



## Correlation between Thyroid Disorders and Dysfunctional Uterine Bleeding: A Prospective Study

Authors

Prema Prabhudev<sup>1</sup>, Surabhi Soni<sup>2\*</sup>

<sup>1</sup>Professor & HOD, <sup>2</sup>PG student, Dept. of Obstetrics & Gynaecology, SSIMS & RC, Davangere, Karnataka, India

\*Corresponding Author

Surabhi Soni

Email: [surabhisoni55@gmail.com](mailto:surabhisoni55@gmail.com)

### Abstract

**Introduction:** Dysfunctional uterine bleeding (DUB) is an abnormal bleeding in absence of clinical or ultrasonographic evidence of structural abnormalities, inflammation or pregnancy. DUB accounts for 10% of the gynaecology related complaints. Thyroid dysfunction is one of the common causes of excessive menstrual blood loss and menstrual irregularities. Both hypothyroidism and hyperthyroidism are associated with a variety of changes in reproductive function including delayed onset of puberty, and anovulatory cycles and abnormal high fetal wastage

**Aims and Objectives:** To estimate serum fT3, fT4, TSH levels in women with DUB and to determine the frequency of thyroid dysfunction in women with dysfunctional uterine bleeding.

**Material and Method:** After approval from the institutional ethical committee and a written informed consent from the patients during the study period of 1 year in patients fulfilling inclusion criteria, 100 women (with a minimum of 30 in each group) in child bearing age group (20-40 years) were selected. Their serum fT3, fT4 and TSH values were done at the time of presentation and treatment was given as per condition (hypothyroid or hyperthyroid). Then follow up was done after 3 months and 6 months interval and results were analysed using appropriate statistical methods.

**Result:** Among 100 subjects with menstrual complaints, 62% subjects were euthyroid & 38% subjects were hypothyroid. The incidence of menorrhagia (40%) followed by polymenorrhagia (30%) and metrorrhagia (30%) each. 60% of the subjects with polymenorrhoea had TSH level more than 4.25 uIU/ml whereas in menorrhagia and metrorrhagia 33.3% subjects had hypothyroidism. In menorrhagia improvement was seen in 80% subjects on administration of tablet Eltroxin.

**Conclusion:** As menstrual disturbances may accompany alterations in thyroid function so screening for thyroid dysfunction should be made an integral part of investigations and treatment of DUB as thyroid hormone plays an important role in menstrual and reproductive function of women.

**Keywords:** DUB, Thyroid, Menorrhagia, menstrual irregularities.

### Introduction

Dysfunctional uterine bleeding (DUB) is an abnormal bleeding absence of clinical or

ultrasonographic evidence of structural abnormalities, inflammation or pregnancy. DUB accounts for 10% of the gynaecology related

complaints<sup>1</sup>. Thyroid dysfunction is one of the common causes of excessive menstrual blood loss and menstrual irregularities. Both hypothyroidism and hyperthyroidism are associated with a variety of changes in reproductive function including delayed onset of puberty, and anovulatory cycles and abnormal high fetal wastage<sup>2</sup>. Clinical experiences show increased menstrual flow is the most common reproductive system manifestation of hypothyroidism. In hypothyroid women menorrhagia maybe the only presenting complaint<sup>3</sup>.

## Material and Method

### 1) Source of data

100 women (with a minimum of 30 in each group) in child bearing age group (20-40 years) who attended OPD at SSIMS & RC, Davangere during the study period of 1 year fulfilling inclusion criteria.

### 2) Selection criteria

#### Inclusion criteria

- All cases provisionally diagnosed with dysfunctional uterine bleeding.
- All patients having major complaint of menstrual disturbances

#### Exclusion criteria

- Women who had post-menopausal bleeding
- Suspected pregnancy
- IUCD in situ
- Pre-existing gynaecological diseases like fibroid and adenomyosis, suspected or diagnosed ovarian or cervical or uterine malignancy.
- Other medical disorders (blood coagulopathies)
- Use of anti-coagulants.

### 3) Duration of study- 1 year

4) **No. of subjects-** 100 patients (minimum 30 in each group) who attended OBG OPD in the study duration fulfilling study protocol.

## Method of Collection

An informed consent from all the patients were taken and the patients were explained about the significant diagnostic importance of the procedure, which was being performed. Detailed history of the subjects was taken including menstrual and obstetric history. A thorough general, systemic as well as pelvic examination was carried out. Apart from routine investigations, the patients were investigated for bleeding time, clotting time, urine microscopy, and serum fT3, fT4 and TSH reports at the time of presentation, at 3 months and 6 months. Patients were then grouped under three categories:

- 1) Group A- women with menorrhagia (excessive bleeding in amount and duration)
- 2) Group B- women with polymenorrhagia (excessive bleeding along with short cycle)
- 3) Group C- women with metrorrhagia/ menometrorrhagia (intermenstrual and excessive bleeding)

Treatment was given as per condition (hypothyroid or hyperthyroid). Then follow up was done after 3 months and 6 months interval and results were analysed using appropriate statistical methods.

## Result

In the present study, moderate amount of flow was seen in 45 subjects and it was excessive in 51 subjects and only 4 subjects had scanty blood flow. It was assessed by number of pads used/day and soakage of pads.

### Amount of menstrual flow

	No. of cases	Percentage
Excessive(>6-7 pads/day, completely soaked)	51	51%
Moderate (3-5 pads/day, partially soaked)	45	45%
Scanty(1 pad/day, not much soaked)	4	4%

Among 100 subjects with menstrual complaints, 62% subjects were euthyroid & 38% subjects were hypothyroid

**Thyroid status according to presenting symptoms**

	Menorrhagia (n=40)	Polymenorrhoea (n=30)	Metrorrhagia (n=30)
Euthyroid (n=62)	31(50%)	11(17.7%)	20(32.2%)
Hypothyroidism(n=38)	9(23.6%)	19(50%)	10(26.3%)

P value=0.001

**Reference Range:** T3 = 2 - 4.2 pg/ml

T4 = 0.6 – 1.7 ng/dl

TSH=0.34-4.25 u IU/ml

**ft3 levels in subjects according to presenting symptoms**

ft3 (pg/ml)	Menorrhagia (n=40)	Polymenorrhoea (n=30)	Metrorrhagia (n=30)
<2	10(25%)	7(23.3%)	8(26.6%)
2-4.2	26(65%)	23(76.6%)	22(73.3%)
>4.2	4(10%)	0	0

P value=0.179

**ft4 levels in subjects according to presenting symptoms**

ft4 (ng/dl)	Menorrhagia (n=40)	Polymenorrhoea (n=30)	Metrorrhagia (n=30)
<0.6	3(7.5%)	1(3.3%)	3(10%)
0.6-1.7	20(50%)	14(46.6%)	14(46.6%)
>1.7	17(42.5%)	15(50%)	13(43.3%)

P value=0.866

**TSH levels in subjects according to presenting symptoms**

TSH (u IU/ml)	Menorrhagia (n=40)	Polymenorrhoea (n=30)	Metrorrhagia (n=30)
<0.34	0	0	0
0.34-4.25	30(75%)	12(30%)	20(66.6%)
>4.25	10(25%)	18(60%)	10(33.3%)

P value=0.053

**Association of age with presenting symptom**

Age group	Menorrhagia (n=40)	Polymenorrhoea (n=30)	Metrorrhagia (n=30)
20-25	11(27.5%)	7(23.3%)	12(40%)
26-30	17(42.5%)	7(23.3%)	6(20%)
31-35	2(5%)	2(5%)	2(5%)
36-40	10(25%)	14(46.6%)	10(25%)

P value=0.273

**Serum levels of ft3, ft4, TSH level with presenting symptoms**

	Menorrhagia (n=40)	Polymenorrhoea (n=30)	Metrorrhagia (n=30)	P value
T3	2.81±1.00	2.69±0.96	2.36±0.89	0.147
T4	1.48±0.80	1.60±0.66	1.62±0.96	0.734
TSH	4.52±1.56	5.58±1.86	5.29±1.91	0.037

This table shows that the mean value of T3 in group A was 2.81±1 pg/ml, mean T4 was 1.48±0.80 ng/dl and TSH was 4.52±1.56 u IU/ml. 23.6% subjects in group A had primary hypothyroidism.

### Thyroid profile at 1<sup>st</sup> visit and after treatment

	1 <sup>st</sup> visit	At 3 month	At 6 month	P value
<b>T3</b>	2.64±0.96	2.28±0.84	2.02±0.76	0.014
<b>T4</b>	1.56±0.81	1.44±0.54	1.36±0.91	0.554
<b>TSH</b>	5.07±1.81	5.39±0.65	4.32±0.58	0.004

The results were not statistically significant for fT3 and fT4 but statistically significant for TSH.

### Improvement in menstrual disturbances

	Improvement in menstrual symptoms	No improvement	P value
<b>Menorrhagia(n=40)</b>	32(80%)	8(20%)	0.001
<b>Polymenorrhoea(n=30)</b>	25(83.3%)	5(16.6%)	0.002
<b>Metrorrhagia(n=30)</b>	25(83.3%)	5(16.6%)	0.002

The above table shows improvement in menstrual disturbances. Improvement after administration of tablet Eltroxin were- menorrhagia and polymenorrhoea (83.3%), whereas 16.6% had no improvement.

### Discussion

Our study has included 100 patients with DUB and their associated thyroid abnormalities. The menstrual irregularities are significantly more frequent in subjects with thyroid dysfunction and may precede thyroid dysfunction. Thyroid disorders may result in spectrum of menstrual irregularities ranging from menorrhagia to polymenorrhoea, metrorrhagia, menometrorrhagia, intermenstrual bleeding to oligomenorrhoea/ amenorrhoeaetc<sup>4</sup>.

Ely et al found in his study that any menstrual irregularities in non-pregnant patients especially in menorrhagia warrants TSH estimation. A correlation of low platelet adhesiveness and other haemostatic abnormalities, in hypothyroidism was shown. This platelet dysfunction in combination with other factors can lead to menorrhagia in hypothyroidism<sup>5</sup>.

In the study conducted by Lacour et al it was found that menorrhagia is the most common menstrual disturbance detected in thyroid patients (75%)<sup>6</sup>.

In a study conducted by J V Joshi et al, it was found that only 31.8% of hypothyroid and 35.3% of hyperthyroid women had normal menstrual

pattern in contrast with 56.6% of euthyroid and 87.8% of healthy controls (p <0.001). it was found that menorrhagia is more common in hypothyroidism or myxoedema, while anovulation or oligomenorrhea is more common in hyperthyroidism. It was recommended that any type of menstrual disorders should be considered as a possible presenting symptom of thyroid dysfunction and it may indicate sub clinical abnormality<sup>7</sup>.

### Conclusion

Thyroid dysfunction is associated with menstrual abnormalities in females of all age groups. Thyroid hormone plays a key role in the menstrual and reproductive function of women. Both hypothyroidism and hyperthyroidism may result in menstrual disturbances.

This study was concluded to estimate serum fT3, fT4, TSH levels in women with DUB and to determine the frequency of thyroid dysfunction in women with DUB since thyroid dysfunction is commonly prevalent in women. As there is high incidence of thyroid disease, so after correction of thyroid dysfunction, improvement in menstrual disturbances was seen along with improvement in quality of life amongst women. It will also avoid unnecessary surgery and prevent clinical thyroid disorder at a later date. Therefore, thyroid function tests must be done in women presenting with DUB.

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