

A Study of Thyroid Dysfunctions in cases with Abnormal Uterine Bleeding Reporting to RIMS, Adilabad

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Received: 25-08-2021 / Revised: 14-09-2021 / Accepted: 08-10-2021

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Conflict of interest: Nil

Abstract

Introduction: Dysfunctional uterine bleeding is the term used to describe abnormal bleeding from the uterus in absence of organic genital tract disease or extragenital causes. It is a common presentation in Gynecology practice. This study aimed to evaluate the association of thyroid dysfunctions in cases of abnormal uterine bleeding reporting to RIMS Adilabad.

Methods: This cross-sectional study was done in the Department of Obstetrics and Gynecology, Rajiv Gandhi Institute of Medical Sciences, RIMS, Adilabad. Retrospective case records of patients reported to RIMS with Abnormal uterine bleeding were analyzed. N=80 cases with abnormal bleeding were included in the study. **Results:** The incidence of thyroid dysfunctions were found in n=15(18.75%) out of which n=12 were found to be hypothyroid and n=3 were diagnosed as hyperthyroid cases. the average FT3 was 4.5 ± 0.65 pmol/L the average FT4 was 18.66 ± 1.54 pmol/L and TSH was 4.22 ± 0.87 μ IU/L. Most patients had menorrhagia n=34(42.5%) followed by Polymenorrhea n=14 (17.5%), Amenorrhea n=12(15%), Oligomenorrhea n= 10(12.5%), Polymenorrhagia n=8(10%) and Hypomenorrhea n=2(2.5%). **Conclusion:** Thyroid dysfunctions remain one of the critical causes associated with abnormal uterine bleeding disorders. The most common menstrual abnormalities seen are menorrhagia followed by polymenorrhoea in hypothyroid patients. Since thyroid dysfunction is a crucial cause of menstrual disorders, estimation of thyroid status should be done in all women with menstrual disorders.

Keywords: Abnormal Uterine Bleeding, Thyroid dysfunctions, hypothyroidism, hyperthyroidism.

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Introduction

Thyroid hormones play a vital role in female reproductive physiology because of their direct effects on ovaries and indirect effect on sex hormone-binding globulin. Thyroid dysfunction can lead to menstrual irregularities and infertility [1]. In the

Indian scenario, thyroid dysfunctions are among the commonly encountered endocrine diseases [2]. The onset of thyroid disorders increases with age, and it is estimated that 26 % of premenopausal and menopausal women are diagnosed

with thyroid disease [3]. Thyroid disorders are more frequently found in females as compared to males and in older adults compared with younger age groups [4]. It has been long recognized that thyroid dysfunction may have profound effects on the female reproductive system. A relationship between the thyroid gland and the gonads is suggested by far more frequent occurrence of thyroid disorders in women than in men by clinical appearance of goiter during pregnancy, puberty, and menopause. Recently it has been found that cases of subclinical thyroid dysfunctions are being commonly found in patients that overt thyroid dysfunctions [1]. 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 sexual functions [4]. One of the common causes of women attending Gynecology OPD is abnormal uterine bleeding constituting around 30 percent [5]. Majority of women who present with a bleeding problem, no underlying abnormality could be made out. The commonly performed surgical procedures include fractional curettage and in some cases hysterectomy. Abnormal Uterine bleeding (AUB) encompasses a wide spectrum of disorders such as reproductive tract diseases, systemic diseases, and iatrogenic causes. It has been estimated that 30 – 40% of cases of AUB are also associated with a certain form of thyroid dysfunctions [5]. The goal of the evaluation of AUB is to arrive at an accurate and clinically useful diagnosis most efficiently and cost-effectively as possible. A thyroid function test is helpful in women presenting with AUB to detect subclinical conditions and provide an opportunity to treat the cause. Timely detection of Thyroid disorder in patients presenting with menstrual disorders and their management can prevent surgical intervention like curettage and hysterectomy. This will avoid unnecessary

hormonal treatment, surgery and reduce patient morbidity [5]. Thyroid autoimmunity has been shown to have an association with various kinds of thyroid dysfunction. Although there are foreign studies to relate the occurrence of thyroid dysfunction in women with menstrual disorders, the data from Indian studies are sparse in this regard [6,7]. Therefore, the present study was conducted to determine the association between menstrual irregularities and thyroid dysfunction.

Material and methods

This cross-sectional study was done in the Department of Obstetrics and Gynecology, Rajiv Gandhi Institute of Medical Sciences, RIMS, Adilabad. All the case records of patients reported to RIMS with Abnormal uterine bleeding were analyzed from the period of 01/10/2020 to 30/06/2021. Institutional Ethical committee permission was obtained for this study.

Inclusion criteria

1. Women in the age group of 18-45 years.
2. No organic disease of the genital tract.
3. Puberty menorrhagia.
4. Women with signs and symptoms of hypo/hyperthyroidism.
5. Women not on hormonal preparations

Exclusion criteria

1. Age more than 45 years
2. Presence of pelvic pathology like fibroids, polyp
3. Patients with a history of bleeding diathesis
4. Women on hormones, oral contraceptives, hormone replacement therapy

Retrospective case records from MRD section were analyzed. The information gathered was regarding the history of the case including a detailed menstrual history and questions regarding the signs and symptoms of hypothyroidism and

hyperthyroidism were noted. A detailed report of general examination focusing specifically on the presence/ absence of anemia, thyroid swelling, cardiovascular abnormality, gross nervous system dysfunction, galactorrhea, and abnormal hair distribution was noted. The measurement of height in centimeters and weight in kilograms was measured and the BMI calculations were noted. Abdominal, speculum examination and pelvic examination findings to rule out other causes of abnormal bleeding were noted. Laboratory investigations for TSH assay and FT₃, FT₄, estimations were noted. The physiological range of TSH was 0.4 to 4.0 μ IU/ml. The physiological range for FT₄

was 12.0 to 25.0 pmol/l. The physiological range for FT₃ was 2.0 to 6.0 pg/ml. Statistical analysis was done by loading the values on an MS Excel spreadsheet and analyzed by SPSS version 21 on Windows format for descriptive analysis.

Results

Based on the inclusion and exclusion criteria n=80 cases were analyzed in the current study. Out of the n=80 cases, the common type of abnormal uterine bleeding was menorrhagia in n=37(46.25%) followed by polymenorrhea was in n=10(12.5%) cases and another distribution of types of abnormal bleeding is depicted in table 1.

Table 1: Type of AUB in the study group

Type of Abnormal Uterine Bleeding	Frequency	Percentage
Menorrhagia	37	46.25
Polymenorrhea	10	12.5
Amenorrhea	9	11.25
Oligomenorrhea	12	15.00
Polymenorrhagia	10	12.5
Hypomenorrhea	2	2.50
Total	80	100

Among n=80 cases studied n=12 cases were with hypothyroidism, n=5 had subclinical hypothyroidism. A total of n=3 cases were hyperthyroid and n=1 had subclinical hyperthyroidism other cases were found to be Euthyroid based on the laboratory investigations of T₃, T₄, and TSH. The average FT₃ was 4.5 ± 0.65 pmol/L the average FT₄ was 18.66 ± 1.54 pmol/L and TSH was 4.22 ± 0.87 μ IU/L depicted in Table 2. The age-wise distribution of the cases revealed from 18 – 25 years we had n=9 cases out of which n=7 cases were euthyroid and n=1 case was hypothyroid and hyperthyroid each. In the age group 26 – 35 years, there were n=30 cases out of which n=8 cases were with hypothyroidism n=22 cases were euthyroid. In the age group, 36 – 45 years n=41 cases out of which n=3 cases were hypothyroid and n=2 cases were hyperthyroid and n=36 cases were euthyroid.

In the study, out of n=80 cases of the study with Abnormal Uterine bleeding it was observed that the majority of patients had menorrhagia n=34(42.5%) followed by Polymenorrhea n=14 (17.5%), Amenorrhea n=12(15%), Oligomenorrhea n= 10(12.5%), Polymenorrhagia n=8(10%) and Hypomenorrhea n=2(2.5%). N=15(18.75%) cases were diagnosed with various thyroid disorders. The common disorder in which thyroid functions were found to be abnormal was menorrhagia in n=8(10%) of all cases. The associated thyroid dysfunctions in these cases have been depicted in table 4. Most hypothyroid patients were also found to be anemic due to menorrhagia. Whereas hemoglobin was normal in most hyperthyroid patients.

Table 2: Free T₃ (pg/ml), T₄, and TSH distribution of patients studied

Levels	Frequency	Percentage
Free T₃ (pmol/L)		
<2.0	12	15.00
2.0-6.0	65	82.5
> 6.0	03	2.5
Total	80	100
Free T₄ (pmol/L)		
<12.0	12	15.00
12.0-25.0	65	82.5
>25.0	03	2.5
Total	80	100
TSH (μIU/L)		
<0.4	03	3.75
0.4 – 4.5	65	81.25
4.6 – 10.0	05	62.5
> 10.0	07	8.75
Total	80	100

Table 3: Distribution of BMI based on thyroid status

BMI range	Hypothyroid	Euthyroid	Hyperthyroid	Total
<18.9	0(0)	3 (3.75%)	2 (2.5%)	5(6.25%)
19.0 – 24.9	2(2.5%)	39 (48.75%)	1(1.25)	42 (52.5%)
25.0 – 29.9	9 (11.25%)	15 (18.75%)	0(0)	24 (30%)
> 30	1(1.25%)	8 (10.0%)	0(0)	9 (11.25%)
Total	12(15%)	65(81.25%)	3(3.75%)	80(100%)

Table 4: Incidence of thyroid Dysfunctions in different types of AUB

AUB	Hypothyroidism	Hyperthyroidism	Subclinical hypothyroidism	Subclinical hyperthyroidism
Amenorrhea	1(1.25%)	0(0%)	1(1.25%)	0(0%)
Menorrhagia	4(5.0%)	0(0%)	3(3.75%)	1(1.25%)
Oligomenorrhea	1(1.25%)	1(1.25%)	1(1.25%)	0(0%)
Polymenorrhea	1(1.25%)	0(0%)	0(0%)	0(0%)
Hypomenorrhea	0(0%)	1(1.25%)	0(0%)	0(0%)
Polymenorrhagia	0(0%)	0(0%)	0(0%)	0(0%)
Total	7(8.75%)	2(2.5%)	5(6.25%)	1(1.25%)

Discussion

In the present study, it was observed that most patients were in the age group 36-45 years (51.25%) followed by 26-35 years (37.5%). Similar observations were reported by ZA Yousfani et al., [8] where

they found the mean age 37.87 ± 6.87 years and maximum patients in the age group of 30-39 years (40%). PY Deshmukh et al., [9] in a similar study found the age group commonly involved with AUB was 31-40 years with 44% cases and age group 41-45 years 07%

cases. M Dhanapal et al., [10] find out the prevalence of subclinical hypothyroidism in reproductive age group women with abnormal uterine bleeding the mean age of women with thyroid dysfunction was 36 years. In the current study we found most patients had menorrhagia $n=34(42.5\%)$ followed by Polymenorrhoea $n=14(17.5\%)$, Amenorrhoea $n=12(15\%)$, Oligomenorrhoea $n=10(12.5\%)$, Polymenorrhagia $n=8(10\%)$ and Hypomenorrhoea $n=2(2.5\%)$. ZA Yousfani et al., [8] in their study found the common abnormality was menorrhagia in 40% of cases. PY Deshmukh et al., [9] found 15% cases with oligomenorrhoea, 40% cases with menorrhagia, and 18% with polymenorrhagia. Ajmani NS et al., [11] in a similar study found the $n=25(50\%)$ presented with menorrhagia, $n=10(20\%)$ had hypo/oligomenorrhoea, $n=8(16\%)$ had polymenorrhoea, $n=6(12\%)$ had metrorrhagia, and $n=1(2\%)$ had amenorrhoea. D Gurjar et al., [12] in the study of thyroid abnormalities in different types of AUB in the reproductive age group observed 44% of cases have menorrhagia, 32.2% have oligomenorrhoea and 19.6% have amenorrhoea type of menstrual pattern. In the current study, the average FT3 was 4.5 ± 0.65 pmol/L the average FT4 was 18.66 ± 1.54 pmol/L and TSH was 4.22 ± 0.87 μ IU/L. ZA Yousfani et al., [8] found the mean values of T3, T4 and TSH were 27.66 ± 6.75 ng/dL, 0.15 ± 1.53 ng/dL, and 72.98 ± 4.87 μ IU/L with thyroid abnormalities were detected in 80% of patients. S Bhattacharjee et al., [13] in their study observed hypothyroidism was common (71.66%) as compared to hyperthyroidism (28.33%) of cases agreeing with the observations of the current study. D Gurjar et al., [12] studied the thyroid abnormalities in different types of AUB in the reproductive age group observed around 79.6% had normal T4 level, 13.6% cases had T4 level less <4.8 μ g/dl, and only 6.8% cases had T4 level above normal limit >11.5 μ g/dl. Almost 72.8% of patients had TSH levels in the

normal range 0.5- 5.0 μ IU/ml and 9.2 % had TSH < 0.3 corresponding with cases of hyperthyroidism. Among the menorrhagia cases of the current study, 5% were with hypothyroidism 3.75% cases were with subclinical hypothyroidism and 1.25% cases were with subclinical hyperthyroidism. PY Deshmukh et al., [9] observed that in cases of menorrhagia 20% were hypothyroid and 12.5% were with subclinical hypothyroidism. Ajmani NS et al., [11] found in patients with menorrhagia 24% had subclinical hypothyroidism and 16% had overt hypothyroidism. In the current study, we found a lower incidence of hypothyroidism which could be due to the smaller sample size and nature of the study. However, all the studies in this field agreed to the fact that menorrhagia was the common abnormal uterine bleeding disorder and a higher incidence of thyroid dysfunctions which is mostly hypothyroidism is found in these cases.

Conclusion

Thyroid dysfunctions remain one of the critical causes associated with abnormal uterine bleeding disorders. The most common menstrual abnormalities seen are menorrhagia followed by polymenorrhoea in hypothyroid patients. Since thyroid dysfunction is a crucial cause of menstrual disorders, estimation of thyroid status should be done in all women with menstrual disorders. In patients with menstrual disorders if the thyroid dysfunctions are timely diagnosed and treated, the menstrual disorder will put an end to avoidable interventions such as hormonal treatment, surgeries like Dilatation and Curettage, Hysteroscopy, Hysterectomy.

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