

Thyroid Disorders in Reproductive Females with Abnormal Uterine Bleeding

JAVARIA GULZAR¹, NAYLA SALMAN², DANISH SOHAIL³, ZILL E HUMA⁴

¹FCPS Resident, Obs & Gynecology, Lady Willington hospital, King Edward Medical University, Lahore

²Senior registrar, Obs & Gynecology, Islam teaching hospital, Sialkot

³Demonstrator, Khawaja Muhammad Safder Medical College, Sialkot.

⁴Assistant professor of department of Gynae & Obs., Amna Inayat Medical College, Lahore

Corresponding author: Zill E Huma, Email: drzilleh@gmail.com

ABSTRACT

Methodology: One hundred outpatient females who were having difficulties related to their thyroid bleeding were accepted into the study. Patients with ages ranging from 40 to 55 years were included in this study. Every lady was evaluated to establish whether or not she was suffering from abnormal uterine bleeding, and her thyroid profile was analyzed as well. The procedure for the research study consisted of getting a detailed history from the participants regarding any anomalies in their periods. In addition to these, standard blood tests including random blood sugar, haemoglobin, erythrocyte sedimentation rate, liver function test, pap smear, bleeding time, clotting time, endometrial biopsy, transvaginal ultrasonography and transabdominal, serum T3 (T3), T4 (T4), and thyroid stimulating hormone (TSH) were performed. These tests were carried out on the patient.

Results: Mean age as 46.8±5.98 years and mean BMI was calculated as 27.98±6.21(kg/m²). Mean TSH levels were 4.4±2.5(mIU/L), T3 level were 3.4 ± 1.7 (pmol/L), and T4 level were 1.8 ± 0.6 (pmol/L). We found Menorrhagia as the commonest bleeding pattern 49(49%) followed by Oligomenorrhea in 30(30%), Hypomenorrhea in 11(11%) and Metrorrhagia in 2(2%) of the cases.

Conclusion: Among the patients with abnormal uterine bleeding, hypothyroidism was common finding and hyperthyroidism was associated with lesser amount of bleeding. Moreover abnormal BMI is a major risk factor for the abnormal uterine bleeding.

Keywords: Abnormal uterine bleeding, hypothyroidism, body mass index

INTRODUCTION

Thyroid hormones have an important role in regulating both reproduction and menstruation in females. Every healthcare provider who specialises in treating thyroid disorders has seen patients whose menstrual cycle had been disturbed as a consequence of their ailment, and it is well known that menstrual abnormalities may accompany clinical alterations in thyroid function (1). One of the most frequent reasons a patient would see a gynaecologist is because they are experiencing abnormal uterine bleeding (AUB). This accounts for around 20% of the women who visit the gynaecological walk-in clinic. The AUB may strike a woman at any age, both before and after menopause. This disorder may manifest itself in a number of different ways (2), including menorrhagia, menometrorrhagia, metrorrhagia, polymenorrhea, oligomenorrhea and polymenorrhagia.

In hypothyroid women, thyrotropin-releasing hormone produces an increase in prolactin levels (TRH). Gonadotropin-releasing hormone cycles are disturbed by this stimulation (GnRH). Anovulation and a brief luteal phase result from an abnormal reaction to luteinizing hormone (LH) (2). Progesterone hormone production relies on the interaction between luteinizing hormone (LH) and follicle-stimulating hormone (FSH) receptors, which is regulated by thyroid hormones. Weak SHBG synthesis and peripheral oestrogen intake are both seen in hypothyroidism. Inappropriate behaviour leads to abnormal input from the pituitary gland. Clotting factors VII, VIII, IX, and X are inhibited, which causes menorrhagia (2).

According to clinical observations, increased menstrual flow is the most prevalent symptom of hypothyroidism affecting the reproductive system. The most prevalent menstrual abnormality in women with hypothyroidism is menorrhagia, or abnormally excessive menstrual flow. Hyperthyroidism, on the other hand, is often linked to fewer or lighter menstrual periods (1). However, it is also clear that hypothyroidism may cause a wide variety of DUB symptoms (3).

It is estimated that as much as 10% of the adult population has hypothyroidism that has not yet reached the clinical stage (4). Another recent research found that hypothyroidism was present in 13.9% of the women who had irregular bleeding from the uterus (5). In contrast to this, another research that was conducted not so long ago found that nine of the individuals who had thyroid disease were hypothyroid (6).

Because previous data has shown inconsistent findings, the purpose of this study is to determine the prevalence of hypothyroidism in women of reproductive age who have irregular uterine bleeding. With the aid of this investigation, we may be able to ascertain the current and precise incidence of the issue among our community. In order to ensure that we are able to concentrate in the future on the screening of thyroid function in all patients who arrive with abnormal bleeding from the uterus. This may also assist us in improving the information, guidelines, and practices that we now have.

METHODOLOGY

For the purpose of this research, we recruited a total of one hundred outdoor female patients who were experiencing complications in the obstetrics and gynaecology department, Amna Inayat Medical College Kishwar Fazal Teaching Hospital. These patients ranged in age from 40 to 55 years old, and they had no obvious cervical or vaginal lesions. Patients who had symptoms that suggested they had an inflammatory condition, women who were using oral contraceptives, participants who had premalignant or malignant lesions of the cervix, and women who used intrauterine contraceptive devices were excluded to participate in the research.

A written informed permission form was first collected from each participant before any patients were included in the research effort. The thyroid profiles of each woman were reviewed, and each woman's uterine bleeding was evaluated to identify whether or not she had abnormal uterine bleeding. The procedure for the research study comprised gathering a detailed history regarding menstrual irregularities utilizing a proforma that had been pre-designed and pre-structured prior to the research being conducted. Standard blood tests including random blood sugar, haemoglobin, erythrocyte sedimentation rate, liver function test, pap smear, BT, CT, endometrial biopsy, transvaginal ultrasonography and transabdominal, T3, T4, and TSH were carried out. All of these tests were performed. The frequency distributions and percentage distributions were computed for each variable, including body mass index, thyroid function, and bleeding pattern, among others. The mean and standard deviation (SD) were calculated for age, weight, height, body mass index, TSH, T3, and T4 blood levels, and BMI. In order to investigate the potential moderating effects of age, body mass index (BMI), thyroid status,

and bleeding pattern, the chi-square test was carried out. When the p-value was lower than 0.05, statistical significance was assumed to have been present.

RESULTS

In this study, we recorded mean age as 46.8±5.98 years whereas 68(68%) were between 40-50 years and 32(32%) were between 51-55 years of age, mean weight(kg) was 66.92±8.6, height was 1.50±1.32(m), and BMI was calculated as 27.98±6.21(kg/m²), we found 2(2%) cases with underweight, 11(11%) had normal weight, 46(46%) overweight and 41(41%) were obese. Mean TSH levels were 4.4±2.5(mIU/L), T3 level were 3.4 ± 1.7 (pmol/L), and T4 level were 1.8 ± 0.6 (pmol/L). We found Menorrhagia as the commonest bleeding pattern by calculating 49(49%) followed by Oligomenorrhoea in 30(30%), Hypomenorrhoea in 11(11%) and Metrorrhagia in 2(2%) of the cases

Table 1: Demographics of the patients

Characteristics	Mean±SD/ n(%)
Mean age(years)	46.8±5.98
40-50 years	68(68%)
51-55 years	32(32%)
Weight (kg)	66.92±8.6
Ht	1.50±1.32 m
Body mass index (kg/m ²)	27.98±6.21
• Under weight	2(2%)
• Normal weight	11(11%)
• Overweight	46(46%)
• Obese	41(41%)
Thyroid profile	
TSH	4.5 ± 2.4
T3	3.4 ± 1.7
T4	1.8 ± 0.6
Pattern	
Menorrhagia	49(49%)
Oligomenorrhoea	30(30%)
Hypomenorrhoea	11(11%)
Metrorrhagia	2(2%)
Polymenorrhoea	8(8%)

DISCUSSION

Dysfunctional uterine hemorrhaging is associated with a negative standard of life as a result of bleeding management attempts and the consequences of significant loss of blood, such as feelings of fatigue and anaemia (7).

Hormonal disruptions have a significant role in the aetiology of irregular endometrial hemorrhage. Despite the fact that our research only included females over the age of 40, the age demographic of 40-50 years had the highest percentage of cases (68%) trailed by those over 50 years (32%). Likewise, Byna P et al. discovered that 67.2% of females with irregular endometrial bleeding are between the ages of 35 and 45 (8). In the survey performed by Kumar AHS et al., approximately 25.4% of women were between the ages of 46-50 years, and 55.26% were between the ages of 46-50 years (7). On the contrary, this is remarkably comparable to the Pilli et al. research, which had 58% of instances in the age bracket 40-50 years (9). In a research conducted by Narula et al., approximately 32.8% of participants were between the ages of 31 and 40 (10).

The most prevalent symptom in this research was menorrhagia, and that was reported in 49% of patients. This finding is pretty comparable to that of Moghal et al.(11), which was around 41%, and really quite close to that of Pilli et al. (9), which was about 34%, Sangeeta Pahwa et al.(12), which was about 50%, and Javed Ali et al., which was about 42%. Oligomenorrhoea was the second most widespread symptom in 30 (29.11%) patients, accompanied by polymenorrhoea in 11 (11%) individuals. Unlike that seen in our population, polymenorrhoea was the second commonest complaint, representing for 37.5% of patients, according to Kaur et al.(13) and Singh P et al.(14). Fakhar et al.(15) reported menorrhagia among 45% of the subjects and

polymenorrhagia in around 30% cases, Similar findings were reported by our study.

In our research, the majority of individuals with uterine haemorrhage had an inappropriate BMI. Merely 13 of the patients were normal or underweight. The remaining ladies have been either overweight (46%) or obese (41%). According to Nouri et al, the average BMI is 32.63 3.34 (16). Agrawal P. et al findings 's also show a significant prevalence of obesity in AUB sufferers (17).

Varner et al performed a survey on 1557 patients and found that 45% of participants had BMI>30 and experienced complaints for more than 12 years, compared to 4 years for BMI 25. (18). The obese participants' lengthy background of uterine bleeding abnormalities may indicate a predisposition to postpone therapy, or it may be the result of their clinician deferring elective surgery because to expected increased risk of morbidity and mortality in fat individuals. Numerous studies have found that obese women are more likely than non-obese women to suffer menstruation irregularities (19). Such investigations have revealed that, in addition to recovering bleeding regularity, addressing anaemia, and controlling different relevant clinical disorders, treatment for irregular uterine bleeding must entail achieving a fit lifestyle.

According to the findings of this study, women who had AUB had significantly higher levels of thyroid stimulating hormone compared to the controls (p = 0.002). This observation is in line with the results of a study that was carried out in Egypt by Attia et al. (20), who discovered a substantial difference in TSH between women with AUB and controls. Our research also found a link between low T4 hormone levels and AUB in women (p=0.04). This observation is consistent with the findings of a large sample research conducted in the United States by Kang et al. (21), which found that low T4 hormone levels were substantially associated to AUB. Thyroid hormone imbalances related to ovulation induction hormone disruptions, leading to abnormal menstruation (22). The process whereby the hypothyroidism affects the menstruation cycle is yet unknown. Nevertheless, some writers link this association to intermittent or no ovulation, which lowers luteinizing hormone while increasing oestrogen, resulting in monthly bleed (3).

CONCLUSION

Our findings led us to the conclusion that hypothyroidism was a prevalent finding in patients who had abnormal uterine bleeding, but hyperthyroidism was related with a less amount of bleeding. In addition, having an abnormal body mass index is a big risk factor for abnormal bleeding that occurs in the uterus. When dealing with patients who have dysfunctional uterine bleeding, therefore, it is necessary for both females and their treating physicians to address these abnormalities.

REFERENCES

1. Ajmani NS, Sarbhai V, Yadav N, Paul M, Ahmad A, Ajmani AK. Role of Thyroid Dysfunction in Patients with Menstrual Disorders in Tertiary Care Center of Walled City of Delhi. *Journal of obstetrics and gynaecology of India.* 2016;66(2):115-9.
2. Tomatis V, Battipaglia C, Genazzani AD. Thyroid, Adrenal, PRL Impairments and Ovarian Function. *Endocrines.* 2021;2(3):212-25.
3. Jacobson MH, Howards PP, Darrow LA, Meadows JW, Kesner JS, Spencer JB, et al. Thyroid hormones and menstrual cycle function in a longitudinal cohort of premenopausal women. *Paediatric and perinatal epidemiology.* 2018;32(3):225-34.
4. Chiovato L, Magri F, Carlé A. Hypothyroidism in Context: Where We've Been and Where We're Going. *Advances in therapy.* 2019;36(Suppl 2):47-58.
5. Joshi BR, Rizal S, Subedi S. Thyroid Dysfunction in Patient with Abnormal Uterine Bleeding in a Tertiary Hospital of Eastern Nepal: A Descriptive Cross-sectional Study. *JNMA; journal of the Nepal Medical Association.* 2021;59(239):635-9.
6. Huang Y, Cai L, Zheng Y, Pan J, Li L, Zong L, et al. Association between lifestyle and thyroid dysfunction: a cross-sectional epidemiologic study in the She ethnic minority group of Fujian Province in China. *BMC endocrine disorders.* 2019;19(1):83.

7. Ashok KH, Saravanan S. A study of prevalence of thyroid disorders in patients with abnormal uterine bleeding. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*. 2017;6(3):1036-40.
8. Byna P, Siddula S, Kolli S, Shaik MV. Thyroid abnormality in perimenopausal women with abnormal uterine bleeding. *Int J Res Med Sci*. 2015;3(11):3250-3.
9. Speroff L. Dysfunctional uterine bleeding. *Clinical gynecologic endocrinology and infertility*. 1999.
10. Narula E. Menstrual irregularities. *J Obstet Gynecol India*. 1967;17:164.
11. Moghal N. Diagnostic value of endometrial curettage in abnormal uterine bleeding-a histopathological study. *Journal-Pakistan Medical Association*. 1997;47(2):295-9.
12. Pahwa S, Shailja G, Jasmine K. Thyroid dysfunction in dysfunctional uterine bleeding. *J Adv Res Bio Sci*. 2013;5(1):78-83.
13. Kaur P. Association of thyroid dysfunction with abnormal uterine bleeding. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*. 2018;7(6):2388-93.
14. Singh P, Dubey P, Yadav S, Yadav SS. Thyroid abnormality in abnormal uterine bleeding: an observational study from medical college in Western UP, India. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*. 2018;7(1):308-12.
15. Fakhar S, Saeed G, Khan AH, Alam AY. Validity of pipelle endometrial sampling in patients with abnormal uterine bleeding. *Ann Saudi Med*. 2008;28(3):188-91.
16. Nouri M, Tavakkolian A, Mousavi SR. Association of dysfunctional uterine bleeding with high body mass index and obesity as a main predisposing factor. *Diabetes & metabolic syndrome*. 2014;8(1):1-2.
17. Agarwal P, Garg R, Rai N, Prakash P. Abnormal Uterine Bleeding. *The Journal of South Asian Federation of Menopause Societies*. 2016;4:22-6.
18. Vallejo MC, Attaallah AF, Elzamzamy OM, Cifarelli DT, Phelps AL, Hobbs GR, et al. An open-label randomized controlled clinical trial for comparison of continuous phenylephrine versus norepinephrine infusion in prevention of spinal hypotension during cesarean delivery. *International journal of obstetric anesthesia*. 2017;29:18-25.
19. Sharma AS, Gupta S. Analysis of body mass index in patients with abnormal uterine bleeding. *International Journal of Clinical Obstetrics and Gynaecology*. 2019;3(1):92-5.
20. Attia AH, Youssef D, Hassan N, El-Meligui M, Kamal M, Al-Inany H. Subclinical hyperthyroidism as a potential factor for dysfunctional uterine bleeding. *Gynecological endocrinology : the official journal of the International Society of Gynecological Endocrinology*. 2007;23(2):65-8.
21. Kang JH, Kueck AS, Stevens R, Curhan G, De Vivo I, Rosner B, et al. A large cohort study of hypothyroidism and hyperthyroidism in relation to gynecologic cancers. *Obstetrics and gynecology international*. 2013;2013:743721.
22. Беньюк В, Курочка В, Нікі АА, Усевіч І, Кравченко Ю. Clinical characteristics of women with endometrial hyperplasia on the background of thyroid dysfunction. *Репродуктивне здоров'я жінки*. 2022(5):63-7.