

## An analytical study to evaluate the relationship between thyroid dysfunction and abnormal uterine bleeding

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### Abstract

**Aim:** To evaluate the relationship between thyroid dysfunction and abnormal uterine bleeding. **Materials and Methods:** The present retrospective hospital based study was conducted in the Department of Obstetrics and Gynecology, Patna Medical College and Hospital, Patna, Bihar from December 2016 to December 2017. 110 patients with abnormal uterine bleeding were found to be eligible for inclusion in the study. **Results:** Mean age of the study subjects was 32.71 years. Majority of patients was multiparous (58.2%). 40.0% of women presented with complaint of heavy menstrual bleeding. 42.7% of the study subjects were having thyroid dysfunction **Conclusion:** Abnormal uterine bleeding was found to be strongly associated with thyroid related disorders. Hence the evaluation of thyroid function forms an essential component among abnormal uterine bleeding patients

**Keywords:** Abnormal Uterine Bleeding, Thyroid Dysfunction.

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### Introduction

Abnormal uterine bleeding affects 10-30 percent of reproductive aged women and upto 50 percent of perimenopausal women.<sup>1</sup> It is seen in 15-20% of women from the commencement of menarche to menopause and has great impact on quality life of the women.<sup>2</sup> Failure in finding etiology along with debilitating symptoms mostly results in unnecessary surgical interventions causing increase in morbidity and mortality.

Endocrinological dysfunctions including thyroid disorders plays major role in its etiopathogenesis. Thyroid hormones exert multiple effects on the human body specifically on the development, metabolism, growth and functions of major organ system in the human body.<sup>3</sup>

Mechanisms behind menstrual irregularities due to thyroid disorders are multiple. Some of these are like

alterations in TSH response, altered LH response and conversion of androgens to estrogen peripherally. TRH causing increased prolactin levels, altered SHBG and effect on the coagulation factors.<sup>4,5</sup>

In the early stages of thyroid disease (thyrotoxicosis and myxoedema), menorrhagia or polymenorrhoea is a common complaint. Later, amenorrhoea develops, especially in thyrotoxicosis.<sup>6</sup> With hyperthyroidism, hypomenorrhoea and amenorrhoea are more frequent complaints and menorrhagia is noted in only approximately 5 percent. With severe overt hypothyroidism, women commonly present with anovulation, amenorrhoea and anovulatory DUB.<sup>7</sup>

Hence the present study was conducted with the aim to evaluate the relationship between thyroid dysfunction and abnormal uterine bleeding.

### Materials and Methods

The present hospital based observational study was conducted in the Department of Obstetrics and Gynecology, Patna Medical College and Hospital, Patna, Bihar from December 2016 to December 2017.

### Inclusion Criteria

1. Patients presented with the chief complaint of abnormal uterine bleeding.

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2. Patients between the age group of 18-45 years
3. Patients who have provided the informed consent

#### Exclusion Criteria

1. Patients with previously known thyroid disorder
2. Patients diagnosed with thyroid disease, hyperprolactinemia and coagulopathy
3. Patients on anticoagulant drugs.
4. Patients who have not signed the informed consent

#### Ethical approval and Informed consent

The study protocol was reviewed by the Ethical Committee of the Hospital and granted ethical clearance. After explaining the purpose and details of the study, a written informed consent was obtained.

#### Sample selection

The sample size was calculated using a prior type of power analysis by G\* Power Software Version 3.0.1.0 (Franz Faul, Universitat Kiel, Germany). The minimum

sample size was calculated, following these input conditions: power of 0.80 and  $P \leq 0.05$  and sample size arrived were 110 participants.

#### Methodology

Patient demographic characteristics, medical and obstetrical history including present and past menstrual history was taken from the patients. A detailed examination including general and gynaecological examination was done by which the obvious pelvic pathologies were ruled out. All patients were advised for routine investigations like CBC, Blood sugar, urine routine, BT, CT and also the thyroid profile which included T3, T4 and TSH

#### Statistical analysis

The recorded data was compiled and entered in a spreadsheet computer program (Microsoft Excel 2010) and then exported to data editor page of SPSS version 19 (SPSS Inc., Chicago, Illinois, USA). Descriptive statistics included computation of percentages and means.

## Results

**Table 1: Demographic profile of the study population**

Age	32.71±3.76
BMI	28.01±1.19
Parity	
Unmarried	13 (11.8%)
Primigravida	33 (30.0%)
Multi-gravida	64 (58.2%)

**Table 2: Abnormal Bleeding pattern in the study population**

Abnormal Bleeding pattern	N (%)
Acyclical	21 (19.1%)
Shortened Cycles	6 (5.5%)
Infrequent Cycles	29 (26.4%)
Frequent Cycles	10 (9.1%)
Heavy Menstrual Bleeding	44 (40.0%)

**Table 3: Thyroid status in the study population**

Thyroid Status	N (%)
Euthyroid	63 (57.3%)
Hypothyroid	9 (8.2%)
Sub-clinical Hypothyroid	33 (30.0%)
Hyperthyroid	5 (4.5%)

**Table 4: Relation between abnormal bleeding pattern and thyroid status**

Thyroid Status	Acyclical	Shortened Cycles	Infrequent Cycles	Frequent Cycles	Heavy Menstrual Bleeding
Euthyroid	1 (30.3%)	5 (71.4%)	15 (46.9%)	8 (81.8%)	34 (64.9%)
Hypothyroid	2 (8.7%)	1 (28.6%)	2 (9.4%)	0	4 (8.8%)
Subclinical Hypothyroid	17 (56.5%)	0	9 (34.3%)	2 (18.2%)	5 (21.1%)
Hyperthyroid	1 (4.3%)	0	3 (9.4%)	0	1 (5.3%)

### Discussion

In the present study the mean age of the study population was 32.71 years. In the study most of the women were in the age group 30-39 years. Similar study done by Mohapatra S et al.<sup>8</sup> reported that highest incidence of abnormal uterine bleeding was seen in the age group 30-39 years. Similarly Parveen M et al.<sup>9</sup> also observed that majority of the women were in the age group between 30-39 years.

The present study revealed that majority of patients was multiparous (58.2%). This was found in agreement with the study conducted by Pilli et al reported that abnormal uterine bleeding is seen in 87% multipara, 7% primipara and 6% nulliparous.<sup>7</sup>

40.0% of women presented with complaint of heavy menstrual bleeding making it the most common pattern of abnormal uterine bleeding. In study by Ali J et al.<sup>10</sup> and Verma SK et al.<sup>11</sup> 42% and 47.5% presented with HMB respectively. Parveen M et al.<sup>9</sup> also found an incidence of 45% of heavy menstrual bleeding in their study.

The present study showed 43.8% of the study subjects were having thyroid dysfunction. Pahwa S et al.<sup>12</sup> reported thyroid dysfunction among 24% of the patients. In another study conducted by Marimuthu K et al.<sup>13</sup> he found that 27.2% cases had thyroid dysfunction. Jinger SK et al found 47% patients having thyroid dysfunction in their study.<sup>14</sup>

### Conclusion

The present investigation concluded that abnormal uterine bleeding was strongly correlated with thyroid disorders. Hence the evaluation of thyroid function forms an essential component among abnormal uterine bleeding patients. This can lead to early diagnosis as well as treatment preventing unnecessary surgical interventions.

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