

ORIGINAL RESEARCH

**INVESTIGATING THYROID DYSFUNCTION IN CASES
OF ABNORMAL UTERINE BLEEDING AMONG
GESTATIONAL PATIENTS**

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ABSTRACT

Introduction: A prevalent diagnosis with significant social and economic consequences, abnormal uterine bleeding (AUB) accounts for 20–30% of patients in the outpatient clinic. Heavy menstrual bleeding complaints have a large negative impact on quality of life, necessitate time away from work, necessitate surgical intervention, including hysterectomy, and eventually have a significant negative impact on the health care system. The majority of these issues can be avoided with prompt and effective management.

Methods: A ten month cross-sectional prospective study on 100 women (50 with abnormal uterine bleeding and 50 with a regular cycle were chosen as control cases) was carried out in the outpatient department at Katihar Medical College and Hospital. Both study groups had their general and menstrual histories, examinations, and thyroid function tests evaluated.

Results: Women who experienced abnormal uterine bleeding were significantly more likely to have high thyroid stimulating hormone levels ($p=0.002$). Low T4 levels were strongly related with women who experienced abnormal uterine bleeding ($p=0.04$). Women with abnormal uterine haemorrhage and hypothyroidism were shown to be significantly associated ($p=0.003$).

Conclusion: Maintaining a high index of suspicion and quickly screening for the existence of abnormal thyroid function are crucial for making an early diagnosis.

Keywords: Abnormal uterine bleeding, Hyperthyroid, Hypothyroid, Menstrual patterns, Thyroid hormone.

INTRODUCTION

The term "abnormal uterine bleeding" (AUB) refers to a symptom that is frequently reported by women who visit gynaecology clinics. Women who are pre- and postmenopausal are affected by the AUB [1]. Clinically, it manifested itself in a variety of ways, including menorrhagia, metrorrhagia, menometrorrhagia, polymenorrhoea, and polymenorrhagia [2]. Polyps, adenomyosis, leiomyoma, malignancy and hyperplasia-coagulopathy, ovulatory problems, iatrogenic, not classified) is an abbreviation used by the International Federation of

Gynecology and Obstetrics to classify the causes of AUB in reproductive age [3]. AUB may result from benign or malignant lesions of the female genital tract in women of reproductive age, or it may be caused by hormonal imbalance disturbances. In the absence of aberrant pathological alterations, dysfunctional uterine bleeding (DUB) is used [3]. Most Iraqi women under the age of 60 who have AUB have origins that are primarily dysfunctional. It is connected to aberrant pathology in others, though [4].

Thyroid disorders are widespread throughout the world, and women are 10 times more likely than males to develop thyroid conditions [5]. In Iraq, toxic and nontoxic goitres are prevalent in roughly 25% and 14.5 percent of women, respectively, while hypothyroidism is seen in about 13% of women [6]. An irregular menstrual cycle is linked to thyroid problems in women [7]. Many physiological processes in females, including pubertal growth and development, menarche, menstrual cycles, fertility, and menopause, are initiated by thyroid hormones [8].

The alteration of thyroid stimulating hormone (TSH) response, rise in prolactin levels, alteration of luteinizing hormone (LH) response, alteration of peripheral androgen to oestrogen conversion, alteration of sex hormone binding globulin (SHBG), and alteration of coagulation pathways, in addition to effect on lipid profile, may be the mechanisms by which thyroid disorders are associated with AUB [9].

Thyroid diseases are among the most common medical conditions worldwide, second only to diabetes. [10] Anovulatory cycles, delayed puberty, abnormally high foetal wastage, and other abnormalities in reproductive function are all linked to both hypo- and hyperthyroidism. [11] The sensitivity and specificity of thyroid function testing have improved with the development of serum thyroxine and serum thyroid stimulating hormone (TSH) radioimmunoassay. Since serum TSH levels rise before circulating serum thyroxine levels drop below the normal range, the serum TSH assay has been proven to be a sensitive indication of impaired thyroid functional reserve.

METHODS

The outpatient department at Katihar Medical College and Hospital served as the site of this cross-sectional prospective study for 10 months. Before enlisting women in the study, confidentiality was taken into account and verbal consent was obtained. All the ladies who visited the clinic complaining of abnormal uterine bleeding (AUB) were recruited.

Women in the reproductive age range (18–42 years) who had a clinical presentation of AUB met the inclusion criteria. Bleeding associated with pregnancy, bleeding disorders, and intrauterine device use were the exclusion criteria. After determining eligibility for inclusion and exclusion criteria, a practical sample of 50 women with AUB was chosen. Following verbal assent, a second sample of 50 women with regular cycles was chosen as the control group.

Through direct interviews with the chosen ladies and the completion of a prepared questionnaire, the researcher gathered the data. The researcher and the supervisor created the questionnaire. It included information on the participants' sociodemographic characteristics (age, occupation, and marital status), parity history, body mass index, smoking history, contraceptive history, drug history (anti-coagulants, anti-thyroid), LMP frequency, menstrual bleeding patterns, post-coital bleeding, intermenstrual bleeding, thyroid stimulating hormone

level, triiodothyronine level, and thyroxin level. The Mini Vidas ELFA (enzyme linked fluorescence assay) technique and immunoradiometric assay were used to perform the thyroid function tests (IRMA). TSH, T3, and T4 had normal upper limits of 0.4-5 U/ml, 3.5-6.5 pmol/L, and 8.5-15.2 pmol/L, respectively.

Statistical Package for Social Sciences, a computerised statistical programme, was used to enter all data pertaining to women (SPSS). percentages for frequencies and (mean \pm standard deviation) for descriptive statistics. Numerous contingency tables were run, along with the necessary statistical tests. Level of significance (p value) is set at ≤ 0.05 for all statistical analyses, and results are displayed as tables and/or graphs.

RESULT

In total, 50 women with AUB were included in the study, with a mean age of 32.4 years; 12% were under 20 years old, 30% were between the ages of 20 and 29, 34% were between the ages of 30 and 39, and 24% were 40 years of age or older. Seventy percent (70%) of women with AUB were housewives, and 82 % of them were married. Of those married women with AUB, 17.1% were nulliparous, and 82.9 % had children. For 8% of the women with AUB, the smoking history was positive. The average BMI of the women who presented with AUB was 26 percent overweight and 42 percent obese (27.8 Kg.m²). 17 (34%) of the AUB women had a history of using contraception, while only two (4%) had a history of using thyroid replacement treatment (Table 1).

Table 1: Baseline characteristics of patients with AUB

Variable	No
Age mean \pm SD	
<20 years	7
20-29 years	14
30-39 years	16
≥ 40 years	11
BMI mean \pm SD	
Normal	15
Overweight	15
Obese	20
Marital Status	
Married	40
Single	10
Smoking	
Smoker	5
Non-smoker	45
Occupation	
Housewife	34
Student	10
Employed	7
Parity(no=41)	

Nulliparous	8
1-2children	12
4-Mar	12
>4children	9
Historyof Anti-Thyroid Drugs	
Yes	4
No	47
Total	49
HistoryofContraception	
Yes	18
No	32

64 percent of women with AUB had irregular menstrual cycles, and 5 (10 percent) of them had normal cycles. In addition, 21 (42 percent) of the women had menorrhagia, 23 (46 percent) had oligomenorrhea, and only 1 (2 percent) had polymenorrhea. Intermenstrual bleeding was discovered in 5 (10%) women and post-coital bleeding in 2 (4% of the women). Only three of them (or 6%) had Pap tests that were normal; it should be noted that our nation does not offer cervical screening. The average TSH for women with AUB was 2.7 U/ml; 6% of these women had low TSH levels, while 24% had high TSH levels. Only one (2%) of the women with AUB had a low T3 level, with the mean T3 being 1.6 pmol/L. The average T4 for women with AUB was 85.2 pmol/L, and 10% of the women had low T4 levels. However, 22% of women with AUB had hypothyroidism, while 6% of them had hyperthyroidism. Women with AUB were euthyroid in the majority (72%) of cases (Table 2).

Table 2: Menstrual disturbances and thyroid function of women with AUB

Variable	No (%)
Menstrual Cycle Problems	
Normal	7
Menorrhagia	20
Oligomenorrhea	21
Polymenorrhea	2
TSHmean±SD	
Normal	32
Low	5
High	11
ThyroidFunction	
Euthyroid	33
Hypothyroidism	10
Hyperthyroidism	5
Post Coital Bleeding	
Yes	5
No	45
LMP Frequency	
Regular	19

Irregular	31
T3mean±SD	
Normal	45
Low	5
T4mean±SD	
Normal	44
Low	6
History of Pap Smear	
Yes	5
No	45
Inter-Menstrual Bleeding	
Yes	7
No	44
Total	49

DISCUSSION

Low quality of life is associated with abnormal uterine bleeding, which is blamed on the efforts made to cure the bleeding and the negative effects of high blood loss, such as fatigability and anaemia [12]. The pathophysiology of abnormal uterine bleeding is heavily influenced by endocrine abnormalities [13]. In our study, oligomenorrhea (23%) was the most prevalent AUB, followed by menorrhagia (21%) and then intermenstrual haemorrhage (5 percent). These results are congruent with those of the Fraser et al. [14] study conducted in the USA, which defined abnormal uterine bleeding to encompass oligomenorrhea and menorrhagia. According to Deshmukh et al. [13] and Byna et al. [9], menorrhagia is the most typical form of AUB. In our study, intermenstrual bleeding was substantially related to AUB women ($p=0.02$). Intermenstrual bleeding is a common presentation of abnormal uterine bleeding, according to research by Mohan et al. [16]. The majority of women with AUB had used contraception in the past, according to our study ($p=0.001$). Hormonal contraception is the primary cause of AUB among women in the reproductive age range, according to a previous American study [16].

In compared to controls, women with AUB had considerably greater levels of thyroid stimulating hormone, according to this study ($p=0.002$). This result is consistent with that of the Egyptian study by Attia et al. [17], which discovered a substantial difference in TSH levels between women with AUB and controls. Additionally, a significant correlation between low T4 hormone levels and women with AUB was found in our study ($p=0.04$). This data is consistent with those of a sizable cohort research conducted in the USA by Kang et al. [18], which found a substantial association between AUB and low T4 hormone levels. The abnormalities in ovulatory hormones and predisposition to irregular bleeding were caused by abnormal thyroid hormone levels [19].

In the author's study, there were no instances of hyperthyroidism in oligomenorrhea patients. According to the current study, 10% of oligomenorrhagic individuals had hyperthyroidism and 10% had hypothyroidism. In the author's study, 80 percent of the total patients had thyroid dysfunction, compared to 20 percent in the current study.

According to our study, 6 percent of women with AUB had hyperthyroidism, while 22% of them had hypothyroidism. These findings outperform those of a recent Iraqi study by Al-Hakeim [21], which discovered that among women with menstrual abnormalities, hypothyroidism was present in 16.1% of cases and hyperthyroidism in 3.4%. The geographical variance and the high prevalence of thyroid problems in Kurdistan may be to blame for the difference in thyroid dysfunction between the two studies [17]. Our study's hypothyroidism conclusion is also greater than that of the Ajmani study in India [5], which found that 14 percent of women with menstrual abnormalities had the condition. AUB in women was significantly associated with hypothyroidism in the current study ($p=0.003$). This conclusion is consistent with the findings of other earlier investigations [22,23]. According to Whitaker et al. [24], one of the common disorders that must be evaluated in women who have irregular uterine bleeding is hypothyroidism. Particularly in the Kurdistan region, Iraq has a significant frequency of hypothyroidism [25, 26]. Uncertainty surrounds the method through which hypothyroidism might impact the menstrual cycle. However, some writers claimed that this association was caused by irregular or no ovulation, which lowers luteinizing hormone levels and raises oestrogen levels, causing monthly bleeding [13].

CONCLUSION

In women of reproductive age, abnormal uterine bleeding is frequently caused by thyroid disease. The most common types of bleeding are menorrhagia and oligomenorrhea. Assessment of thyroid levels in women with abnormal uterine bleeding should be taken into account. Therefore, maintaining a high index of suspicion and quickly screening for the existence of aberrant thyroid function are crucial for making an early diagnosis. Thyroid dysfunction is moreover a simple fix for AUB. The fast restoration of regular menstrual periods is a sign that the treatment was effective.

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