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Original Research Article

Prevalence of thyroid dysfunction in women with abnormal uterine bleeding in reproductive age

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ABSTRACT

Background: Abnormal uterine bleeding (AUB) is one of the commonest presentations encountered in gynecological outpatient department. Menstruation is also regulated by many mechanisms, including thyroid hormone. So, for definitive management of AUB, it becomes imperative to assess thyroid status in those with abnormal uterine bleeding.

Methods: Cross sectional study was conducted on all woman attending to OPD at Sri Siddhartha Medical College, Tumakuru, with complaints of abnormal uterine bleeding (AUB). Thyroid test was done for those who were eligible under inclusion criteria. Incidence of thyroid disorders among AUB and type of abnormal menstrual pattern associated with specific type of thyroid dysfunction were noted in this study.

Results: Total of 522 presented with AUB. AUB was most common among woman age >40 years at 49.23% (257 of total 522 cases). AUB was more common in Multipara at 61.49% (321 of 522 cases). Menorrhagia was commonest pattern in AUB accounting for 51.34% (268 of 522 cases). Thyroid dysfunction was present in 12.27% (64 of 522) of cases with AUB. Among them hypothyroid was most common accounting for 8.81% (46 of 522 cases). Hyperthyroidism was present in 3.44% (18 of 522 cases). Menorrhagia was most common pattern in Hypothyroidism at 65.21% (30 of 46 cases), followed by polymenorrhea at 17.39% (8 of 46 cases). Oligomenorrhea was most common in hyperthyroid group at 55.54% (10 of 18 cases) closely followed by hypomenorrhea at 44.44% (8 of 18 cases).

Conclusions: Abnormal uterine bleeding (AUB) is one of the commonest gynecological complaint at gynecological OPD. Thyroid dysfunction is noted consistently in cases of AUB. So, evaluation of thyroid profile should be part of evaluation of AUB, especially during perimenopause.

Keywords: Abnormal uterine bleeding, Hyperthyroidism, Hypothyroidism, Perimenopause, Thyroid disorder

INTRODUCTION

Abnormal uterine bleeding (AUB) is one of the most common gynecological complaint representing many underlying clinical conditions. It affects nearly 9-14% of woman between menarche to menopause, thereby affecting the quality of life and causing economic burden.¹ PALM-COEIN is a useful acronym provided by FIGO, 2018 to classify etiology of abnormal uterine

bleeding (AUB). 1st portion describes structural disorders and second part describes non-structural disorders.²

Thyroid gland is one of largest endocrine gland situated in the neck and weighs about 20 grams in an adult. It secretes two major hormone, thyroxin and triiodothyronine, which are controlled by thyroid stimulating hormone secreted by anterior pituitary. It is known to be one of the most versatile hormone which has

effect on human body starting from womb to tomb. Some of the important functions includes cell differentiation, body growth, basal metabolism and reproductive physiology. Thyroid gland controls gonads by a combination of direct metabolic effect as well as excitatory and inhibitory control of gonads through gonadotropins and prolactin from anterior pituitary.³

Thyroid disorders are more common in women than in men. Also, the female reproductive system is more closely associated with female reproductive system than male as evidenced by goitrous enlargement during menarche, pregnancy and menopause. Delayed puberty, precocious puberty, menstrual disturbances and infertility have been observed in association with thyroid disorders.⁴

Thyroid dysfunction, both hypothyroidism and hyperthyroidism can be associated with abnormal uterine bleeding. The earliest association of thyroid disorder with menstrual disturbance was noted by Basedov in 1840. He observed association of amenorrhea with hyperthyroidism. Hypothyroidism can cause AUB, including menorrhagia. Hyperthyroidism can result in oligomenorrhea or amenorrhea.^{5,6}

The association of thyroid disorder with thyroid abnormality has not been studied or published in the geographical region where this study is conducted. So, this study is taken to look for the burden of thyroid dysfunction on AUB.

METHODS

Cross sectional study was conducted at department of obstetrics and gynecology, outpatient department, SSMC, Tumukuru. The study population was, those women who presented to OPD with complaints of abnormal uterine bleeding (AUB). The study was done from July 2109 to November 2019. The data was entered in excel spread sheet.

Inclusion criteria

- All woman from puberty to menopause presenting to outpatient with abnormal uterine bleeding (AUB) in reproductive age group.

Exclusion criteria

- All other causes listed in PALM-COEIN Classification for AUB except thyroid dysfunction
- Those who had other causes along with thyroid dysfunction
- Those with subclinical thyroid dysfunction
- Those with postmenopausal bleeding/premenarchal uterine bleeding.

Complete history was noted down. General physical examination, systemic and pelvic examination were done

with the intent of diagnosis for cause of AUB. Relevant investigation like complete blood count, USG, bleeding time, clotting time, FBS, S. prolactin and thyroid profile were done.

Thyroid test included serum TSH, S. T4 and S.T4.

Normal reference range is as follows:

- S. TSH - 0.45-4.5 μ U/ml
- S. Free T4 - 0.7-1.9 ng/dl
- S. Free T230 - 619 pg/dl.

Statistical analysis

All qualitative variables were presented with frequencies and percentages. The association between categorical variables were tested using Chi-square test. The data was analyzed using SPSS software (version 20).

RESULTS

The total number of cases studied as AUB were 522. The disorder was more common in age group 40 years and older accounting for 49.28% (257 of total 522 cases).

Table 1: Distribution of cases as per age.

Age group	Frequency	Percentage
<20	90	17.24%
21-30	34	6.51%
31-40	141	27.01%
>40	257	49.23%
Total	522	100%

Table 2: Distribution of cases as per parity.

Parity	Frequency	Percentage
Nullipara	96	18.39%
Primipara	105	20.11%
Multipara	321	61.49%
Total	522	100%

Table 3: Menstrual disturbance pattern in AUB.

Compliant	Frequency	Percentage
Menorrhagia	268	51.34%
Polymenorrhea	111	21.26%
Oligomenorrhea	73	13.98%
Hypomenorrhea	70	13.40%
Total	522	100%

AUB was more common amongst multiparous woman contributing to 61.49% (321 of total 522 cases).

The most common menstrual disorder pattern seen in AUB was menorrhagia which was 51.34%. (268 of total

522 cases). Next commonest was polymenorrhea at 21.26% (111 of 522 cases).

The thyroid status was studied in all AUB cases and the percentage of thyroid abnormality was found in 64 cases (12.27%), including hypothyroidism and hyperthyroidism. Euthyroid, hypothyroid and hyperthyroid were 87.73% (458 of 522 cases), 8.81% (46 of 522 cases) and 3.44% (18 of 522 cases) respectively.

Majority of the hypothyroid cases were in age group >40 years accounting to 60.86% (28 cases out of 46). The highest number of hyperthyroid cases were in age group of 21-30 years, 50% (9 out of 18 cases).

More number of hypothyroid cases were in >40 years age group and a smaller number of cases in <20 years age group. There is high association observed between age groups and thyroid type and it is found statistically significant ($p < 0.001$).

Table 4: Thyroid status in AUB.

Thyroid status	Frequency	Percentage
Euthyroid	458	87.73%
Hypothyroid	46	8.81%
Hyperthyroid	18	3.44%
Total	522	100%

Table 5: Age and thyroid status.

Age	Euthyroid		Hypothyroid		Hyperthyroid		Total
	No.	Percentage	No.	Percentage	No.	Percentage	
<20	85	18.6%	2	4.3%	3	16.7%	90
21-30	19	4.1%	6	13.0%	9	50.0%	34
31-40	126	27.5%	10	21.7%	5	27.8%	141
>40	228	49.8%	28	60.9%	1	5.6%	257
Total	458	100.0%	46	100.0%	18	100.0%	522

Chi square: 72.89, p-value: <0.001.

Table 6: Relation of thyroid status with menstrual disturbances.

Menstrual disturbance	Euthyroid		Hypothyroid		Hyperthyroid		Total
	No.	Percentage	No.	Percentage	No.	Percentage	
Menorrhagia	238	51.96%	30	65.21%	0	0%	268
Polymenorrhea	103	22.48%	8	17.39%	0	0%	111
Oligomenorrhea	60	13.10%	3	6.50%	10	55.54%	73
Hypomenorrhea	57	12.44%	5	10.86%	8	44.44%	70
Total	458	100%	46	100%	18	100%	522

Chi square: 48.05, p-value: <0.001.

In hypothyroidism, menorrhagia was the commonest menstrual disorder pattern, accounting 65.21% of all menstrual pattern abnormality (30 of 46 cases). Next commonest was polymenorrhea at 17.39%

In hyperthyroid group, oligomenorrhea was commonest type of menstrual disorder pattern, which was 55.54%. However, hypomenorrhea was close second at 44.44%.

There is high association observed between types of menstrual disturbances and thyroid type and it is found statistically significant ($p < 0.001$).

DISCUSSION

AUB can lead to multitude of effects ranging from medical, social and financial issues. It can lead to serious loss of work, decrease in quality of life and drain financial resources. Therefore, early diagnosis and

management can alleviate some of the concerned issues.^{1,7}

In this study it was observed that the incidence of AUB was more common in age group >40 years which was 257 of total 522 cases (49.23%). Laxmi et al, study showed in age group 41-50 at 45.9%. Mitali et al also found that it was common in 5th decade. Even Byna P et al and Subedhi et al, noted highest incidence of AUB 67.27 and 53.33 respectively in the age group of 35-45. This could be explained as HPO axis dysfunction occurring in years preceding menopause.⁸⁻¹¹

Also, the incidence was more among multipara, which can be explained by the advanced age of mother in multipara.

Menorrhagia was the commonest menstrual disturbance among AUB cases, in our study accounting for 51.34%.

Laxmi M noted 55.3% presented with menorrhagia among all cases of AUB. In similar study done by Ajamani et al, menorrhagia accounted for 50% of all AUB.^{8,12}

Authors studied for thyroid status was studied in all cases of AUB. Most cases were euthyroid accounting for 87.73% of all cases. Hypothyroidism was found in 8.81%. Kaur et al, Sharma et al had similar incidence of hypothyroidism in cases of AUB. Authors had hyperthyroidism accounting for 3.44%. Almost similar incidence was also observed in studies done by Verma A et al at 4%.¹³⁻¹⁵

In this study, a greater number of hypothyroid cases were in >40 years age group and a smaller number of cases in <20 years age group. Hyperthyroidism was more in age group 21-30 years. There is high association observed between age groups and thyroid disorder type and it is found statistically significant ($p < 0.001$).

The commonest menstrual abnormality in hypothyroidism in this study was menorrhagia, 65.21%. Verma A et al and Jinger SK et al, had similar observations. This is probably related to anovulation that occurs in hypothyroidism.^{15,16}

In a study of 171 involving only hypothyroid patients, it was found that 76.6% had regular cycles and 23.4% had irregular cycles. Oligomenorrhea and menorrhagia was most common menstrual irregularity. The study also concluded that hypothyroidism is less frequently associated with menstrual irregularity than frequently believed. Also, it concluded that menstrual irregularities are more common in severe forms of hypothyroidism rather than milder disease.¹⁷

In this study, oligomenorrhea (55.54%) was commonest type of abnormality seen in those with hyperthyroidism. Benson studied thyrotoxicosis patient, wherein 58% had oligomenorrhea or amenorrhea.¹⁸ This study did not find any case of amenorrhea because there were no severe thyrotoxic patients. Jinger SK et al had also observed oligomenorrhea as the most common menstrual disorder in hyperthyroidism (75%). Authors found hypomenorrhea as the next common finding in hyperthyroidism. Jinger SK, Koutrass DA also found hypomenorrhea as the next common disorder.^{16,19}

However, it is interesting to note that unlike hypothyroidism, hyperthyroidism in most cases does not interfere with menstruation, ovulation and pregnancy unless in severe form where it causes amenorrhea.²⁰

In this study, there is high association observed between types of menstrual disturbances and thyroid disorder type and it is found statistically significant ($p < 0.001$).

It is noticed in many studies mentioned before and including this study, the incidence of AUB in more

towards perimenopause and hypothyroidism is frequent in older woman in general population, which includes perimenopausal period. This justifies screening for thyroid profile even in asymptomatic older woman. It is recommended to screen with S. TSH assay every 5 years beginning at 35, then every 2 years after 60 years.²¹

CONCLUSION

Abnormal uterine bleeding (AUB) is one of the commonest gynecological complaint at gynecological OPD. It is manifestation of various heterogeneous etiology and it is clear that thyroid dysfunction is one of them. Though certain abnormal menstrual patterns are common to specific type of thyroid disorder, it is not consistent and nor diagnostic of specific type of thyroid dysfunction.

So, it is wise to order for thyroid profile irrespective of the pattern of menstrual abnormality. Importantly, as both AUB and thyroid dysfunction are more frequent during perimenopause, testing for thyroid dysfunction should be considered as first line of investigation for AUB in that period.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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