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Original Research Article

## Study of association of thyroid disorders with abnormal uterine bleeding

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### ABSTRACT

**Background:** Abnormal uterine bleeding from the vagina that is usually occurred when ovary do not release egg and if it occurred during fertile period leads to various complication like anemia, Infertility etc. and among all causes one of the most common cause of abnormal uterine bleeding is disturbance in level of Thyroid hormones.

**Methods:** 100 female Patients of age group between 20-45 having complain of Abnormal uterine bleeding visited at Gynec OPD of our institute were included in this study. fasting blood samples was taken from all participants and samples were analyzed for Thyroid function test (TSH, T3, T4) at central laboratory of our hospital. Obtained data was analyzed statistically by using prizam software.

**Results:** The bleeding abnormality that is found most of the women is polymenorrhagia and menorrhagia. 32% of patients who were studied had thyroid dysfunction, of which 18% of patients had subclinical hypothyroidism, 11% of patients had hypothyroidism and only 3% of patients had hyperthyroidism.

**Conclusions:** Present study concludes that thyroid dysfunction should be considered as an important etiological factor for menstrual abnormality especially during fertile period.

**Keywords:** Abnormal uterine bleeding, Menorrhagia, Thyroid dysfunction

### INTRODUCTION

Abnormal uterine bleeding is when bleeding is occurred from vagina apart from regular menstrual period and if there is excessive amount of bleeding during menstrual phase then it is also called abnormal.

Many pathological and physiological causes are responsible for that like disease of female genital tract, Endocrinal disorders etc.<sup>1,2</sup>

Among them hormonal disturbance is the major cause of Abnormal uterine bleeding and that is due to decreased level of serum progesterone level and that lead to reduced synthesis of prostaglandin particularly PGF2 that is responsible for vasoconstriction of uterine bleed vessels.<sup>3</sup>

Thyroid hormone play important role in regulation of menstrual cycle as well as fertility.

Both hypothyroidism and hyperthyroidism has a role in menstrual irregularity like menorrhagia, oligomenorrhoea and polymenorrhoea.

Usually ovulation is occurred during 14<sup>th</sup> day of menstrual cycle and if there is anovulation (Absence of ovulation) then it is the most common cause of abnormal bleeding particularly during puberty and perimenopausal women. Sometime psychological factors like obesity, anorexia, Saviour exercise etc.<sup>4,5</sup>

This abnormal uterine bleeding can be best diagnosed by taking personal and family history of the patient with

good clinical examination. Estimation various endocrine hormones like Thyroid Function test, Prolactin, Follicle stimulating hormone (FSH), Luteinizing hormone (LH) and hemoglobin is important tool for assessment of abnormal uterine bleeding.

Hence, the present study was done to see the association of thyroid dysfunction with abnormal uterine bleeding.

## METHODS

This study was conducted at Obstetrics and Gynaecology department of B. J. Medical College, Civil Hospital, Ahmedabad, Gujarat from January 2012 to December 2012.

The study includes total 100 cases of AUB (Abnormal uterine bleeding) of age group between 20-45 year that is attended at our gynec OPD.

### Exclusion criteria

Patients with known case of thyroid disorder, IUCD/OC pills user, carcinoma of any organ, autoimmune disorder, and coagulation disorder were excluded from the study.

All these patients were subjected to routine investigations like complete blood count (CBC), bleeding time (BT), clotting time (CT) to rule out coagulation defect.

Then all patients were subjected to estimation of serum T3, T4, TSH. T3, T4, TSH estimation done by Chemiluminescence method. BT, CT done by manual method (Capillary method).

Complete blood count of all participants done in fully automatic 3-part hematology cell counter along with Quality control material.

Based on TSH value all participants were categorized into four groups as follows:

- Euthyroid
- Subclinical hypothyroid
- Hypothyroid
- Hyperthyroid

Reference range of S.TSH is 0.5-5microIU/ml, T4 4.4-12.5 microgram/dl and T3 0.9-1.95 ng/ml.

- Euthyroid: No symptom of hypothyroidism, Normal thyroid function level
- Subclinical hypothyroid: No symptom/Mild symptom of hypothyroidism, Mild elevation of S. TSH (Between 5-10 microIU/ml) and Low level of T3/T4
- Hypothyroid: All symptom of hypothyroidism,sever elevation of S.TSH (More than 10 microIU/ml) and Low level of T3/T4.

## RESULTS

Dysfunctional uterine bleeding is one of the most frequently encountered condition in gynaecological practice.

The following tables will analyse (Table 1-5):

- Age
- Symptom of DUB
- Parity
- Association with thyroid dysfunction.

**Table 1: Age wise distribution of participants.**

Age group (years)	No. of cases	%
≤20	24	24
21-30	25	25
31-40	42	42
41-45	09	09
Total	100	100

**Table 2: Parity wise distribution of participants.**

Parity	No of patients	%
Unmarried	17	17
0	11	11
1	10	10
2	25	25
3	19	19
4	11	11
5	07	07
Total	100	100

**Table 3: Distribution of participants according to bleeding pattern.**

Type of bleeding	No. of cases	%
Acyclical	20	20
Polymenorrhagia	16	16
Menorrhagia	40	40
Hypomenorrhoea	2	2
Oligomenorrhoea	13	13
Metrorrhagia	3	3
Polymenorrhoea	06	6
Total	100	100

**Table 4: Distribution of participants according to thyroid function.**

Thyroid function	No. of cases	%
Euthyroid	68	68
Hypothyroid	11	11
Subclinical hypothyroid	18	18
Hyperthyroid	3	3
Total	100	100

**Table 5: Bleeding pattern in hypothyroid and hyperthyroid group.**

Type of bleed	No. of cases	Eu-thyroid	%	Hypo-thyroid	%	Subhypo-thyroid	%	Hyper-thyroid	%
Acyclical	20	16	80	2	11.1	2	11.1	-	-
Sub hypomenorrhoea	2	2	100	-	-	-	-	-	-
Menorrhagia	40	27	67.5	8	20	5	12.5	-	-
Metrorrhagia	3	3	100	-	-	-	-	-	-
Oligomenorrhoea	13	3	23	8	61.5	2	15.38	2	15.38
Polymenorrhagia	16	-	-	14	87	1	6.25	1	6.25
Polymenorrhoea	6	-	-	3	50	3	50	-	-

## DISCUSSION

Menstrual irregularity is a common gynecological problem and it affects 30% of the women during reproductive period. Many etiological factors are responsible for that and among them hormonal level changes are a profound cause of it.<sup>6</sup>

10% of cases occur in women who are ovulating, but progesterone secretion is prolonged because estrogen levels are low. This causes irregular shedding of the uterine lining and break-through bleeding. Some evidence has associated Ovulatory DUB with more fragile blood vessels in the uterus.

It may represent a possible endocrine dysfunction, resulting in menorrhagia or metrorrhagia. Mid-cycle bleeding may indicate a transient estrogen decline, while late-cycle bleeding may indicate progesterone deficiency.

Anovulation is the cause in majority of women having abnormal uterine bleeding that is occurred during puberty and perimenopausal period. In such cases, women do not properly develop and release a mature egg. When this happens, the corpus luteum, which is a mound of tissue that produces progesterone, does not form. As a result, estrogen is produced continuously, causing an overgrowth of the uterus lining. Abnormal Uterine bleeding is a frequent debilitating symptom in gynaecological practice resulting in need for repeated curettage and hysterectomy with its attendant morbidity and mortality. The aetiology of abnormal uterine bleeding is very diverse.<sup>7</sup> Hypothyroidism one of the common causes of excessive menstrual blood loss and menstrual irregularities. The onset of hypothyroidism is so insidious that classic clinical manifestation may take months and years to appear. Furthermore, menorrhagia may be the only presenting complaint in hypothyroid women.<sup>8</sup>

In this study, we found an association in the occurrence of menorrhagia in hypothyroid women is high. In a study by Andrew D Weeks, 56% had menstrual disturbances and the most common complaint was menorrhagia (36%).<sup>9</sup> Col P Singh et al. 2007, in their analysis of

menstrual dysfunction among hypothyroid women stated menorrhagia was seen in 32.4% of hypothyroid women.<sup>10</sup>

The overall prevalence of thyroid dysfunction in the present study was 29%. This correlates with other studies; Prentice et al. medical management of menorrhagia stated 36% of women with thyroid abnormalities had menstrual dysfunction.<sup>11</sup> In another study by Wilansky et al had 22% prevalence among patients with thyroid disorder

Our study concludes that thyroid disorder should be considered as an important aetiological factor for menstrual abnormality.<sup>12</sup> Thus, biochemical evaluation T3, T4 and TSH estimations should be made mandatory in DUB cases to detect profound and subclinical thyroid dysfunction. These patients with thyroid dysfunction, if given medical treatment, it is possible to avoid unnecessary hormonal treatment and costly surgical interventions.

## CONCLUSION

Our study concludes that thyroid dysfunction should be considered as an important etiological factor for menstrual abnormality especially during fertile period.

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