

A Study of Thyroid Dysfunction in Patients with Abnormal Uterine Bleeding

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Abstract

Background and Objectives: Abnormal uterine bleeding (AUB) is any bleeding from the genital tract which is a deviation from the normal in frequency, cyclicity, or quantity. Thyroid dysfunction is associated with marked number of menstrual disabilities. This study aimed at detecting thyroid dysfunction in patients with a provisional diagnosis of AUB and early referral of positive cases to physician for further evaluation for prevention of overzealous surgical intervention. *Methods:* In this study, 151 cases of clinically diagnosed AUB were enrolled from Gynaecology OPD and in Patients of R.L Jalappa Hospital and Research centre, constituent of Sri Devaraj Urs Medical College, Tamaka, Kolar. All patients from puberty to premenopausal age groups manifesting as menorrhagia, acyclical metrorrhagia, polymenorrhagia, metrorrhagia, oligomenorrhoea, polymenorrhoea and hypomenorrhoea were evaluated for their thyroid function by T3, T4, TSH screening. Patients who had clinical symptoms and signs of thyroid disease, was on hormonal treatment, IUCD users, or had bleeding disorders were excluded from the study. *Results:* Among 151 patients studied, 23.17% of patients had thyroid dysfunction of which 13.25% had subclinical hypothyroidism, 7.28% had hypothyroidism and only 2.64%

had hyperthyroidism. The most common bleeding abnormality in subclinical hypothyroid patients were found to be polymenorrhoea and menorrhagia. All hyperthyroid women were identified as oligomenorrhoeic. *Interpretation and Conclusion:* In our study, thyroid dysfunction was observed in 23.17% of women with abnormal uterine bleeding, of which most common was subclinical hypothyroidism (13.25%), followed by hypothyroidism (7.28%) and hyperthyroidism (2.64%). Oligomenorrhoea (34.48%), followed by polymenorrhoea (33.3%) and acyclical bleeding (27.2%) were commonest menstrual abnormalities seen in thyroid dysfunction. Hence, T3, T4 and TSH screening should be made mandatory in abnormal uterine bleeding cases, to detect thyroid dysfunction. Treatment of thyroid dysfunction in women with abnormal uterine bleeding will avoid overzealous surgical intervention and injudicious hormonal treatment.

Keywords: Abnormal Uterine Bleeding (AUB) Hypothyroidism Subclinical Hypothyroidism Hyperthyroidism.

Introduction

Abnormal uterine bleeding (AUB) is any uterine bleeding with deviation from normal volume, duration, regularity or frequency. AUB constitutes about 30% of the gynecology related complaints. A variety of menstrual disabilities are identified to be associated with thyroid dysfunction [1]. Clinical experiences show aggravated menstrual flow to be the most frequently associated menstrual problem of hypothyroidism [2].

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Majority of the cases of hypothyroidism associated with AUB have subclinical hypothyroidism and easily go unnoticed. Hypothyroidism is frequent enough to deserve consideration in most older woman, justifying screening even in asymptomatic olderwomen [3].

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 is the sensitive indicator of diminished thyroid functional reserve, since TSH levels become elevated before circulating serum thyroxine levels drop below the reference range [4].

Hence this study strives for early and rapid evaluation and detection of thyroid dysfunction in patients with abnormal uterine bleeding. Treatment of thyroid dysfunction may avoid injudicious hormonal therapy like progesterones and overzealous surgical intervention like hysterectomy.

Objectives

1. To study thyroid hormone level in patients with abnormal uterine bleeding.
2. To correlate different menstrual patterns with varieties of thyroid dysfunction.

Materials and Methods

Source of data was collected from R.L. Jalappa Hospital and Research Centre constituent of Sri Devaraj Urs Medical College, Tamaka, Kolar, from November 2014 to June 2016. Institutional ethical clearance certificate was obtained before start of study.

Study Design

A prospective, observational study.

Study Period

20 months.

Sample Size

151

Statistical Analysis

Data was entered into Microsoft excel data sheet and statistical analysis was done using EPI INFO 7 VERSION software. Descriptive statistics such as frequency, proportion, mean, standard deviation was

computed depending upon qualitative and quantitative data. Confidence interval of 95% was considered. Chi-square test was the test of significance for qualitative data. $p \leq 0.001$ was considered as statistically significant.

Method of Collection of Data

Data regarding socio demographic profile, medical and surgical history was collected.

Inclusion Criteria

Women in reproductive age group who were provisionally diagnosed to have abnormal uterine bleeding.

Exclusion Criteria

Patients who were on hormones (estrogens, progestogens) IUCD users, genital malignancies, known cases of coagulopathy or who were diagnosed during work up, endometrial polyps, fibroids, history of bleeding disorders.

Methodology

- Informed consent from all subjects
- Detailed history with special relevance to age, bleeding pattern was collected.
- Onset, duration, amount of bleeding, complaints related to thyroid dysfunction are noted in detail.
- Detailed physical examination, neck examination, systemic and per speculum and bimanual pelvic examination are done in cases included for study.

Investigations such as:

Complete blood count, bleeding time, clotting time, prothrombin time, activated partial thromboplastin time, and other tests of coagulation wherever clinically indicated were done. Blood group and Rh typing, complete urine analysis, fasting and postprandial blood glucose, HIV, HBSAg, VDRL were screened.

All patients are subjected to fasting T3, T4 and TSH- (assayed by competitive chemiluminescence immunoassay using VITROS ECI machine). Women with abnormal levels of thyroid hormones are subjected to further investigations such as free T3 and free T4 (as and when required). Abdominal and pelvic

ultrasonography was done to rule out abdominal and/ or pelvic pathology. Hysteroscopy, dilatation and curettage (D&C) was performed as and when required.

Observation and Results

The total number of patients studied were 151 from December 2014 to June 2016.

Thyroid dysfunction was commonest in the age group between 31-40 years -29.07%. In our study 23.17% of women enrolled with abnormal uterine bleeding had thyroid dysfunction and 25.71% patients were less than or equal to 20 years, 25% of patients more than 40 years showed thyroid dysfunction(Table 1).

This table shows the relationship of thyroid dysfunction to different age groups. Among women with abnormal uterine bleeding, thyroid dysfunction was commonest in the age group between 31-40 years -29.07%.

Thyroid dysfunction was commonest among nulliparous women constituting 33% and next common among patients who were para 4, i.e, 26.6% followed by 23.68% in unmarried girls. This shows

that thyroid dysfunction can lead to infertility (nulliparous state) (Table 2).

This table depicts how thyroid dysfunction which can be hypothyroidism, subclinical hypothyroidism or hyperthyroidism is related to various types of bleeding abnormalities. Thyroid dysfunction identified to be commonest in patients with oligomenorrhoea - 34.48%, next common in women with polymenorrhoea- 33.3% followed by acyclical bleeding- 27.2% and only in 26.53% of cases of menorrhagia. The difference in thyroid functioning in individual type of bleeding pattern is not statistically significant. Chisquarevalue= 10.65 , P< 0.001(NS) (Table 3).

In this table it is seen that oligomenorrhoea was seen in patients with TSH value ≤ 0.39 mIU/ml or when profoundly high i.e, >50 mIU/ml. On the other hand menorrhagia was mostly seen in patients with TSH value moderately elevated ($4.3 - <50$ mIU/ml).

Patients with T3 and T4 levels <0.7 had oligomenorrhoea(36.36%), 27.2% of patients had acyclical bleeding and menorrhagia. All patients whose T3 and T4 levels >2 had oligomenorrhoea. Only 42.85% of the total no. of patients showed abnormal T3 and T4 levels compared to 100% of patients who showed abnormal TSH levels (Table 4).

Table 1: Thyroid dysfunction in different age groups

Age	No. of Cases	Euth-Yroid	Hypo	Subc-Lini	Hyper	TDF	Percen-Tage
≤ 20	35	26	5	4	0	9/35	25.71%
21-30	45	39	1	4	1	6/45	13.33%
31-40	55	39	2	11	3	16/55	29.09% (p<0.001)
>40	16	12	3	1	0	4/16	25%
Total	151	116	11	20	4	35	23.17%

Table 2: Bleeding pattern and thyroid dysfunction

Types of Bleeding	No. of cases	Euth-yroid	Hypot-hyroid	Subcli-nical	Hyper-thyroid	TDF	Percentage
Acyclical (MPH)	22	16	3	3	-	6	27.2%
Hypomenorrhoea	7	7	0	-	-	0	0%
Menorrhagia	49	36	3	10	-	13	26.53%
Metrorrhagia	4	4	0	-	-	0	0%
Oligomenorrhoea	29	19	4	2	4	10	34.48%
Polymenorrhagia	28	26	1	1	-	2	7.14%
Polymenorrhoea	12	8	0	4	-	4	33.3%
Total	151	116	11	20	4	35	23.17%

Table 3: Tsh levels and different bleeding patterns

TSH mIU/ml	No.of cases	Acycli cal	Hypo menorrhoea	Menor rhagia	Metror rhagia	Oligomenorr hoea	Poly menorrhagia	Poly menorrhoea
≤ 0.39	4	-	-	-	-	4(100%)	-	-
0.4- 4.2	116	16	7	36	4(3.44%)	19	26	8(6.89%)
N		(13.79%)	(6.03%)	(31.0%)		(16.37%)	(22.41%)	
4.3- 50	20	3	-	10	-	2(10%)	1(5%)	4(20%)
Sub		(15%)		(50%)				
> 50	11	3	-	3	-	4	1(9.09%)	0
		(27.27%)		(27.27%)		(36.36%)		

Table 4: T3 levels and different bleeding patterns

T3 ng/ml	No.of cases	MPH	Hypomenorrhoea	Menorrhagia	Metrorrhagia	Oligomenorrhoea	Polymenorrhagia	Polymenorrhoea
≤0.71	11	3 (27.2%)	-	3 (27.2%)	-	4 (36.36%)	1 (9.09%)	-
0.71- 2	136	19 (13.9%)	7 (5.14%)	46 (33.82%)	4 (2.94%)	21 (15.44%)	27 (19.85%)	12 (8.82%)
>2	4	-	-	-	-	4 (100%)	-	-

Table 5: Menstrual pattern in hypothyroidism

Bleeding Pattern	Kakuno Y et al	Deshmukh PY et al	C.D.Doifode et al	Present Study
Acyclical	7 (6.3%)	4 (8.32%)	4 (6.66%)	3 (27.2%)
Menorrhagia	-	13 (27%)	38 (63.33%)	3 (27.2%)
Polymenorrhagia	-	17 (35.36%)	14 (23.33%)	1(9.09%)
Metrorrhagia	2 (1.8%)	-	4 (6.66%)	-
Oligomenorrhoea	6 (5.4%)	10 (20.8%)	-	4 (36.3%)
Polymenorrhoea	2 (1.8%)	4 (8.32%)	-	-
Hypomenorrhoea	-	-	-	-
Total Hypothyroid Patients	17	48	60	11

Discussion

In our study patients were taken from reproductive age group. Maximum number of patients belonged to the age group of 31-40 years similar to study done by

Doifode CD et al at Bhopal. Our study noticed that 23.68% of unmarried patients had thyroid dysfunction in contrast to 15% in Doifode CD et al study. In our study thyroid dysfunction was 33.33% among nulliparous women as compared to author's study which showed 6.67%.

In our study patients who were para 1, only 7.69% of them had thyroid dysfunction but in author's study (C.D Doifode et al) thyroid dysfunction was present in 33.33% of patients with para 1. Maximum numbers of patients with thyroid dysfunction were unmarried in our study (23.68%) as compared to Neelu S et al (9.09%) and Rani SA et al (0%), where multipara with hypothyroidism are more common in their studies. Our study shows higher rate of thyroid dysfunction in nulliparous women (33.33%) as compared to Neelu S et al (9.09%) study, which was conducted in Jammu. This probably reflects geographical variation in thyroid dysfunction with younger age group being affected in our area. Higher frequency in nulliparous women probably may contribute to infertility (Table 5).

Conclusion

In our study thyroid dysfunction was noted in 23.17% of women with abnormal uterine bleeding, of

which most common was subclinical hypothyroidism in 13.25%, followed by hypothyroidism (7.28%) and hyperthyroidism (2.64%). Oligomenorrhoea (34.48%), followed by polymenorrhoea (33.3%) and acyclical bleeding (27.2%) were commonest menstrual abnormalities seen in thyroid dysfunction. Thus T3, T4 and TSH screening should be made mandatory in all abnormal uterine bleeding cases, to detect thyroid dysfunction.

Treatment of thyroid dysfunction in women with abnormal uterine bleeding will avoid overzealous surgical interventions and injudicious hormonal therapy.

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