

## Evaluation of Thyroid Dysfunction in Abnormal Uterine Bleeding

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Received: 12-11-2020 / Revised: 14-12-2020 / Accepted: 18-01-2021

### Abstract

**Introduction:** Abnormal uterine bleeding (AUB) is a common clinical presentation in gynecology. Alteration in thyroid hormones level has been associated with menstrual disturbances. The objective of this study was to study the correlation between thyroid disorders and abnormal uterine bleeding in women of reproductive age group. **Method:** 100 Patient of clinically diagnosed AUB were taken from gynecology OPD. All the patients from 15 to 45 age groups presenting with menstrual disturbances underwent thorough clinical examination, ultrasonography and thyroid function tests. **Result:** Out of 100 women of AUB, majority were in the age group of 31-40 years (41%), 50% were multiparous and 46% presented with menorrhagia. 68% were euthyroid, 17% had subclinical hypothyroidism, 12% had overt hypothyroidism and 3% were diagnosed as hyperthyroid. Subclinical hypothyroidism, overt hypothyroidism and hyperthyroidism were detected mostly in the age group of 31-40 years. The commonest bleeding abnormalities in hypothyroid patients were menorrhagia and oligomenorrhoea. While most of the hyperthyroid cases were oligomenorrhagic. **Conclusion:** Our study concludes that thyroid dysfunction should be considered as an important etiological factor for menstrual abnormalities. Hence while investigating a patient with AUB, evaluation of thyroid function forms an essential component.

**Keywords:** Abnormal uterine bleeding (AUB), thyroid disorders

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### Introduction

Abnormal uterine bleeding is one of the most frequently encountered conditions in gynecology and defined as an abnormal bleeding from the uterus in the absence of organic disease of genital tract and demonstrable extragenital cause[1]. It involves variation from normal menstrual cycle and includes changes in regularity and frequency of menses, in duration of flow or in amount of blood loss. Abnormal uterine bleeding affects 10-30 percent of reproductive aged women and upto 50 percent of perimenopausal women[2]. Incoordination in the hypothalamo-pituitary-ovarian axis may lead to endometrial abnormalities. It is thus prevalent in extremes of reproductive period-adolescence and premenopause or following childbirth and abortion[3]. A broad spectrum of reproductive illnesses ranging from menstrual irregularities and abnormal sexual development to infertility and premature menopause can be seen associated with thyroid abnormalities[4]. Thyroid hormone disorders could be responsible for all kinds of menstrual cycle irregularities. These are around ten times more common in females than males possibly due to autoimmune nature of thyroid disorders[5].

#### Terms used to describe AUB:

Oligomenorrhoea: bleeding occurs at interval of > 35 days. Polymenorrhoea: bleeding occurs at interval of < 21 days. Menorrhagia: bleeding occurs at normal interval but with a heavy flow ( $\geq 80$  ml) or duration of > 7 days. Meno- metrorrhagia: bleeding

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occurs at irregular/ non-cyclic interval with heavy flow ( $\geq 80$  ml) or duration of > 7 days. Metrorrhagia: irregular bleeding that occurs between ovulatory cycles inter menstrual bleeding. Amenorrhea: bleeding is absent for 6 months or more in non-menopausal women.

#### Aims and Objectives

- To assess and detect the thyroid dysfunction in women with abnormal uterine bleeding.
- To evaluate the age group in which thyroid dysfunctions are more common.
- To assess the menstrual abnormalities in women with thyroid disorders

#### Materials & Methods

The present study aimed to establish the role of thyroid dysfunctions in relation to menstrual disturbances. After approval from institutional ethical committee and informed consent from patients this study was conducted on 100 women coming to out-patient department with complaints of AUB.

**Inclusion Criteria:** Females in age group of 15-45 years with complaint of abnormal uterine bleeding with signs and symptoms of thyroid disorders.

**Exclusion Criteria:** Women with presence of pelvic pathology like fibroids, polyp, cervical growth. etc., with history of bleeding diathesis and clotting abnormalities or on drugs like aspirin, heparin, anti-thyroid agents, thyroxin and other hormonal treatment, were known cases of diabetes mellitus and hypertension, who were Pregnant, women with intrauterine contraceptive device (IUCD) in situ and who were already diagnosed cases of thyroid disorders. A detailed history of all the patients included in the study was taken.

A questionnaire was designed to collect information regarding

demographics, menstrual complaints, history of medical illnesses and history of any drug intake. The detailed gynecological history and also the detailed present and past menstrual history was taken from the patients. A detailed examination including general and gynecological examination was done by which the obvious pelvic pathologies were ruled out. Ultrasonography of all the patients was done. Blood samples of all the patients were sent for CBC, Blood sugar, Urine routine BT, CT and thyroid profile which included T3, T4 and TSH. Serum T3, T4, TSH levels. The biochemical parameters were measured by standard laboratory technique.

#### Statistical Analysis

All Statistical analysis was done by using SPSS (statistical package of social science) 20.0 version. The data was presented as mean for

continuous variables or absolute number (%) for categorical variable unless otherwise specified. p-value <0.005 was considered statistically significant. Categorical data was compared using chi square test and independent t-test.

#### Results

According to Table 1, maximum number of patients in the study group belongs to the age group of 31–40 years – 41% followed by 21–30 yrs of age (28%). Table 2 showed Majority of patients were multiparous with parity more than or equal to 2 (50%), while 18% were unmarried and 6% nulliparous.

**Table 1: Distribution of patients according to age**

Age group(in years)	No. of patients	Percentage (%)
<20	19	19
21-30	28	28
31-40	41	41
>40	12	12

**Table 2: Distribution of patients according to parity**

Parity	No. of patients	Percentage (%)
Unmarried	18	18
Nullipara	6	6
Primipara	26	26
Para2	32	32
Para ≥3	18	18

68% of the patients with AUB were euthyroid, 17% had subclinical hypothyroidism and 12% were diagnosed to be hypothyroid and 3% patients had hyperthyroidism (Table3).

**Table 3: Thyroid dysfunction in AUB patients.**

	Euthyroid	Hypothyroid	Subclinical Hypothyroidism	Hyperthyroidism
No. of patients	68	12	17	3

Thyroid dysfunction in AUB patients was commonest in the age group of 41–45 years (50%), followed by 45.45% in 31–40 years age group and 30% in less than 20 years group (Table 4).

**Table 4: Thyroid dysfunction in different age groups of AUB patients.**

Age	No. of cases	Euthyroid	Hypothyroid	Subclinical Hypothyroid	Hyperthyroid	Total Thyroid Dysfunction
<20	20	14(70%)	3(15%)	3(15%)		6(30%)
21-30	28	26(92.85%)	1(3.57%)	1(3.57%)		2(7.14%)
31-40	44	24(54.54%)	6(13.63%)	11(25%)	3(6.8%)	20(45.45%)
>40	8	4(50%)	2(25%)	2(25%)		4(50%)

Subclinical hypothyroidism and hyperthyroidism were detected mostly in the age group of 31–40 years, 25% and 6.81% respectively. 25% patients of AUB in age group of 41–45 years were hypothyroid. In patients presenting with menorrhagia, 76.08% were euthyroid, 15.21% had subclinical hypothyroidism and 8.69% were diagnosed as hypothyroids. In patients who presented with oligomenorrhoea, 38.88% were euthyroid, 27.77% had subclinical hypothyroidism and 22.22% had overt hypothyroidism and 11.11% were diagnosed as hyperthyroid. Patients presenting with polymenorrhoea, 22.22% had

subclinical hypothyroidism and 11.11% had hypothyroidism. (Table5). In our study, patients with hypothyroidism (subclinical and overt) presented mainly with menorrhagia (11 out of 29 patients i.e.37.93%). The second most common menstrual abnormality was oligomenorrhoea in hypothyroids (9 out of 29 i.e.31.03%). Other menstrual irregularities with which the patient presented were polymenorrhoea (6 out of 29 i.e.20.68%) and metrorrhagia (2 out of 29 i.e. 6.89%). Patients, who were hyperthyroid presented with oligomenorrhoea and amenorrhoea (Table 5).

**Table 5: Bleeding pattern and thyroid dysfunction**

Bleeding pattern	No. of patient	Euthyroid	Hypothyroid	Subclinical hypothyroid	Hyperthyroid
Menorrhagia	46	35(76.08%)	4(8.69%)	7(15.21%)	
Polymenorrhoea	18	12(66.66%)	2(11.11%)	4(22.22%)	
Metrorrhagia	8	6(75%)	1(12.5%)	1(12.5%)	
Meno-metrorrhagia	6	5(83.33%)	1(16.66%)		
Oligomenorrhoea	18	7(38.88%)	4(22.22%)	5(27.77%)	2(11.11%)
Amenorrhoea	4	3(75%)			1(25%)

## Discussion

In our study majority of patients of AUB (41%) were in the age group of 31-40 years. Pilli et al<sup>6</sup> had 58% cases in age group of 21-30 years. Surendra Kumar Jinger et al<sup>7</sup> in their study of 100 women with AUB had 49% in 20-30 yr age group. Pilli et al reported that AUB is seen in 87% multipara, 7% primipara and 6% nulliparous. Results of our study are also in agreement with above study as majority of patients in our study were multiparous (50%). Menorrhagia was the main complaint in the patients of abnormal uterine bleeding (46%) which was also seen in the studies by Pilli et al in 34%. In the study by Sangeeta Pahwa et al<sup>8</sup>, menorrhagia was in 50% patients and in Deshmukh et al<sup>9</sup> study, 40% patients had menorrhagia. Menorrhagia as the most common form of AUB pattern in the total population is supported by almost all the studies- Parveen et al<sup>10</sup> and Verma et al<sup>11</sup>. The cause for Menorrhagia in most of these studies is said to be due multiple factors: Defective or delay in LH response leading to Luteal phase defect and anovulation due to GnRH pulsatile secretion which was due to TRH induced Hyperprolactinemia, Abnormal feedback at pituitary level due to decreased SHBG production thereby leading to altered peripheral metabolism of oestrogens, Altering coagulation factors (decrease in factors VII, VIII, IX, XI) causing menorrhagia. Oligomenorrhoea and polymenorrhoea were the next common menstrual problems followed by and metrorrhagia. 27 patients out of 100 patients, showed thyroid dysfunction (27%). In the study of Sangeeta Pahwa et al<sup>8</sup>, 24% patients had thyroid dysfunction. The main thyroid dysfunction noted was hypothyroidism including subclinical (17%) and overt hypothyroidism (12%) in our study. Similarly in the study by Marimuthu K et al<sup>12</sup>, 15.6% were hypothyroid, 3.2% had subclinical hypothyroidism and 7.2% were hyperthyroid. 37.93% of cases of hypothyroid (both subclinical and overt) in our study, were exhibiting menorrhagia. 57.13% patients in the study by Rema V. Nair et al<sup>13</sup> and 46.15% patients in the study by Menon Bharucha et al<sup>14</sup> had complaints of menorrhagia. Oligomenorrhoea and amenorrhoea as the most common AUB patterns in Hyperthyroid patients is supported by studies conducted by Jinger et al<sup>7</sup> and Somani et al<sup>15</sup> who showed Oligomenorrhoea as 75% and 55.5% respectively. The main symptom in patients diagnosed to have hyperthyroidism was oligomenorrhoea (66.6%) followed by amenorrhoea (33.3%) in our study which was comparable to above studies.

## Conclusion

Various types of menstrual disorders can be considered as possible presenting symptoms of thyroid disorders and thyroid assessment should be done in all these cases. Unless proper evaluation of thyroid function is done among these patients, we often miss an important etiology of AUB. With the advent of modern hormonal assay techniques, precise estimation of thyroid hormone in serum is possible in a rapid and reliable manner. Hence while investigating a patient with AUB, evaluation of thyroid function forms an essential

component. Our study concludes that thyroid dysfunction should be considered as an important etiological factor for menstrual abnormalities. Thus, biochemical evaluation of T3, T4, and TSH estimations should be made mandatory in AUB cases to detect apparent and occult thyroid dysfunction. This can avoid unnecessary hormonal treatment and surgical intervention.

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**Conflict of Interest: Nil**

**Source of support: Nil**