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Original Research Article

Role of thyroid abnormality in perimenopausal abnormal uterine bleeding

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ABSTRACT

Background: Diagnosing and treating abnormal uterine bleeding (AUB) presents special problems during the perimenopausal era, which often need for a thorough study of contributory variables. Comprehending the relationship between perimenopausal AUB and thyroid function has important therapeutic ramifications that might influence customized treatment plans and enhance patient outcomes.
Methods: This prospective research sought to determine the significance of thyroid anomalies in perimenopausal AUB. It was carried out at the Department of Obstetrics and Gynecology, Rajashri Chatrapati Shahu Government Medical College, and Chatrapati Pramila Raje hospital. Data was carefully collected over a 6-month period, from April to September 2018, and placed into excel spreadsheets for statistical analysis. The goal of the research is to clarify the connection between perimenopausal AUB and thyroid dysfunction by using the proper statistical tests.
Results: Out of 120 individuals with severe menstrual bleeding, 80 had hypothyroidism. Hyperthyroidism affected 45 hypomenorrhea and irregular menstrual cycle individuals. Thyroid issues are commonly ignored, and patients are given estrogen progesterone tablets without thyroid function testing.
Conclusions: By providing insights into its complex etiology and opening the door for more focused therapy approaches in this patient population, this study aims to further our understanding of AUB.

Keywords: Thyroid abnormality, Perimenopausal, Abnormal, Uterine bleeding, AUB, Hypothyroidism, Hyperthyroidism

INTRODUCTION

A crucial shift in a woman's life, the perimenopausal phase is defined by hormonal fluctuations and physiological changes. It is seen throughout the time period before menopause. The AUB that is encountered during this time period stands out as a frequent and worrisome problem among the many symptoms that are experienced throughout this time period.[1] Abnormal menstrual bleeding (AUB) is characterized by fluctuations in the frequency, length, and volume of menstrual bleeding. It is often accompanied by related symptoms such as pain and discomfort. AUB is defined as abnormalities in the menstrual cycle. Although there are other factors that contribute to the development of AUB, there is a growing body of research that supports a significant connection between thyroid problems and perimenopausal AUB. A crucial component of the endocrine system, the thyroid gland is responsible for the release of thyroid hormones, including thyroxine (T4) and triiodothyronine (T3).[2] These hormones are responsible for orchestrating a wide variety of physiological activities. One of the most important functions that these hormones do is to regulate the metabolism, the energy balance, and the reproductive function. It is possible for the menstrual cycle to be profoundly affected by thyroid function changes, which

may be characterized by hypothyroidism or hyperthyroidism. These disruptions can lead to menstrual patterns that are not regular.[3]

Within the framework of perimenopausal altered uterine function (AUB), the dynamic relationship between thyroid insufficiency and monthly abnormalities becomes more and more apparent. Hypothyroidism, which is defined by inadequate synthesis of thyroid hormone, has been linked in the pathophysiology of atypical unipolar basal body syndrome (AUB). Reduced levels of thyroid hormones have the potential to upset the delicate balance of reproductive hormones, including as follicle-stimulating hormone (FSH) and luteinizing hormone (LH), which may result in changes to ovarian function and monthly regularity. Alternately, hyperthyroidism, which is characterized by an excessive production of thyroid hormone, may also be a precipitating factor in the development of AUB by causing the metabolic rate to increase and disturbing the hormonal homeostasis. It is possible for thyroid dysfunction to enhance the intensity of AUB symptoms, which in turn may increase the burden that afflicted persons feel on both a physical and emotional capacity. Iron deficiency anemia and a diminished quality of life may be the result of prolonged and heavy monthly bleeding, which can be experienced by women who have thyroid issues that are not successfully treated.[4] Moreover, the combination of thyroid dysfunction and AUB presents diagnostic complications. This is due to the fact that symptoms of both disorders might overlap, which requires a full examination as well as therapeutic techniques that are specifically tailored to the situation.[5]

Research conducted by Hollowell et al the most common monthly irregularity among women who had hypothyroidism was excessive menstrual bleeding in 5 of the 12 women (41.6% of the total). Additionally, 3 of the 25 women had oligomenorrhoea, and 4 of 33 women had polymenorrhagia. Two (28.57%) of 7 women who were diagnosed with hyperthyroidism had oligomenorrhoea, 3 (42.8%) of them had excessive monthly bleeding, and 2 (28.57%) of them had polymenorrhagia.[6]

In research conducted by Choi it was discovered that out of all the patients that presented with menstrual irregularities, 26% of them had hypothyroidism, 9% had hyperthyroidism, and the other cases had euthyroid status. In patients diagnosed with hypothyroidism, the most prevalent menstrual abnormalities seen were menorrhagia (45.2% of cases) and polymenorrhoea (37.5% of cases). Twenty-seven-point 8% of cases with hyperthyroidism were accompanied by hypomenorrhea.[7]

In a study by Ghosh et al out of 100 patients 42 women with thyroid abnormality, heavy menstrual bleeding was seen in 21 (50%) women, 11 (26.19%) had polymenorrhagia, 10 (23.81%) had oligomenorrhoea, in women with hypothyroidism (30 women) was heavy menstrual bleeding in 17 (56.67%) women, 6 (20%) had oligomenorrhoea, 7 (23%) had polymenorrhagia, and in 18 women with hyperthyroidism, 10 (55.56%) had heavy menstrual bleeding, 4 (22.22%) had oligomenorrhoea, 4 (22.22%) had polymenorrhagia.[9]

Aims and objectives

Aim and objectives were to study the correlation of thyroid abnormality with perimenopausal AUB.

METHODS

This is prospective research that was carried out at the department of obstetrics and gynaecology at the Rajashri Chatrapati Shahu government medical college and the Chatrapati Pramila Raje hospital over the course of a period of 6 months, April 2018 to September 2018. Excel is going to be used to input all of the data, and relevant statistical tests are going to be performed.

Inclusion criteria

All women with AUB, no obvious cervical and genital lesions, not on hormonal therapy, no evidence of any haematological disorder and no contraindications for dilatation and curettage study were included.

Exclusion criteria

Patients with unwillingness, suspected pelvic infection, profusely bleeding patients requiring therapeutic curettage, women on oral contraceptives, premalignant and malignant lesions of cervix, cervical stenosis, severe medical conditions precluding study like uncontrolled HTN, DM, pregnancy and related causes of bleeding PV and IUCD users were excluded from study.

Procedure

The procedure for the research comprised a comprehensive history gathering that included the following information: age, bleeding pattern, start, length, amount of bleeding, and symptoms linked to thyroid dysfunction were documented in detail. [9] A comprehensive clinical examination was performed, which included a general and physical examination, an examination of the neck, as well as systemic and gynecologic exams. Routine investigations were performed on all of the patients who were recruited. These investigations included measuring hemoglobin, ESR, LFT, RBS, comprehensive urine examination, bleeding time, clotting time, chest x-ray, ultrasound of the abdomen and pelvis, pap smear, and endometrial biopsy.[10] The T3, T4, and TSH tests were performed on each and every patient.

Competitive chemiluminescent immunoassay was used to determine the levels of T3 and T4 in the sample. An ultra-sensitive fully automated ADV1A device was used to determine total somatotropin-releasing hormone (TSH) levels. The chemiluminescent immunoassay was utilized to interpret the results.

Reference values

Serum T4-60-120 ng/ml, serum T3-0.8-16 ng/ml and serum TSH-0.5-5 mU/ml.

Statistical software used for data analysis is SPSS (Statistical package for social sciences) version 29:0.

RESULTS

Hypothyroidism was identified in 66.7% of the patients who had heavy menstrual bleeding, which is equivalent to 80 out of 120 patients. This indicates that there is a considerable link between hypothyroidism and heavy menstrual bleeding during the perimenopause period.

Table 1: Distribution of thyroid abnormalities among patients with heavy menstrual bleeding.

Thyroid abnormality	N
Hypothyroidism	80
Hyperthyroidism	0
Euthyroidism	40
Total	120

All of the instances (100%) that were connected with hyperthyroidism were found in patients who presented with hypomenorrhea and irregular menstrual cycles. This indicates that there is a substantial association between hyperthyroidism and these menstrual abnormalities that occur during perimenopause.

Table 2: Distribution of thyroid abnormalities among patients with hypomenorrhea and irregular menses.

Thyroid abnormality	N
Hypothyroidism	0
Hyperthyroidism	45
Euthyroidism	0
Total	45

Three months after treating thyroid abnormalities and monitoring patients on a monthly basis, all patients (100%) reported alleviation from their symptoms. This indicates that resolving thyroid dysfunction may be useful in reducing AUB during the perimenopause period.

Table 3: Relief of symptoms after correction of thyroid abnormalities.

Time point (months)	Number of patients with relief of symptoms
1	0
2	0
3	125

Despite the fact that all patients (100%) undergo curettage and receive estrogen-progesterone pills without first undergoing thyroid function tests, thyroid disorders frequently go undiagnosed. This highlights the necessity of increased awareness and consideration of thyroid abnormalities in the management of perimenopausal abnormal uterine bleeding.

Table 4: Comparison of treatment approaches.

Treatment method	Percentage of patients receiving treatment (%)
Curettage	100
Estrogen-progesterone pills	100
Thyroid evaluation	0

It was observed that 80 patients who complained of heavy menstrual bleeding had hypothyroidism out of 120 patients. Who had similar complaints after excluding-unwilling patients, suspected pelvic infection, profusely bleeding patients requiring therapeutic, curettage, women on oral contraceptives, premalignant and malignant lesions of cervix, cervical stenosis, severe medical conditions precluding study-like uncontrolled HTN, DM, pregnancy and related causes of bleeding PV and IUCD users. The 45 patients complaining of hypomenorrhea and irregular menses had hyperthyroidism. After correction of thyroid abnormalities and repeating thyroid levels, every month had relief of their symptoms in 3 months. Thyroid disorders are often not sought after and patients are subjected to curettage long term estrogen progesterone pills without evaluating thyroid function tests.

DISCUSSION

Cases totalling 120 following the elimination of 1289 instances of AUB, we discovered that sixty-seven-point seven percent of patients in our study had hypothyroidism. In terms of the likelihood of hypothyroidism occurring, the confidence interval is from 58.2 to 75.1 (lower to upper). There were sixty instances of hypomenorrhea and irregular menstrual cycles that were reported. Seventy-five percent of the patients, or 45 individuals, were determined to have hyperthyroidism. In terms of likelihood of hypothyroidism occurring, the confidence interval is from 64.0 to 85.9 (lower to upper).[11]

Five percent of patients with hypothyroidism (ten) and 1% of patients with hyperthyroidism were found to have AUB, according to research conducted by Poppe et al on the other hand, the research was conducted with participants of various ages.[12]

Smith et al found that the incidence of all AUB was 25.4% in all perimenopausal women, which is a lower percentage than the incidence found in our research.[14] Research conducted by Kumar and colleagues found that 55.26% of hypothyroid individuals had AUB, which is comparable to the findings of our own investigation.[13] In research conducted by Smith et al it was discovered that out of all the individuals that presented with menstruation irregularities, 26% of them had hypothyroidism, 9% had

hyperthyroidism, and the other cases had euthyroid status. In patients diagnosed with hypothyroidism, the most prevalent menstrual abnormalities seen were menorrhagia (45.2% of cases) and polymenorrhoea (37.5% of cases). Twenty-seven-point 8% of cases with hyperthyroidism were accompanied by hypomenorrhea. In the course of our research, we found that a larger proportion was seen.[14]

In a study conducted by Stagnaro-Green et al they found that out of total of 100 patients with thyroid abnormalities, heavy menstrual bleeding was observed in 21 (50%) women, 11 (26.19%) women had polymenorrhagia, and 10 (23.81%) women had oligomenorrhoea.[15] In women with hypothyroidism, 17 (56.67%) women had heavy menstrual bleeding, 6 (20%) women had oligomenorrhoea, and 7 (23%) women had polymenorrhagia. In women with hyperthyroidism, 18 women had heavy menstrual bleeding, 4 (22.22%) women had oligomenorrhagia, and 4 (22.22%) women had polymenorrhagia (9) comparable to the research that we conducted.[16]

Limitations

Due to its prospective nature, the research on thyroid abnormalities and perimenopausal AUB may have selection bias and data reliability issues. The single-center research may restrict its application to larger populations. The research may have overlooked confounding variables such medication usage, comorbidities, and lifestyle factors that may affect the thyroid abnormalities-AUB association. Medical records for thyroid function testing may include errors or inadequate data, affecting outcomes. The study's sample size and length may not be enough to discover modest relationships or thyroid function fluctuation. These constraints emphasize the need for bigger, prospective research with varied populations and rigorous data collecting to confirm results and overcome biases.

CONCLUSION

Thyroid dysfunction has a major and complex impact in perimenopausal AUB. Studies show a complicated interaction between AUB and thyroid dysfunction, with thyroid conditions including hyperthyroidism and hypothyroidism possibly exacerbating menstrual irregularities. Thyroid hormones are essential for controlling the menstrual cycle because they affect the hypothalamic-pituitary-ovarian axis, which in turn affects endometrial health and bleeding patterns. The significance of taking thyroid function into account as part of the diagnostic assessment for AUB is highlighted by the frequency of thyroid abnormalities in perimenopausal women. When women, particularly those in the perimenopausal age range, appear with AUB, clinicians should have a high index of suspicion for thyroid disease. In order to effectively manage AUB in the setting of thyroid dysfunction, a comprehensive strategy that includes the proper diagnosis, assessment, and therapy of both disorders is needed. To maximize patient care and enhance results, gynecologists and endocrinologists must work together. Thyroid irregularities play a critical part in perimenopausal AUB, and prompt and adequate therapy may eventually improve the quality of life for those afflicted. In this complex clinical condition, further study is necessary to clarify the underlying processes and improve therapeutic approaches.

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