala, India from 1st August 2015 to 31 st August 2016. The study group comprised of 120 women who attended Obstetrics and Gynaecology department with abnormal uterine bleeding.

Results: In the present among 120 women 63% were euthyroid, 32% were hypothyroid and 5% were hyperthyroid. Majority of the patients were in the age group of 41-50 years (56%) followed by 31-40 years. 36% of patient had menorrhagia and this was the commonest pattern of menstrual abnormality observed. 53.5% cases of hypothyroids were exhibiting menorrhagia, making it the commonest abnormal uterine bleeding pattern in them and of the total cases with hyperthyroidism, 58.6% had manifested with oligomenorrhoea.

Conclusion: There is high incidence of thyroid dysfunction in our area and it is an important etiological factor for abnormal uterine bleeding. Therefore thyroid function tests are mandatory in the evaluation of abnormal uterine bleeding.

Introduction

Abnormal uterine bleeding is a common clinical problem among women of reproductive age group and with the reported prevalence of about 17.9 % in India^[1]. By definition abnormal uterine bleeding is menstrual flow outside of normal volume, duration, regularity or frequency. Adolescent and perimenopausal women are affected most often. Thyroid hormones play a key role in the menstrual and reproductive function of women and thyroid disorders are 10 times more common in women than men^[2]. Women with thyroid dysfunction often have menstrual irregularities, infertility and increased morbidity during pregnancy. Although the reason is not clearly understood the high prevalence of thyroid disorders in women is possibly due to autoimmune nature of thyroid disorders. The objective of present study is to find the correlation between thyroid disorders and AUB in women attending gynecology OPD.

Thyroid responsiveness by the ovaries could be explained by presence of thyroid hormone receptors in human oocytes. 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^[3]. 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. Hypothyroidism is usually associated with heavy menstrual bleeding^[4]. Hyperthyroidism in contrast is associated with oligomenorrhoea and the decrease in flow. Subclinical hypothyroidism is defined as a serum thyroid stimulating hormone (TSH) above the defined upper limit of the reference range, with a serum free thyroxine (T4) within the reference range. Recently "occult" menorrhagia has been found to be an early manifestation of sub clinical hypothyroidism with disease becoming symptomatic later.

The relation between menstrual irregularities and thyroid disorders are attributed to multiple mechanisms^[5]. They are altered TSH response, TRH induced increased prolactin levels, altered LH response, peripheral conversion of androgens to oestrogens, altered SHBG and effect on the coagulation factors. In hypothyroidism, TRH induced hyperprolactinemia alter the GnRH pulsatile secretion and it leads to defective or delay in LH response leading to luteal phase defect and anovulation. For proper production of progesterone, the synergistic effect of FSH mediated LH receptor are important and they are directly influenced by thyroid hormones. Hypothyroidism also alters peripheral metabolism of oestrogens by decreasing SHBG production leading to abnormal feedback at pituitary level. Apart from effect on ovulation, hypothyroidism also causes menorrhagia by altering

coagulation factors i.e., decrease in factors VII, VIII, IX, XI. SHBG production increases in hyperthyroidism. The metabolism of oestrogen is altered and peripheral conversion of androgens to oestrogens is increased. Hyperthyroxinemia increases the gonadotropin response to GnRH and baseline gonadotropin concentrations are also frequently elevated. The decrease in menstrual flow may also relate to effects on haemostatic factors, including the synthesis of factor VII^[6].

Aims and Objectives

1. To find out the different patterns of menstrual abnormalities associated with thyroid disorders.
2. To determine the type of abnormal uterine bleeding pattern in relation to the different thyroid disorders (hypo and hyperthyroidism)
3. To evaluate the thyroid dysfunction in patients with abnormal uterine bleeding.

Materials and Methods

Study setting: The study was conducted in the Department of Obstetrics and Gynaecology, Malabar Medical college, Modakkallur Kerala, India

Study design: Hospital based prospective study.

Study period: from 1st August 2015 to 31 st August 2016

Study population: The study group comprised of females attending Obstetrics and Gynaecology department of Malabar Medical College, Modakkallur with abnormal uterine bleeding

Inclusion criteria: Females presenting with abnormal uterine bleeding

Exclusion criteria:

1. Refusal for participation in study
2. Women who are on drugs (like antiepileptic, antipsychotic etc) or hormone therapy
3. Pregnant women
4. Women with bleeding disorders

Sample size: This study consists of analysis of 120 gynaecological cases who have fulfilled the selection criteria.

Methodology

1) The study protocol included a thorough history taking with emphasis on age, bleeding pattern, onset, duration, quantity of bleeding and complaints related to thyroid dysfunction.

2) A thorough clinical examination including general physical examination, neck examination, systemic and gynaecologic

examination.

3) Routine blood investigations like Complete blood count, LFT, RBS, bleeding time, clotting time, urine routine examination and special investigations like ultrasound abdomen and pelvis, pap smear, endometrial biopsy.

4) All patients were subjected to T3, T4 and TSH assay.

5) T3 and T4 were assayed by competitive chemiluminescent immunoassay. TSH was estimated by ultra-sensitive fully automated ADVIA centaur, using two sites and which, chemiluminescent immunoassay and analysed.

Reference values:

Serum T4 – 60-120 ng/ml
 Serum T3 – 0.8-16 ng/ml
 Serum TSH – 0.5-5 mU/ml

Considering their normal values; patients were categorized into four groups as follows:

1. Euthyroid
2. Subclinical hypothyroid
3. Hypothyroid
4. Hyperthyroid

RESULTS

1. Table 1

Distribution of patients according to age

Age(years)	No of cases	Percentage(%)
<20	12	12%
20-30	8	6%
31-40	18	15%
41-50	68	56%
>50	14	11.6%

Table 1 shows that in women with abnormal uterine bleeding majority belong to the age group between 41 to 50 years (56%) followed by 31-40 yrs. (15%) and in extremes of age almost same percentage observed.

2. Table 2

Distribution of patients according to Bleeding pattern

Bleeding pattern	No of cases	Percentage
Menorrhagia	44	36%
Polymenorrhoea	28	23%
Polymenorrhagia	8	6%
Metrorrhagia	4	3%
Menometrorrhagia	2	1.6%
Oligomenorrhoea	21	17.5%
Acyclical	23	19.16%

According to table 2 the commonest cause of bleeding was menorrhagia (36%) followed by polymenorrhoea (23%), Acyclical bleeding (19%) and oligomenorrhoea (17.5%).

3. Table 3

Distribution of patient according to Thyroid dysfunction

Thyroid status	Patient No.	Percentage (%)
Euthyroid	76	63.3(%)
Hypothyroid	38	31.6(%)
Hyperthyroid	6	5(%)

Table 3 shows that among all women with abnormal uterine bleeding 63% are euthyroid. Among 41% of women with thyroid dysfunction 32% are hypothyroid and only 5% are hyperthyroid.

4. Table 4

Pattern of bleeding in relation to thyroid abnormality:

Pattern of bleeding	Hypothyroid	Hyperthyroid	Euthyroid
Menorrhagia	18 (40%)	0	26(60%)
Polymenorrhoea	10(35%)		18(65%)
Polymenorrhagia	2(25%)		6(75%)
Metrorrhagia	2(50%)		2(50%)
Menometrorrhagia	1(50%)		1(50%)

Oligomenorrhoea	11(52%)	10(47%)
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According to Table 4 menorrhagia was the commonest pattern of bleeding pattern in patients with hypothyroid (40%) followed by polymenorrhoea (35%). Other forms of menstrual abnormalities were less common and oligomenorrhoea was not seen in women with hypothyroidism. Among patients with hyperthyroidism oligomenorrhoea was the only pattern observed in the present study group (52%).

5. Table 5

Thyroid dysfunction according to age

Age	No. of patients	Euthyroid	Hypothyroid	Hyperthyroid
<20	12	7(58%)	4(33.3%)	1(8%)
21-30	8	4(50%)	3(37%)	1(12.5%)
31-40	18	10(55.5%)	6(33.3%)	2(11.1%)
41-50	68	42(61.7%)	18(26.4%)	8(11.7%)
>50	11	4(36.3%)	4(36.3%)	3(27.2%)

Above table shows that hypothyroidism was the common pattern of thyroid dysfunction observed in all age group. Hyperthyroidism was common in >50 age group followed by <20 age group.

Discussion

Thyroid dysfunction is common in women with abnormal uterine bleeding and menstrual irregularities ranges from oligomenorrhoea to menorrhagia^[7]. Thyroid disorders are more common in women with menstrual irregularities as compared to general population. Both hypothyroidism and hyperthyroidism may result in menstrual disturbances. Among 120 women, 63% were euthyroid, 32% were hypothyroid and 5% were hyperthyroid which was similar to study done by Scott and Mussey^[8], Joschi et al.^[9], Kaur T et al^[10] & N Bhavani et al^[11]. 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. In the present study, majority of the patients were in the age group of 41-50 years (56%) followed by 31-40 years. Das and Chugh et al reported that highest incidence of Dysfunctional uterine bleeding was seen in the 41-50 yrs (32.5 yrs) of age group and then 31-40 yrs (28.2%)^[12] sangeetha Pahwa et al, observed that majority of patients were in the age group between 31-40 yrs (42%)^[13]. In the present study 36% of patient had menorrhagia and this was the commonest pattern of menstrual abnormality observed. This result is quite similar to that of Pilli et al.;^[14] 34% and Moghal et al.;^[15] 41%. Again, 53.5% cases of hypothyroid were exhibiting menorrhagia, making it the commonest abnormal uterine bleeding pattern in them. This result is quite comparable to that of the study carried out by K Padmaleela et al.; 53.3%.^[16] The other studies with which the result of the present study is comparable are Rema V Nair et al.;^[17] 57.13% and Menon Bharucha et al.;^[18] 46.15%. In the present study, of the total cases with hyperthyroidism, 58.6% had manifested with oligomenorrhoea. The result is comparable to that of the results in the studies of Singh et al.;^[19] 63.6% and Lakshmi Singh et al.;^[20] 63.6%. In various studies, oligomenorrhoea was found to be the most common abnormal uterine bleeding pattern in patients presenting with hyperthyroidism.

Conclusion

As there is high incidence of thyroid disorder in our area, all women with abnormal uterine bleeding should have thyroid hormone assessment. Thyroid dysfunction should be considered as an important etiological factor for menstrual abnormality. Biochemical estimation of T3, T4, and TSH should be made mandatory in abnormal uterine bleeding. This evaluation of thyroid in abnormal uterine bleeding would also avoid unnecessary surgeries and exposure to hormones and this would also avoid unnecessary hormonal treatment and surgery in these patients.

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