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(RESEARCH ARTICLE)

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A prospective observational study on thyroid dysfunction in women with abnormal uterine bleeding: In a Teritary care hospital

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Abstract

Background: One of the most common diseases in gynecology, abnormal uterine bleeding (AUB) has a major negative impact on women's quality of life. Unusual bleeding in women can be brought on by thyroid conditions. The purpose of the study is to determine how common thyroid abnormalities are in women who have irregular uterine bleeding. It also looks at the menstrual patterns linked to thyroid disorders. The study concluded that hypothyroidism patients have menorrhagia, hyperthyroidism patients may experience dysmenorrhea, and thyroid dysfunction may result in irregular uterine hemorrhage.

Materials and procedures: Premenopausal women with abnormal uterine bleeding (AUB) participated in a prospective observational study conducted in the gynecology department of a tertiary care hospital in Trivandrum between November 2022 and April 2023 (a period of six months).

Result: Of the 75 patients who were chosen, 71 (94.7%) had AUB-induced hypothyroidism and 4 (5.3%) had AUB-induced hyperthyroidism. Regarding the menstrual pattern, 83.1% of patients with hypothyroidism and 100% of patients with hyperthyroidism reported experiencing menorrhagia or dysmenorrhea.

The study concludes that there is a considerable correlation between thyroid issues and abnormal uterine hemorrhage. The majority of female AUB patients exhibit both hyperthyroidism and hypothyroidism. The most common menstrual pattern linked to hypothyroidism was menorrhagia. Dysmenorrhea was thought to be the most prevalent monthly abnormality in hyperthyroidism.

Keywords: Abnormal uterine bleeding; Thyroid disorders; Menstrual patterns.

1. Introduction

One prevalent gynecological issue is abnormal uterine bleeding (AUB). This represents 20% of the female patients that visit the outpatient gynecology department[1]. primarily affect women in the reproductive age range of 15 to 55 years old[2]. One of the major gynecological conditions, AUB is characterized by abnormal uterine bleeding without an organic genital tract disease or a clearly identifiable extragenital cause[3]. Women's health and quality of life are negatively impacted because of blood loss, pain, poor sexual health, infertility, and higher medical expenses[1]. Schroeder coined the phrase "dysfunctional uterine bleeding" in 1914[5]. The International Federation of Gynecology and Obstetrics (FIGO) has established a definition for irregular uterine bleeding that includes any bleeding from the uterus corpus that is not normal in terms of regularity, amount, frequency, or duration; pregnancy is particularly excluded[1]. The main cause of

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abnormal uterine bleeding is hormonal imbalance, which is brought on by a drop in serum progesterone levels, which in turn causes a reduction in prostaglandin synthesis, which in turn causes the uterine bleed vessels to vasoconstriction[4]. Abnormal uterine bleeding can also result from deviations from normal endometrial physiology or anatomy[1].

The largest endocrine gland, the thyroid gland, is located on either side of the trachea at the base of the neck. Women experience thyroid issues at a higher rate than males . Thyroid disease in women of reproductive age can cause early menopause, repeated miscarriages, delayed puberty, and infertility. Hyperthyroidism and hypothyroidism can both cause miscarriages, infertility, and delayed puberty[1].By suppressing TRH secretion[6], thyroid hormones control the release of TSH. Both ovulation and irregularities in the ovarian cycle can be brought on by thyroid disease. However, the molecular cause of these two illnesses is still unknown[7]. The thyroid condition of women has a significant impact on menarche, pubertal growth and development, menstrual cycles, fertility and fetal development, postpartum period, reproductive years, and postmenopausal years[8]. Menstrual irregularities are widely acknowledged to both precede and accompany thyroid dysfunction[6].Numerous facts highlight the role thyroid hormones have in reproductive physiology. For example, granulosa cells have been shown to have TSH receptors. Follicle fluids have been reported to contain T3 and T4. It has been discovered that T4 increases the gonadotrophins' ability to stimulate progesterone production and luteinization. In hypothyroidism, prolactin clearance typically decreases. Severe hypothyroidism patients may have elevated levels of both total and free estradiol, which can lead to an excess of free estrogen stimulating the production of prolactin. Unpredictable menstrual alterations linked to hyperthyroidism can result in major reproductive abnormalities and infertility[6].

In this study aims to assess the prevalence of thyroid disorders in women with abnormal uterine bleeding and also assess the type of menstrual pattern associated with thyroid dysfunction. This information brought forward from this study can be utilized to provide information to the society regarding the thyroid disorders and menstrual disturbances and also provide information to the health care professionals about the treatment option that can be opted for the specific condition.

2. Methodology

The study was performed in the Department of Gynecology in a Tertiary Care Hospital in Thiruvananthapuram, Kerala, India between November 2022 and April 2023. The sample size was 75 (Convenience Sampling Technique). Criterias which includes**:** All premenopausal women with AUB, age between 15-55 years. Unwilling patients, suspected pelvic infection**,** known case of thyroid disorder, women on oral contraceptives/ Intra uterine device (IUD), pregnant women, known cases of genital cancers, autoimmune disorders, liver disorders or coagulopathy, history of childbirth within 1 year, abortion history within 3 months, women who are on drugs like antiepileptic, antipsychotic or hormonal replacement therapy were excluded from this study. The primary outcome was association of thyroid dysfunction in Abnormal Uterine Bleeding and secondary outcome was to assess the menstrual patterns in women with thyroid dysfunction. Patient demographic and clinical characteristic details were obtained through patient medical records, and questionnaire were also included.

The data obtained from the study were statistically analyzed with the help of the software SPSS (version 22.0).

3. Results and discussion

Table 1 Age wise distribution of participants

Age in years	Frequency(n)	Percentage (%)
20-29	28	37.3
30-39	20	26.7
40-49	18	24
50-59	9	12
Total	75	100

The samples were collected from 75 subjects, maximum number of patients belongs to the age group of 20-29 years 37.3%. By the category wise distribution, 71 subjects had hypothyroidism and remaining 4 patients had

hyperthyroidism. More over about the menstrual patterns majority of the patients are experiencing menorrhagia. The association between thyroid dysfunction and menstrual patterns were analyzed by Chi-square test and it was found that there was a statistical association between these two variables. The Chi-square value was 75.0 and the P value was <0.001.

Table 2 Category wise distribution

Category	Frequency (n)	Percentage (%)
Hypothyroidism	71	94.7
Hyperthyroidism	4	5.3
Total	75	100

Table 3 Distribution of Menstrual Patterns

Pattern	Frequency(n)	Percentage (%)
Mennorhagia	59	78.7
Amennorhea	2	2.7
Dysmennorhea	4	5.3
Oligomennorhea	6	8
Polymennorhea	4	5.3
Total	75	100

The details of thyroid dysfunction and menstrual patterns were obtained from the subjects and it showed patients presenting with hypothyroidism,83.1% were menorrhagia. In hyperthyroidism 100% were dysmennorhea.

Table 4 Bleeding pattern and thyroid dysfunction

Menstrual pattern	Hypothyroidism		Hyperthyroidism		Total	
	n	%	n	%	n	%
Mennorhagia	59	83.1	0	0	59	78.7
Amennorhea	2	2.8	0	0	2	2.7
Dysmennorhea	0	0	4	100	4	5.3
Oligomennorhea	6	8.5	0	0	6	8
Polymennorhea	4	5.6	0	0	4	5.3
Total	71	100	4	100	75	100

The purpose of the study is to determine the frequency of thyroid problems, abnormal uterine bleeding, and the kind of menstrual pattern linked to thyroid malfunction. Women's quality of life is significantly impacted by irregular uterine bleeding and thyroid dysfunction. It also sheds light on the knowledge regarding the connection between irregular uterine bleeding and thyroid disease. The age group of 20–29 years old accounts for 37.3% of the patients in our survey, with 30-39 years old coming in second with 26.7%. This is somewhat comparable to the findings of the Pilli et al.[9] study, which found that 58% of the cases were in the 21-40 year age range.

In the study conducted by Moghal et al. (2010), it was found that there is a correlation between thyroid dysfunction and menstrual pattern. Menorrhagia, which is around 83.1% related with hypothyroidism, was the most prevalent complaint seen. Five percent of the 75 AUB patients with abnormal thyroid function tests were hyperthyroid, while the

remaining 94.7% were hypothyroid. In their own research, Sharma and Parmar et al.[11] discovered comparable results. Menorrhagia (78.7%) was primarily thought to be the monthly irregularity linked to hypothyroidism in the study that was being presented; no menstrual irregularity was linked to hyperthyroidism. Similar research by Singh et al. [5] also revealed a strong correlation between menorrhagia and the prevalence of hypothyroidism. Antithyroid drugs are used in our study to treat AUB patients with thyroid dysfunction; anti-fibrinolytics are mostly used to manage irregular bleeding.

Generally, dysmenorrhea is thought to be the most prevalent irregularity of the menstrual cycle connected to hyperthyroidism. According to our research, dysmenorrhea is 100% more likely to be linked to hyperthyroidism. Patients with hyperthyroidism frequently experience oligomenorrhea, according to a research by Farrukh R et al[1]. Four of the 75 individuals had hyperthyroidism, and the irregularity was identified as dysmenorrhea.

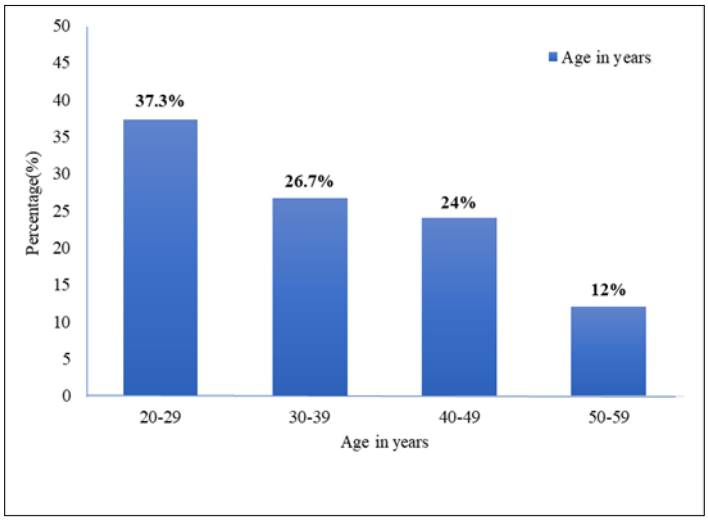

Figure 1 Age wise distribution

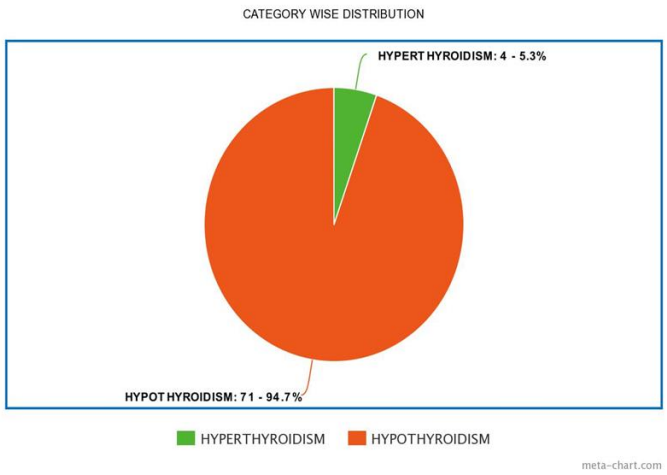

Figure 2 Category wise distribution

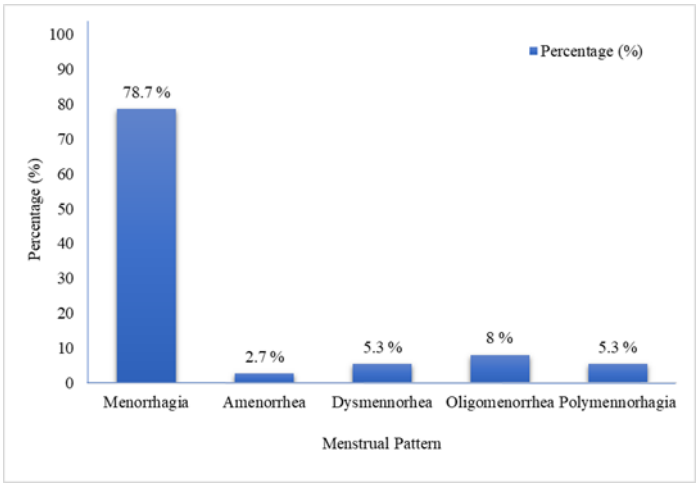

Figure 3 Menstrual patterns distribution

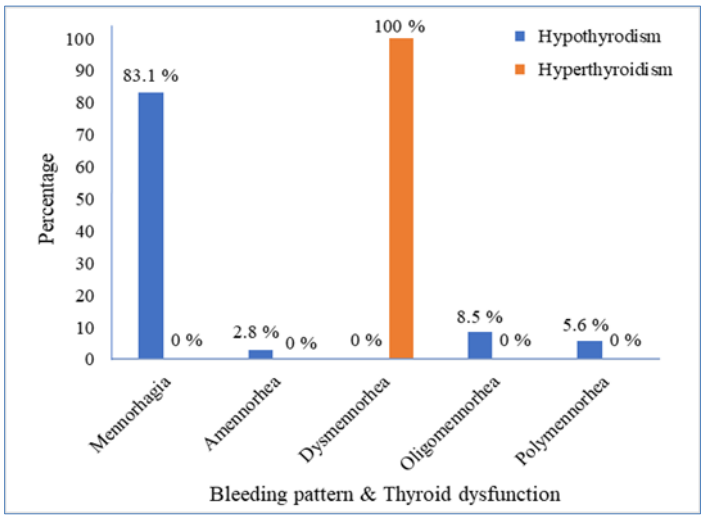

Figure 4 Bleeding patterns & thyroid dysfunction

Based on our research, we can conclude that thyroid dysfunction is a major contributing factor to irregular menstruation. Additionally, women with hypothyroidism are more likely to experience menorrhagia, while those with hyperthyroidism are more likely to experience dysmenorrhea. In order to identify severe thyroid dysfunction in patients with unexplained uterine bleeding, laboratory testing of the thyroid should be performed.

4. Conclusion

From this study, it is concluded that there is a strong co-relation between thyroid dysfunction and menstrual disorder. Thyroid dysfunction can cause wide range of menstrual irregularities like cycle irregularity, menopause etc. Most of the menstrual problems were associated with thyroid dysfunction.

- Menorrhea and dysmenorrhea were the most common signs of hypothyroidism and hyperthyroidism, respectively.
- It is concluded that thyroid dysfunction was high in patients with abnormal uterine bleeding.

Compliance with ethical standards

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Disclosure of conflict of interest

The author has no conflict of interest to declare.

Statement of ethical approval

The study received approval and certificate from the Institutional research committee (ECPS/RC-163/2023) of Ezhuthachan College of Pharmaceutical sciences, Neyyattinkara, Trivandrum.

Statement of informed consent

As per international standard, informed consent was obtained from the participants and kept it on record by authors(s).

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