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Prevalence of Thyroid Dysfunction in Reproductive Age Group Women with Abnormal Uterine Bleeding

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ABSTRACT

BACKGROUND
Abnormal uterine bleeding is a common gynecological complaint among women of reproductive age and significantly affects quality of life. Thyroid hormones play a crucial role in regulating menstrual function, and thyroid dysfunction is a potentially reversible cause of menstrual irregularities. Identifying thyroid abnormalities in women with AUB may help in early diagnosis, targeted treatment, and avoidance of unnecessary surgical interventions.

MATERIALS AND METHODS
This prospective observational study was conducted over 18 months at Government General Hospital, Kakinada. A total of 100 women aged 18–45 years presenting with abnormal uterine bleeding were included. Women with structural uterine pathologies, coagulation disorders, hormonal device usage, or systemic illnesses were excluded. Detailed clinical history, physical and gynecological examinations were performed. Laboratory investigations included a complete blood picture and thyroid profile (T3, T4, TSH). Ultrasonography of the abdomen and pelvis and an endometrial biopsy were done where indicated. Data were analyzed using SPSS software version 13.0.

RESULTS
The majority of participants belonged to the 41–45 years age group (47%). Heavy menstrual bleeding was the most common presentation (54%). Thyroid dysfunction was identified in 25% of cases, with hypothyroidism being the predominant abnormality (19%), followed by

subclinical hypothyroidism (2%), hyperthyroidism (3%), and subclinical hyperthyroidism (1%). A statistically significant association was observed between thyroid dysfunction and menstrual patterns ($p = 0.0001$). Hypothyroid women most commonly presented with heavy menstrual bleeding, while hyperthyroid women more frequently had infrequent cycles or amenorrhea. Most hypothyroid patients showed proliferative endometrium on histopathological examination.

CONCLUSION

Thyroid dysfunction, particularly hypothyroidism, is common among reproductive-age women presenting with abnormal uterine bleeding and shows a significant association with specific menstrual patterns. Routine thyroid function testing should be an integral part of the evaluation of AUB to enable early diagnosis, appropriate management, and prevention of unnecessary surgical procedures.

KEYWORDS

Abnormal Uterine Bleeding, Thyroid Dysfunction, Hypothyroidism, Menstrual Irregularities, Reproductive age Women.

INTRODUCTION

AUB (Abnormal uterine bleeding) refers to any deviation from normal menstrual bleeding with respect to amount, duration, frequency, or cyclicity.[1] It is one of the most common gynecological complaints encountered in clinical practice and affects approximately 15–20% of women between menarche and menopause, significantly impairing physical, social, and emotional well-being.[2] AUB may occur in both premenopausal and postmenopausal women and can manifest as heavy menstrual bleeding, irregular cycles, frequent bleeding, or infrequent menstruation. Increasing evidence suggests a strong association between AUB and thyroid dysfunction.[3,4]

The etiology of AUB is multifactorial and includes hormonal imbalances as well as benign and malignant pathologies of the female reproductive tract. Thyroid hormones play a vital role in regulating metabolism, growth, development, and the normal functioning of multiple organ systems, including the reproductive system.[5] In women of reproductive age, disturbances in thyroid function can disrupt normal menstrual physiology and contribute to abnormal uterine bleeding.[5,6] Thyroid disorders influence menstrual function through several mechanisms. They alter the hypothalamic–pituitary–ovarian axis, affect the peripheral conversion of androgens to estrogens, modify the levels of sex hormone–binding globulin, and influence coagulation factors and lipid metabolism.[7] These complex interactions can result in a wide spectrum of menstrual abnormalities ranging from menorrhagia to oligomenorrhea and amenorrhea.

Thyroid dysfunction is also associated with other reproductive health issues such as infertility, sexual dysfunction, and ovulatory disturbances in women of reproductive age. Several studies have demonstrated that hypothyroidism is more commonly associated with heavy menstrual bleeding, whereas hyperthyroidism is frequently linked to anovulation, oligomenorrhea, or amenorrhea.[8-14]

Given that thyroid disorders are common, often subclinical, and potentially reversible, early identification of thyroid dysfunction in women presenting with AUB is crucial. Routine evaluation of thyroid function may facilitate timely diagnosis, appropriate medical management, and prevention of unnecessary surgical interventions, thereby improving overall reproductive health outcomes.

Aims and Objectives

The present study aims to estimate the prevalence of thyroid dysfunction among women of reproductive age presenting with abnormal uterine bleeding. The objectives are to evaluate the association between menstrual irregularities and thyroid dysfunction, to analyze the pattern of menstrual abnormalities in women with thyroid disorders, to identify possible clinical predictors that may aid in early thyroid function testing and detection of subclinical disease, and to determine the prevalence of subclinical thyroid dysfunction in reproductive-age women with abnormal uterine bleeding.

MATERIALS AND METHODS

Study Design

This was a prospective observational study conducted among women of reproductive age attending the gynaecology outpatient department at Government General Hospital, Kakinada. The study was carried out at the same institution over a period of 18 months, during which eligible participants presenting with abnormal uterine bleeding were systematically evaluated to assess thyroid function and related menstrual abnormalities.

Inclusion and Exclusion Criteria

The study included women aged 18–45 years presenting with abnormal uterine bleeding, including complaints of heavy menstrual bleeding, frequent or infrequent menstrual cycles, scanty menstruation, or absence of menstruation, and those exhibiting clinical features suggestive of thyroid dysfunction, such as weight loss (>10 kg in 3 months), diarrhea, palpitations, and heat intolerance indicative of hyperthyroidism, or weight gain, dry skin, lethargy, and sleep disturbances suggestive of hypothyroidism. Women younger than 18 years or older than 45 years were excluded, as were those with identified structural uterine abnormalities such as polyps, adenomyosis, fibroids, or malignancy; coagulation disorders; endometrial hyperplasia; intrauterine contraceptive devices or progesterone-only pill use; and those on medications such as aspirin, heparin, or steroids.

Sample Size Calculation

100

Data Collection Procedure

Data were collected using a structured proforma that included detailed history taking with respect to age, parity, presenting symptoms, obstetric and family history, and comprehensive menstrual history, followed by a complete general physical examination. A thorough gynaecological examination was performed, documenting cervical position and any visible lesions, uterine size, position and abnormalities, and adnexal findings such as masses or tenderness. All participants underwent laboratory investigations, including a complete blood picture, liver and renal function tests, blood grouping and typing, and thyroid function tests. Radiological evaluation with ultrasonography of the abdomen and pelvis was carried out to assess pelvic pathology, and endometrial biopsy was performed where indicated for histopathological evaluation.

Statistical Analysis

All the data was entered into an Excel spreadsheet and was analyzed with SPSS software (version 13.0) with necessary statistical tests.

RESULTS

Age Group (in Years)	Frequency	Percentage
18–20	5	5%
21–30	16	16%
31–40	32	32%
41–45	47	47%
Total	**100**	**100%**
Table 1: Age Distribution of Study Population (n = 100)		

Table 1 illustrates that the majority of women with abnormal uterine bleeding belonged to the 41–45 years age group (47%), followed by 31–40 years (32%), indicating a higher prevalence in late reproductive and perimenopausal age groups.

Menstrual Disorder	Frequency	Percentage
Heavy menstrual bleeding	54	54%
Frequent menstrual cycles	20	20%
Infrequent menstrual cycles	10	10%
Scanty menstruation	4	4%
Absence of menstruation	12	12%
Total	**100**	**100%**
Table 2: Distribution of Menstrual Disorders		

Table 2 observes that heavy menstrual bleeding was the most common presentation (54%), followed by frequent cycles (20%), highlighting excessive bleeding as the predominant complaint in AUB patients.

Thyroid Status	Frequency	Percentage
Euthyroid	75	75%
Hypothyroidism	19	19%
Subclinical hypothyroidism	2	2%
Hyperthyroidism	3	3%
Subclinical hyperthyroidism	1	1%
Total	**100**	**100%**
Table 3: Thyroid Status of Study Population		

Table 3 shows that 25% of women with AUB had thyroid dysfunction, with hypothyroidism being the most common abnormality.

Diagnosis	HMB	Frequent	Infrequent	Scanty	Amenorrhea
Euthyroid	40	15	7	3	10
Hypothyroid	12	5	1	0	1
Subclinical hypothyroid	2	0	0	0	0
Hyperthyroid	0	0	2	0	1
Subclinical hyperthyroid	0	0	0	1	0
Table 4: Association between Menstrual Disorders and Thyroid Diagnosis					
$\chi^2 = 41.54$, $p = 0.0001$ (statistically significant)					

Table 4 demonstrates a statistically significant association between thyroid dysfunction and menstrual abnormalities. Heavy menstrual bleeding was predominantly seen in hypothyroid patients, while infrequent cycles and amenorrhea were more common in hyperthyroid states.

Symptom	Present (%)
Tiredness/Weakness	58%
Lethargy	55%
Slowness	51%
Heavy Menstrual Bleeding	54%
Altered Cycles/Amenorrhea	46%
Table 5: Distribution of Hypothyroid Symptoms	

Table 5 highlights that fatigue-related symptoms and heavy menstrual bleeding were the most frequent clinical features among women with hypothyroidism.

Feature	Percentage
Hyperactivity/Irritability	3%
Heat Intolerance	3%
Palpitations	1%
Infrequent Cycles/Amenorrhea	4%
Tremors	2%
Tachycardia	1%
Table 6: Hyper-Thyroid Symptoms and Signs	

Table 6 indicates that hyper-thyroid manifestations were infrequent and mostly subclinical, with menstrual irregularity being the most consistent finding.

Endometrial Pattern	Euthyroid	Hypothyroid	Hyperthyroid
Proliferative	61	14	2
Secretory	10	5	1
Hyperplasia	4	0	0
Table 7: Endometrial Biopsy Findings versus Thyroid Status			

Table 7 shows that proliferative endometrium was the most common histopathological finding, especially among hypothyroid patients, supporting the role of unopposed estrogen in thyroid-related AUB.

DISCUSSION

AUB is a frequent gynaecological problem in women of reproductive age, with endocrine dysfunction-particularly thyroid disorders-being a well-recognized and potentially reversible cause. The present study evaluated the association between thyroid dysfunction and AUB and compared the findings with existing literature.

In the present study, the highest proportion of women with AUB belonged to the 41–45-year age group, followed by 31–40 years. This predominance in late reproductive and perimenopausal age groups is comparable with observations by Kriti Verma et al.,[15] Patil et al.,[16] and Priyanka et al.,[17] who reported maximum incidence in women aged 30–45 years. The higher prevalence in this age group may be attributed to hormonal fluctuations, increasing anovulatory cycles, and cumulative endocrine disturbances as women approach menopause.

Heavy menstrual bleeding was the most common menstrual abnormality in the present study, accounting for more than half of the cases. Similar findings were reported by Jaiswal et al.,[18] Priyanka et al.,[17] and Kriti Verma et al.,[15] all of whom identified menorrhagia as the predominant presentation in women with AUB. This consistent observation across studies underscores excessive menstrual bleeding as the hallmark presentation of AUB, particularly in hypothyroid states.

Thyroid dysfunction was identified in approximately one-fourth of the study population, with hypothyroidism being the most prevalent abnormality. This finding aligns closely with reports by Padmaleela et al.,[19] Rai et al.,[20] Deshmukh et al.,[21] and Hema et al.,[22] who documented thyroid dysfunction rates ranging from 24% to 30% in women with AUB. Subclinical hypothyroidism constituted a smaller proportion in the present study, whereas other studies, such as Jaiswal et al.,[18] and Rabia et al.,[23] reported higher rates, likely reflecting differences in diagnostic thresholds and population characteristics.

A statistically significant association was observed between menstrual patterns and thyroid status in the present study. Heavy menstrual bleeding was predominantly associated with hypothyroidism and subclinical hypothyroidism, while oligomenorrhea and amenorrhea were more common in hyperthyroid and subclinical hyperthyroid patients. Similar associations were demonstrated by Priyanka et al[17]KritiVerma et al[15] and Khundoor et al[24] reinforcing the influence of thyroid hormones on menstrual cyclicity and endometrial function.

Endometrial biopsy findings in the present study showed proliferative endometrium as the most common pattern among hypothyroid women, supporting the concept of unopposed estrogen action due to anovulation. Comparable histopathological findings were reported by Jaiswal et al.,[18] and Padmaleela et al.,[19] further substantiating the endocrine basis of AUB in thyroid disorders.

The present study corroborates existing evidence that thyroid dysfunction-particularly hypothyroidism-is strongly associated with abnormal uterine bleeding. Early identification and management of thyroid abnormalities can correct menstrual irregularities and help avoid unnecessary hormonal therapy or surgical interventions.

CONCLUSION

The study establishes a significant association between abnormal uterine bleeding and thyroid dysfunction in women of reproductive age, with hypothyroidism being the most common abnormality and frequently presenting as heavy menstrual bleeding. Although most women were euthyroid, a considerable proportion had previously undiagnosed, often subclinical, thyroid disorders. The predominance of systemic hypothyroid symptoms and proliferative endometrium on histopathology highlights the endocrine basis of AUB. Routine thyroid evaluation as part of the diagnostic workup of AUB can enable early detection and appropriate medical management and help prevent unnecessary surgical interventions.

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