

Original Research Article

To justify thyroid abnormalities in aub among reproductive age group: A prospective study

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Abstract: Objectives and methods: The present study is a cross-sectional study of 250 women with abnormal uterine bleeding in the reproductive age group undertaken in Srinivasan Medical college Hospital and Research centre over a period of 12 months. It was done to ascertain the possibility of a correlation between subclinical thyroid dysfunction and AUB.

Results and conclusion: The incidence of thyroid dysfunction in the reproductive age group is 1-2%. It is 10 times more common in women than in men. The incidence of thyroid dysfunction in a population with AUB is 20.4% according to our study and hence selective screening of this population would result in a higher yield. The study showed a significant correlation ($p=0.019$, significant) between increasing age and thyroid dysfunction. TSH is a good screening test with a sensitivity of 72% and specificity of 100%. The positive and negative predictive values were 100% and 91% respectively.

Keywords: Thyroid dysfunction; abnormal uterine bleeding; AUB; TSH; Thyroid profile.

1. Aim of the study

Abnormal uterine bleeding (AUB) is a common gynecological problem that affects women in their reproductive age group. It refers to any bleeding that deviates from the regular menstrual cycle in terms of duration, frequency, and/or amount. Various factors can contribute to AUB, including hormonal imbalances, structural abnormalities, and systemic illnesses. One such systemic illness that has gained significant attention in recent years is thyroid dysfunction. Thyroid hormones play a crucial role in reproductive health, and their imbalance can lead to menstrual irregularities and subfertility. Therefore, it is essential to investigate the possible correlation between subclinical thyroid dysfunction and AUB [1,2].

The incidence of thyroid dysfunction in the general population is estimated to be 1-2%, with women being affected ten times more commonly than men. Several studies have reported a high prevalence of thyroid dysfunction in women with AUB. However, there is no consensus on whether to perform routine thyroid function tests in all women with AUB [3]. Selective screening of this population can improve the yield of detecting thyroid dysfunction. Therefore, the present cross-sectional study aimed to investigate the prevalence of subclinical thyroid dysfunction in 250 women with AUB in the reproductive age group [4-9].

The study was conducted over a period of 12 months in Srinivasan Medical College Hospital and Research Centre. The results showed a significant correlation between increasing age and thyroid dysfunction. Furthermore, TSH was found to be a good screening test for detecting thyroid dysfunction, with a sensitivity of 72% and specificity of 100%. These findings emphasize the importance of evaluating thyroid function in women with AUB, particularly those who are older. This study's significance lies in its contribution to better understanding the association between subclinical thyroid dysfunction and AUB, which can guide clinical decision-making and improve patient outcomes.

2. Aim of the study

A cross-sectional study was conducted to investigate the association between thyroid dysfunction and abnormal uterine bleeding (AUB) among women in the reproductive age group (18-45 years).

3. Materials and Methods

This cross-sectional study aimed to investigate the association between thyroid dysfunction and abnormal uterine bleeding (AUB) in women of reproductive age (18-45 years). The study included 250 women with AUB, who attended the outpatient department or were admitted to Srinivasan Medical College Hospital and Research Centre over a period of 12 months from January 2022 to December 2022.

3.1. Inclusion Criteria

The inclusion criteria were:

1. Women aged between 18 and 45 years.
2. Women with any of the following menstrual disturbances: heavy menstrual bleeding, intermenstrual bleeding, irregular cycles, or postmenopausal bleeding.
3. Women without demonstrable pelvic pathology, including pelvic inflammatory disease (PID).
4. Women with increased body mass index (BMI).
5. Women who were not using any hormonal preparation.
6. Women who had not used any intrauterine contraceptive device (IUCD) in the past two years.
7. Women who had not received any thyroid replacement therapy.
8. Women with signs and symptoms of hypo/hyperthyroidism.

3.2. Exclusion Criteria

The exclusion criteria were:

1. Teenage AUB.
2. Age greater than 45 years.
3. Presence of palpable pelvic pathology, such as fibroids, polyps, or cervical growths.
4. Presence of general disorders, such as tuberculosis.
5. Presence of diabetes, hypertension, or clotting abnormalities.
6. Patients with a history of bleeding diatheses.
7. Patients on medications, such as aspirin, heparin, sulpha drugs, antithyroid medication, eltroxin, glucocorticoids, and amiodarone.

3.3. Data Analysis

The study data were analyzed using appropriate statistical tests to determine the correlation between subclinical thyroid dysfunction and AUB in the study population. The results were reported in terms of incidence rates, sensitivity, specificity, positive and negative predictive values, and statistical significance (p-value).

The study excluded patients on drugs such as aspirin, heparin, sulpha drugs, antithyroid medication, eltroxin, glucocorticoids, and amiodarone. The majority of the patients (45%) belonged to the age group of 24-32 years. Among the patients, menorrhagia (38.8%) and oligomenorrhea (35.6%) were the most common types of AUB.

Table 1 shows the age distribution of the study group. Table 2 shows the type of AUB observed in the study. The T4 values ranged from 3.2 to 14.1 $\mu\text{g}/\text{dl}$, with a mean of 7.5 $\mu\text{g}/\text{dl}$. The TSH values ranged from 0.01 to 18.56 $\mu\text{IU}/\text{ml}$, with a mean of 2.63 $\mu\text{IU}/\text{ml}$. Table 3 shows the T4 values, and Table 4 shows the TSH values observed in the study.

Overall, our study suggests that there is a significant correlation between subclinical thyroid dysfunction and AUB. The high incidence of thyroid dysfunction among patients with AUB indicates that selective screening of this population could result in a higher yield. Furthermore, TSH is a good screening test with a high sensitivity and specificity. These findings may have important clinical implications for the management of AUB in the reproductive age group.

Table 1. Age distribution of the study group

Age group	Frequency	Percentage
18-24	32	12.8%
24-32	142	56.8%
32-40	51	20.4%
>40	25	10%

Table 2. Type of aub

Type of AUB	Frequency	Percentage
Oligomenorrhea	78	31.2%
Menorrhagia	110	44.0%
Amenorrhea	78	19.6%
Hypomenorrhea	7	2.8%
Polymenorrhea	6	2.4%

Table 3. T4 VALUES (N 4.8 -11.5 $\mu\text{g}/\text{dl}$)

T4 ($\mu\text{g}/\text{dl}$)	Number	Percentage
<4.8	34	13.6%
4.8 - 11.5	199	79.6%
>11.5	17	6.8%

Table 4. TSH VALUES (N 0.3 - 6.18 $\mu\text{IU}/\text{ml}$)

TSH ($\mu\text{IU}/\text{ml}$)	Number	Percentage
<0.3	23	9.2%
0.3 - 6.18	182	72.8%
>6.18	45	18.0%

4. Discussion

Abnormal uterine bleeding (AUB) is a common and distressing gynecologic condition that can significantly impact a woman's quality of life. Our cross-sectional study of 250 women with AUB reveals a strong association between thyroid dysfunction and AUB, as measured by T4 and TSH levels in the fasting state. The incidence of thyroid dysfunction in our study population was 20.4%, consistent with previous research.

We found that women with menorrhagia had a higher incidence of hypothyroidism (8.8%) compared to those with amenorrhea (4.0%), while hyperthyroidism was more common (5.6%) in women with oligomenorrhea. Additionally, our study showed a significant correlation between increasing age and thyroid dysfunction, as well as between the duration and number of episodes of AUB and thyroid dysfunction.

Our findings suggest that TSH is a valuable screening test for thyroid dysfunction in women with AUB, with a sensitivity of 72% and specificity of 100%. Moreover, the positive and negative predictive values were 100% and 91%, respectively. Overall, our study highlights the importance of considering thyroid dysfunction in the evaluation and management of AUB, particularly in women with menorrhagia and oligomenorrhea, as well as in older women with AUB.

5. Conclusion

It may be concluded from the present study that there is a significant association between thyroid disorders and AUB. The study showed a significant correlation ($p=0.019$, significant) between increasing age and thyroid dysfunction. TSH is a good screening test with a sensitivity of 72% and specificity of 100%. The positive and negative predictive value were 100% and 91% respectively.

The high incidence of thyroid disorders in women with AUB, particularly if the 7-10% of subclinical hypothyroidism is included, justifies the cost of screening in this selective population. The risk of progression to overt hypothyroidism (about 5% per year) in patients with subclinical disease and the cost-benefit ratio also emphasise the need for selective screening. Early detection of subclinical disease by selective screening facilitates appropriate therapy early in the course of the disease.

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Conflicts of Interest: "Authors declare that they do not have any conflict of interests."

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