



PREVALENCE OF HYPOTHYROIDISM IN PATIENTS WITH PROVISIONAL DIAGNOSIS OF DUB

Obstetrics & Gynaecology

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ABSTRACT

BACKGROUND AND OBJECTIVES: DUB accounts for 10% of all gynecology related complaints. This study is to evaluate the thyroid function in patients having abnormal menstrual bleeding from puberty to premenopausal age groups which is interesting and justifiable and will help in further management of DUB and also know the prevalence of hypothyroidism in patients provisionally diagnosed as DUB. The objectives are to evaluate and detect the thyroid dysfunction in patients with dysfunctional uterine bleeding (all age groups), especially in menorrhagic patients and to refer positive cases to the physician for further treatment of thyroid disorder. **METHODS:** This study is carried out in the department of Obstetrics and Gynecology, AIMS, B G Nagara on 100 women who were clinically given the provisional diagnosis of DUB. All these patients were subjected to routine investigations and T3, T4 & TSH estimation and were grouped as euthyroid, subclinical hypothyroid, hypothyroid or hyperthyroid. **RESULTS:** Out of the 100 patients taken into study 11 had thyroid disorders, out of which subclinical hypothyroidism was most prevalent accounting for 8 cases, 2 cases were found to have hypothyroidism and 1 case of hyperthyroidism was detected. **INTERPRETATION AND CONCLUSION:** There is a high prevalence of thyroid disorder in cases which are clinically diagnosed as DUB. Hence the biochemical evaluation of T3, T4, TSH is extremely important and valuable in detecting these patients. Unnecessary surgery was avoided in 11% of patients and they were treated medically which was more accurate and cost effective. Hence thyroid function evaluation should be made mandatory in cases of DUB to detect thyroid dysfunction.

KEYWORDS

Dysfunction Uterine Bleeding (DUB), Thyroid dysfunction, Hypothyroidism, Subclinical hypothyroidism, Hyperthyroidism.

INTRODUCTION:

Dysfunctional uterine bleeding is an abnormal bleeding from the uterus in the absence of any palpable pelvic pathology and demonstrable extragenital cause.¹ DUB accounts for 10% of the gynaecology related complaints. Thyroid dysfunction is also marked by large number of menstrual irregularities.

Both hypo as well as hyperthyroidism are associated with a variety of changes in reproductive function including delayed onset puberty, anovulatory cycles and abnormally high foetal wastage.² Clinical experiences show increased menstrual flow to be the most common reproductive system manifestation of hypothyroidism. Although the occurrence of menstrual disturbances in hypothyroid woman has been documented, the number of hypothyroid patients' originally requiring treatment for menorrhagia has not been carefully elicited.³ Majority of the cases of subclinical hypothyroidism easily pass unrecognized. The prevalence of subclinical hypothyroidism is as high as 9.5% in women.⁴ Danese MD et al recommend hypothyroidism is frequent enough to warrant consideration in most older women, justifying screening even in asymptomatic older women.⁵ Ely et al mentions state any irregular bleeding in non pregnant patient and in non pregnant patients with menorrhagia TSH should be evaluated.

The introduction of serum thyroxine (T3) and serum thyroid stimulating hormone (TSH) radioimmunoassay has increased the sensitivity and specificity of thyroid function testing. The serum TSH assay has been shown to be a sensitive indicator of diminished thyroid functional reserve, since TSH levels become elevated before circulating serum thyroxine levels fall below the normal range.⁷

Hence this study is to evaluate the thyroid function in patients having abnormal menstrual bleeding from puberty to premenopausal age groups which is interesting and justifiable and will help in further management of DUB and also know the prevalence of hypothyroidism in patients provisionally diagnosed as DUB.

AIMS AND OBJECTIVES:

- To evaluate and detect the thyroid dysfunction in patients with dysfunctional uterine bleeding (all age groups) especially in menorrhagic patients
- To refer positive cases to physician for further treatment.

METHODOLOGY:

This study was carried out in the department of Obstetrics and gynecology, Sri Adichunchunagiri Institute of Medical Sciences, B.G.Nagara. 100 women who are given clinically the provisional diagnosis as dysfunctional uterine bleeding from our hospital, during the period from August 2010 to July 2012 were selected for the study. Study design: A prospective study

Study period: 24 months (August 2010 to July 2012)

Inclusion criteria:

- All cases provisionally diagnosed to have dysfunctional uterine bleeding from puberty to premenopausal age.
- All patient having major complaint of menstrual disturbances e.g., menorrhagia, polymenorrhoea, polymenorrhagia, metropathia hemorrhagica, metrorrhagia, oligo and hypomenorrhoea.

Exclusion criteria:

- Patients who are on drug or hormones, IUCD users, with overt clinical symptoms of thyroid dysfunction, history of bleeding disorder are excluded.
- Patients with goiter, Ca thyroid.

Methodology:

A detailed history was obtained with special relevance to age, bleeding pattern. Onset, duration, amount of bleeding, complaints related to thyroid dysfunction was noted in detail. A thorough clinical examination including general physical examination, neck examination, gynecological and systemic examination was carried out, with special reference to thyroid dysfunction; in cases with a provisional clinical diagnosis of DUB. Patients with clinical signs and symptoms of thyroid disease were excluded. All these patients were subjected to routine investigations like hemoglobin percentage, blood counts, urine examination for albumin, sugar, microscopy, bleeding time, clotting time, (to rule out coagulation defect). Then all patients were subjected for

T3, T4 and TSH estimation in their sera. T3 and T4 were assayed by competitive chemiluminescent immunoassay.

Investigations were estimated by chemiluminescence immuno assay (CLIA) method using reagent Monobind I N C; USA Kit with the help

of fully automatic Alpha lite machine in Bio-chemical lab at Mysore.

Drop of reagent Monobind I N C mixed with collected blood and using special programming chart they placed it in the fully automatic analyzing machine Alphasite, made in FRANCE.

These tests were done in random blood samples as the variation in TSH secretion due to circadian rhythm with a peak at 0100hrs and nadir at 1100hrs is small and does not influence the timing of blood sampling.

Following are noted: levels of T3, T4 and TSH. Patients were then grouped into 4 categories: euthyroid, subclinical hypothyroid, hypothyroid and hyperthyroid.

Patients found to have thyroid dysfunction were referred to physician for further management.

RESULTS:

Following are the tables from the data of the study to provide a descriptive analysis of various factors and their association with each other.

According to the tables the maximum number of patients in the study belong to the age group 31-40years, 42 cases which accounted to 42%. According to the table 32 cases belong to the age group of above 40years, 15 cases are below the age of 20years. The age group 21-30years has 11 cases which accounted for 11%.

Table 1: Distribution of patients according to age

AGE GROUP	NO. OF CASES	PERCENTAGE
<20 years	15	15.0%
21-30 years	11	11.0%
31-40 years	42	42.0%
>40 years	32	32.0%
TOTAL	100	100.0%

The following table shows the incidence of various menstrual irregularities among the 100 patients who were part of the study. Most common is menorrhagia which accounts to 45%. 17% of the patients presented with polymenorrhagia. 15% of the patients had acyclical bleeding. Oligomenorrhoea was seen in 10% of patients, 5% patients had metrorrhagia and 8% of patients had polymenorrhoea.

Table 2: Distribution of patients according to symptoms

SYMPTOMS	NO. OF CASES	PERCENTAGE
Acyclical	15	15.0%
Menorrhagia	45	45.0%
Metrorrhagia	5	5.0%
Oligomenorrhoea	10	10.0%
Polymenorrhoea	8	8.0%
Polymenorrhagia	17	17.0%
TOTAL	100	100.0%

The following table show the relationship of parity and various menstrual symptoms. Among the 100 cases 37 were para-2, 20 cases were para-3. Among the 100 study cases 17 were unmarried, nullipara constituted for about 7 and patients with 4 or more para were 5.

Table 3: Distribution of patients according to parity

PARITY	NO. OF CASES	PERCENTAGE
Unmarried	17	17.0%
Nullipara	7	7.0%
01	14	14.0%
02	37	37.0%
03	20	20.0%
4 or more	5	5.0%
TOTAL	100	100.0%

This column shows the prevalence of various thyroid dysfunctions among the 100 cases included in the study. The prevalence of sub clinical hypothyroidism is 8%, there were 2 hypothyroid cases among 100 cases, there was 1 hyperthyroid case among the 100 cases. Total thyroid disorder associated was 11%. The most common thyroid dysfunction among the study group was sub clinical hypothyroidism (8%).

Table 4: Distribution of patients according to thyroid function

THYROID FUNCTION	NO. OF CASES	PERCENTAGE
Euthyroid	89	89.0%
Hypothyroid	02	02.0%
Sub clinical hypothyroid	08	08.0%
Hyperthyroid	01	01.0%
TOTAL	100	100.0%

This table shows the incidence of thyroid dysfunction in different age groups. Below the age of 20 years, 13 cases were euthyroid, 2 had sub clinical hypothyroidism. Among the cases belonging to 21-30 years, 10 cases were euthyroid and 1 had hypothyroidism. Among the age group of 31-40 years, 38 patients were euthyroid, 1 had hypothyroidism and 3 had subclinical hypothyroidism. Above the age of 40 years, 28 patients had sub clinical hypothyroidism and 1 had hyperthyroidism.

Table 5: Distribution of patients according to age and thyroid disorder.

Age	Euthyroid	Hypothyroid	Sub Clinical Hypothyroid	Hyperthyroid	Total
<20 years	13	-	2	-	2
21-30 years	10	1	-	-	1
31-40 years	38	1	3	-	4
>40 years	28	-	3	1	4
Total	89	2	8	1	11

The following table describes the various distribution of patients according to their thyroid dysfunction in relation to their abnormal bleeding pattern. Patients who presented with metrorrhagia have prevalence of 20% of thyroid dysfunction, this appears to be the most common bleeding pattern according to this study to be associated with thyroid disorder. Patients who presented with Oligomenorrhoea had 10% prevalence of thyroid disorder, their bleeding pattern appears to be the least common to be associated with thyroid disorders.

Table 6: Bleeding pattern in thyroid dysfunction

TYPE	NO	EUTHYROID	HYPOTHYROID	SUB CLINICAL HYPOTHYROID	HYPERTHYROID	TOTAL	%	
Acyclical	15	13	1	1	0	2	2/15	13.33%
Menorrhagia	45	40	0	5	0	5	5/45	11.11%
Metrorrhagia	5	4	1	0	0	1	1/5	20.00%
Oligomenorrhoea	10	9	0	0	1	1	1/10	10.00%
Polymenorrhoea	8	8	0	0	0	-	-	-
Polymenorrhagia	17	15	0	2	0	2	2/17	11.7%

This table shows the distribution according to age group and bleeding pattern. In patients belonging to age group <20 years, polymenorrhagia is the most common bleeding pattern (33%). In patients belonging to 21-30 years age group, acyclical bleeding appears to be the most common bleeding pattern (45.5%). In patients belonging to the age group 31-40 years, menorrhagia is the most common bleeding pattern (50%). In patients above 40 years of age, menorrhagia appears to be the most common bleeding pattern (53.12%).

Table 7: Distribution according to age group and bleeding pattern

Age	No of cases	Acyclical	Menorrhagia	Metrorrhagia	Oligomenorrhoea	Polymenorrhoea	Polymenorrhagia
<20 years	15	1	3	2	3	1	5
21-30 years	11	5	3	1	0	1	1
31-40 years	42	5	21	2	3	6	5
>40 years	32	4	17	1	4	1	5

The following table shows the relationship between the parity and incidence of thyroid disorder. In the unmarried group which constituted of 17 patients i.e., 11.7%, 2 patients had thyroid disorders. In the nulliparous group consisting of 14 patients, none had thyroid dysfunction. Among 14 Para 1 patient who took part in the study, 2 patients had thyroid dysfunction i.e., 14.2%. In the patients who were 2, out of 37 patients 3 patients had thyroid disorder i.e., (8.1%). In patients who were para 3, out of 20 cases, 1 case had thyroid disorder i.e., 5%. Out of patients with 4 or more Para 60% i.e. 3 out of 5 cases had thyroid dysfunction.

Table 8: Thyroid dysfunction in relation to parity

Parity	No of cases	Euthyroid	Hypothyroid	Sub clinical hypothyroid	Hyperthyroid	TDF	%
Unmarried	17	5	-	2	-	2	2/17 11.7%
Nullipara	7	7	-	-	-	-	0/7
Para 1	14	12	1	1	-	2	2/14 14.2%
Para 2	37	34	1	2	-	3	3/37 8.1%
Para 3	20	19	-	-	1	1	1/20 5%
4 or more	5	-	-	3	-	3	3/5 60%
TOTAL	100						

This table shows the relation of bleeding pattern to thyroid disorder. Two patients out of 17 patients complaining of polymenorrhagia and thyroid dysfunction 11.76%. the most common bleeding pattern was metrorrhagia (20%). Least common to be associated with thyroid dysfunction is polymenorrhoea.

Table 9: Bleeding pattern in hypothyroidism and hyperthyroidism

Type of bleeding	Cases	Euthyroid	Hypothyroid	Sub hypothyroid	Hyperthyroid	% of hypothyroid	% of sub hypothyroid	% of hyperthyroid
Acyclical	15	13	1	1	0	1/15 6.6%	1/15 6.6%	
Menorrhagia	45	40	0	5	0	-	5/45 11.11%	
Metrorrhagia	5	4	1	0	0	1/5 20.0%	-	1/10 10%
Oligomenorrhoea	10	9	0	0	1	-	-	-
Polymenorrhoea	8	8	0	0	0	-	-	
Polymenorrhagia	17	15	-	2	-	-	2/17 11.76%	

The following table shows that majority of the patients with thyroid dysfunction had the bleeding pattern of menorrhagia (45.45%). TSH is extremely sensitive in detecting thyroid disorders and all cases having thyroid disorders had abnormal TSH values. Normal values of TSH were detected in 89% of patients.

Table 10: TSH levels and bleeding pattern

TSH levels	No of cases	Acyclical	Menorrhagia	Metrorrhagia	Oligomenorrhoea	Polymenorrhoea	Polymenorrhagia
Low	1	-	-	-	1	-	-
Normal	89	13	40	4	9	8	15
Sub clinical	8	1	5	-	-	-	2
High	2	1	-	1	-	-	-

T3 levels of 3 patients out of 11 patients with thyroid disorders were abnormal. 2 patients had low T3 value and 1 patient had higher than normal range. T3 alone appears to be not very sensitive in detecting thyroid disorder.

Table 12: T3 levels and bleeding patterns

T3 level	No. of cases	Acyclical	Menorrhagia	Metrorrhagia	Oligomenorrhoea	Polymenorrhoea	Polymenorrhagia
Low	2	1	-	1	-	-	-
Normal	97	14	45	4	9	8	17
High	1	-	-	-	1	-	-

T4 levels were found to be elevated in one patient and the type of bleeding seen was metrorrhagia. 20% of patients who presented with metrorrhagia had hyperthyroidism.

Table 12: T4 levels and bleeding patterns

T3 level	No. of cases	Acyclical	Menorrhagia	Metrorrhagia	Oligomenorrhoea	Polymenorrhoea	Polymenorrhagia
Low	2	1	-	1	-	-	-
Normal	97	14	45	4	9	8	17
High	1	-	-	-	1	-	-

T4 levels were found to be elevated in one patient and the type of bleeding seen was metrorrhagia. 20% of patients who presented with metrorrhagia had hyperthyroidism.

Table 12: T4 levels and bleeding patterns

T4 levels	No. of cases	Acyclical	Menorrhagia	Metrorrhagia	Oligomenorrhoea	Polymenorrhoea	Polymenorrhagia
Low	-	-	-	-	-	-	-
Normal	99	15	45	4	9	8	17
High	1	-	-	1	-	-	-

Relationship between Thyroidism among age groups

Crosstabs of age group of patients and thyroidism

Age group*Thyroidism cross-tabulation

Count

		Thyroidism				Total
		Euthyroid	Hypothyroid	Sub-Hypothyroid	Hyperthyroid	
Age group	Below 20	13	0	2	0	15
	21-30	10	1	0	0	11
	31-40	38	1	3	0	42
	Above 40	28	0	3	1	32
Total		89	2	8	1	100

Chi-Square Test			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.421 (a)	9	0.593
Likelihood Ratio	8.003	9	0.534
Linear by linear association	0.090	1	0.765
No. of Cases	100		

Relationship between T3, T4 & TSH among age groups

Descriptive				
		N	Mean	Std. Deviation
				0.4813
T3	21-30	11	1.039	0.3920
	31-40	42	1.218	0.4431
	Above 40	32	1.184	0.4861
	Total	100	1.179	0.4544
T4	Below 20	15	5.9973	2.24131
	21-30	11	5.9609	2.79348
	31-40	42	6.3936	2.47625
	Above 40	32	6.6844	2.21174
	Total	100	6.3796	2.37520
TSH	Below 20	15	5.1467	3.09482
	21-30	11	4.0491	4.03167
	31-40	42	4.7717	3.86997
	Above 40	32	3.7209	4.26626
	Total	100	4.4122	3.89919

There is no statistical significant difference among age groups on thyroidism.

SUMMARY:

The present study included 100 cases who were clinically diagnosed as DUB, who presented to our hospital with various menstrual complaints. The study was aimed to evaluate and detect thyroid dysfunction in patients with dysfunctional uterine bleeding (belonging to all age group), most importantly in menorrhagic patients.

Also the study aimed to detect thyroid dysfunction in these patients and treat them medically by referring them to a physician in order to avoid

surgery unnecessarily.

- In the patient study, maximum patients belonged to the age group of 31-40 years, 42 patients accounting for 42%.
- The most common bleeding patients seen among the 100 cases was menorrhagia. 45% of patients had menorrhagia.
- The least common bleeding pattern (5%) was metrorrhagia.
- Maximum patients in the study belong to para 2 (37%) minimum were having parity of 4 or more (5%).
- 89% of patients who took part in the study had euthyroid status.
- 11% of patients from the present study were noted to have thyroid dysfunction.
- Maximum patient diagnosed to have thyroid dysfunction had sub-clinical hypothyroidism (8 cases).
- 2% of patients from the study had hypothyroidism.
- 1% had hyperthyroidism.
- Thyroid dysfunction was commonest in the age group 31-40 and above 40 years (each had 3 cases).
- Patient who had presented with metropathia had 20% prevalence of thyroid disorder. Hence this appears to be the most common bleeding pattern to be associated with thyroid disorder.
- The least common association is seen with the patients with Oligomenorrhoea, only 107 had thyroid disorders.
- In patients who are aged less than 20 years, polymenorrhagia was the most common bleeding pattern (33%).
- In patients aged more than 40 years, menorrhagia is the most common bleeding pattern (53.12%).
- Thyroid dysfunction was commonest in women with Para 4 or more (60%).
- Sub-clinical hypothyroidism was the most predominant thyroid dysfunction.
- Maximum patients who had thyroid dysfunction presented with menorrhagia (45.45%).
- Out of 11 patients who had thyroid function disorder, 3 had abnormal T3 values and 1 patient had abnormal T4 value.
- Hence TSH appears to be the most sensitive test to evaluate thyroid function, as it was abnormal in 100% of cases detected to have thyroid dysfunction.

CONCLUSION:

Our study which was done on patients who were provisionally diagnosed with Dysfunction uterine bleeding concludes that

- There is high prevalence of thyroid disorder in cases which are clinically diagnosed as dysfunction uterine bleeding.
- Hence the biochemical evaluation of T3, T4, TSH is extremely important and valuable in detecting those patients.
- Unnecessary surgery was avoided in 11% of patients and they were treated medically which was more accurate and cost effective.

Hence thyroid function evaluation should be made mandatory in cases of dysfunction uterine bleeding to detect thyroid dysfunction and these cases should be referred to physician for further medical treatment, few patients may require surgical management.

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