



A TERTIARY CARE CENTER STUDY OF THYROID DISORDERS IN ABNORMAL UTERINE BLEEDING

Gynaecology

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ABSTRACT

This prospective study included consecutive 100 cases of abnormal uterine bleeding satisfying inclusion criteria in single institute. Abnormal uterine bleeding is most common complaint in gynecological and family practice with diverse etiology and presentation. Thyroid dysfunction was found to be much more prevalent in patients with abnormal uterine bleeding. Predominant thyroid dysfunction was hypothyroidism. Both hypothyroidism and hyperthyroidism were associated with large number of menstrual aberrations. Thyroid dysfunction should be considered as an important etiological factor for menstrual abnormality.

KEYWORDS

Abnormal uterine bleeding (AUB), Thyroid dysfunction, Menorrhagia, Oligomenorrhoea.

INTRODUCTION

One of the common causes of women attending gynaecology OPD is abnormal uterine bleeding, affecting one third of women in reproductive age group¹. Abnormal uterine bleeding (AUB) is a symptom and it is not a disease. Abnormal uterine bleeding is bleeding from the uterine corpus that is abnormal in regularity, frequency, duration or volume of menstrual flow and the causes may be physiological, pathological or pharmacological². Dysfunction uterine bleeding (D. U. B) is the diagnosis given to women with AUB in whom no clear etiology can be identified and it is a diagnosis of exclusion³. Abnormal uterine bleeding includes both DUB and bleeding from structural causes. Regular cyclic menstruation results from the choreographed relationship between the endometrium and its regulating factors. Any aberrations in either of these can result in abnormal bleeding. Causes of this bleeding include neoplastic growth, hormonal dysfunction, trauma, infection, coagulopathies, and complications of pregnancy.

AUB may be caused by one or more causes in a particular individual. AUB encompasses a wide spectrum of disorders such as reproductive tract diseases, systemic diseases and iatrogenic causes. Thyroid disorders accounts for around 30% - 40% of cases in systemic disorders causing AUB. The role of thyroid hormones has been indicated in a wide spectrum of reproductive disorders ranging from abnormal sexual development to menstrual irregularities to infertility and premature menopause. The effect of thyroid hormones is due to the direct metabolic effects on the gonads as well as indirectly through alterations in anterior pituitary hormones that control the sexual functions⁴.

Thyroid disorders are insidious and ubiquitous in their presentation. Both hypothyroidism as well as hyperthyroidism is associated with a variety of changes in reproductive function including delayed onset of puberty, anovulatory cycles and abnormally high foetal wastage⁵. Abnormal menstrual cycles are occasionally the first sign of hypothyroidism and hyperthyroidism. Moreover, thyroid dysfunction is an easily correctable cause of AUB. Appropriate treatment is rewarded by the prompt return of normal menstrual cycles. Hence our study aims to evaluate the thyroid function in patients having abnormal menstrual bleeding.

SUBJECTS AND METHODS:

This study was conducted on 100 consecutive patients presented with abnormal uterine bleeding in tertiary care hospital. Cases of metropathia (acyclical MPH)menorrhagia, polymenorrhagia, polymenorrhoea, menorrhagia, metrorrhagia, oligomenorrhoea, hypomenorrhoea were all included in this study.

Inclusion criteria:

- Patients in the age group of 16-45 years
- Patients with complaints of menstrual abnormalities
- Patients who do not have signs of demonstrable pelvic pathology including PID

Exclusion Criteria:

- Patients on anti-thyroid medication or on thyroxine replacement therapy.
- Patients who had undergone thyroid surgery or diagnosed with thyroid malignancy
- Patients with general disorders like tuberculosis or bleeding disorders
- IUCD users and patients who are taking anticoagulants.

Informed consent from each patient was obtained for the use of their clinical data and they were counselled for undertaking thyroid function test. All patients were subjected for T₃, T₄ and TSH estimation along with routine hematological investigations, coagulation profile and USG abdomen and pelvis. Patients were then grouped into 3 categories: Euthyroid, Hypothyroid and Hyperthyroid based on thyroid function test results. Detailed analysis of these patients was done using pretested pro-forma regarding various aspects such as age, parity, detailed menstrual history, thyroid function status, uterine size, anaemia, BMI, bleeding time and clotting time. Appropriate statistical methods were used to analyze results.

RESULTS:

In our study, in detail we have analyzed various presentations of abnormal uterine bleeding in association with thyroid disorders in 100 patients. 56 patients were in euthyroid state and thyroid dysfunction was noted in 44 cases. Mean duration of AUB was 5.9 months and 8.1 months in patients with normal and abnormal thyroid function respectively.

Hypothyroidism was present in 34 and hyperthyroidism in 10 patients.

Most of the patients belonged to the fourth decade of life i.e. 38 out of 100 cases, followed by third decade (33 cases) of life and second decade of life (18 cases). 11 patients were between 41-45 yrs age group. Thyroid dysfunction was commonest in the age group between 31-40 years (22 cases) and was least common in patients less than 20 years (2 cases).

Table 1: Incidence Of Thyroid Dysfunction In Different Age Group

Age	Euthyroid	Hypo thyroid	Hyper thyroid	Total thyroid dysfunction
<20 yrs (N=18)	16	2	0	2
21-30 yrs (N=33)	22	9	2	11
31-40 yrs (N=38)	16	19	3	22
41-45 yrs (N=11)	2	4	5	9
Total (N=100)	56	34	10	44

Among 100 cases of AUB, 10 patients were unmarried and nulliparous were 31. 18 patients were para 1, 25 patients were para 2, 16 patients were para 3. Thyroid dysfunction was commonest among nulliparous patients (18) and was least common in patients who were unmarried (3) and para 3 (3).

Table 2: Incidence Of Thyroid Dysfunction In Different Parity

Parity	Euthyroid	Hypo thyroid	Hyper thyroid	Total thyroid dysfunction
Unmarried (N=10)	7	3	0	3
Nullipara (N=31)	13	18	0	18
Para 1 (N=18)	13	2	3	5
Para 2 (N=25)	12	8	5	13
Para 3 (N=16)	11	3	2	5
Toatal (N=100)	56	34	10	44

The complaint of different bleeding pattern was observed. Commonest was menorrhagia (35%) and it was also most common presentation below 20 years, 31-40 yrs and 40-45 yrs age group. Among others 12% of cases presented with Acyclical (MPH), 20% with Oligomenorrhoea, 18% had polymenorrhagia, 9% had polymenorrhoea, 3% had Hypomenorrhoea, 3% had metrorrhagia.

Table 3: Incidence Of Menstrual Irregularities In Different Age Group

Type of bleeding	<20 yrs	21-30 Yrs	31-40 Yrs	>41 yrs
Acyclical (MPH) (N=12)	2	7	3	0
Hypomenorrhoea (N=3)	0	1	2	0
Menorrhagia (N=35)	9	7	14	5
Metrorrhagia (N=3)	1	1	0	1
Oligomenorrhoea (N=20)	3	7	8	2
Polymenorrhagia (N=18)	3	1	11	3
Polymenorrhoea (N=9)	0	9	0	0
Total(100)	18	33	38	11

Thyroid dysfunction which can be hypothyroidism or hyperthyroidism was related to various types of bleeding abnormalities and was commonest in patients with oligomenorrhoea (17/20). Thyroid dysfunction was absent in patients with metrorrhagia and hypomenorrhoea.

Table 4: Incidence Of Various Menstrual Irregularities In Thyroid Disorders

Type of bleeding	Eu thyroid	H y p o thyroid	Hyper thyroid	Total thyroid dysfunction
Acyclical (MPH) (N=12)	5	7	0	7
Hypo menorrhoea (N=3)	3	0	0	0
Menorrhagia (N=35)	22	7	6	13
Metrorrhagia (N=3)	3	0	0	0
Oligomenorrhoea (N=20)	3	13	4	17
Polymenorrhagia (N=18)	16	2	0	2
Polymenorrhoea (N=9)	4	5	0	5
Total (N=100)	56	34	10	44

22 in euthyroid and 20 in thyroid dysfunction group had bulky uterus on USG examination. The mean BMI in euthyroid was 23.21 and in patients with thyroid dysfunction was 27.18. The mean values of haematological investigations like hb%, bleeding time, clotting time and platelet counts observed in the study were compared.

Table 5: Comparison Of Observed Hematological Parameters In The Study

Hematological parameters	Euthyroid (N=56)	Thyroid dysfunction (N=44)
Hemoglobin (gm%)	11.76	9.89
Bleeding time (sec)	119.21	118.36
Clotting time (sec)	356.4	358.6
Platelet count (lakh)	3.54	3.60

DISCUSSION:

In our study, the age of patients ranged from 16 to 45 yrs. The peak incidence of AUB was in 31 to 40yrs age groups with 38%. The most common type of bleeding pattern in this study was menorrhagia (35%). Pilli et al too showed an incidence of 34% of menorrhagia in patients with AUB⁶. Maximum incidence of abnormal uterine bleeding was seen in the parity of 1-3 (59%), even though nulliparous (31%) women presented earlier. Menorrhagia was the common bleeding pattern in age groups less than 20yrs, 31-40 yrs and 41-45 yrs. Polymenorrhoea was common pattern in the age group of 21-30 yrs.

Normal thyroid function is critical for normal functioning of the gonadal axis. It has long been recognized that thyroid dysfunction may have profound effects on the female reproductive system. Joshi et al. observed 45 % increased incidence of AUB in thyroid dysfunction

patients⁷. In our study, the overall prevalence of thyroid abnormalities was 44%. Among them 34% had hypothyroidism and 10% had hyperthyroidism. Majority of thyroid dysfunction were in the age group of 31-40 years (50%). Nulliparous women constituted 41% suggesting correlation with reproductive dysfunction and thyroid abnormalities. 55.88% of patients with hypothyroidism belonged to the age group of 31-40 years probably due to the fact that majority of patients in this study belonged to that age group of 31-40 years. 50% patients with hyperthyroidism belonged to 41-45 yrs.

Menstrual irregularities are associated with both hypothyroidism (23.4% of cases) and hyperthyroidism (21.5% of cases)⁸. Both hypo and hyperthyroidism produce varying ranges of menstrual problems. In our study Oligomenorrhoea constituted the highest abnormality (38.6%) and there was no incidence of hypomenorrhoea or metrorrhagia in patients with thyroid dysfunction. The cause of oligomenorrhoea which is mostly associated with anovulation is related to either raised prolactin or T3 levels or due to hypothyroidism. Gonadotrophin level is being regulated by these hormones.

The most common menstrual pattern in hypothyroid patients in the present study was oligomenorrhoea (38.23%). Hypothyroidism is commonly associated with ovulatory dysfunction can results in changes in cycle length and amount of bleeding i.e. oligomenorrhoea and amenorrhoea, polymenorrhoea, and menorrhagia. This was explained by the galactorrhoea amenorrhoea syndrome in long standing hypothyroid patients. Menorrhagia was observed as second common abnormality in hypothyroidism with 20.5%. The mechanism explained was "it seems that poor progesterone production is associated with persistent endometrial proliferation which may be responsible for massive bleeding". Another, mechanism for this may be failure of LH secretion.

Menstrual changes associated with hyperthyroidism are unpredictable, ranging from amenorrhoea to oligomenorrhoea and normal cycles. In the study conducted by Padmaleela.et.al⁹, among hyperthyroid patients 42.8% had menorrhagia. In the study by Singh.et.al¹⁰ oligomenorrhoea was the commonest menstrual pattern (63.6%). The most common menstrual pattern in hyperthyroid patients in the present study was menorrhagia (60%). Oligomenorrhoea in hyperthyroidism was observed in 40%. Oligomenorrhoea in hyperthyroidism may be due to poor responsiveness to LH or increase in hormone binding globulins producing a decrease in free available oestradiol, which in turn may produce menstrual anomalies.

There was also significance between duration of symptoms and presence of thyroid abnormalities. The duration of symptoms was higher in patients with thyroid dysfunction compared to normal patients. BMI abnormality in the present study correlated with thyroid abnormalities as majority of thyroid dysfunction patients were in upper limit of overweight, mainly in hypothyroid patients presented with menorrhagia. Thyroid dysfunction affects the haemostatic mechanisms by altering the production of coagulation factors involved in menstruation. No significant differences were noted in platelet count, bleeding time and clotting time. Only hemoglobin levels showed significant difference. Prevalence of anemia in thyroid dysfunction could be due to impaired synthesis of hemoglobin, pernicious anemia or increased loss of iron in menorrhagia. Our study has limitation that we didn't include subclinical cases of thyroid dysfunction and relationship of thyroid hormone levels with abnormal bleeding.

CONCLUSION

Patients with AUB belonged to various age groups ranging from below 20 years to 45 years and commonest bleeding pattern was menorrhagia. Thyroid dysfunction was found to be much more prevalent in patients with abnormal uterine bleeding. Majority of thyroid dysfunction patients were parous women and in the age group of 31-40 years. Hypothyroidism was more common than hyperthyroidism. Thyroid dysfunction was also marked by large number of menstrual aberrations. The most common menstrual pattern in patients with hypothyroidism and hyperthyroidism was oligomenorrhoea and menorrhagia respectively. Obesity and anemia had got close association with thyroid dysfunction. We recommend that biochemical evaluation of thyroid functioning should be made mandatory in all cases of AUB to detect thyroid dysfunction.

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