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Research Article

Study of Relation of Thyroid Profile with Abnormal Uterine Bleeding

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Abstract: Abnormal uterine bleeding is a frequently encountered condition in gynaecology. Although rarely life-threatening, they can cause major social, psychological and occupational upset. Thyroid abnormalities have been suggested as a probable cause of abnormal uterine bleeding. Menstrual disturbances may accompany and even may precede thyroid dysfunction and may accompany clinical alterations. The present study was carried out to find out the different patterns of menstrual abnormalities associated with thyroid disorders and to determine the type of AUB pattern in relation to the different thyroid disorders. A hospital-based prospective observational study was carried out in the department of Obstetrics and Gynaecology, Gauhati Medical College and Hospital, Guwahati, during the period from 1st June 2014 to 31st May 2015. 100 females who presented with AUB and were found to have thyroid dysfunction were recruited in this study. Exclusion criteria were given, e.g. pregnancy, IUCD, cervical or uterine malignancy, fibromyoma, polyp, etc. It was found that maximum number of patients was in the age group of 31-40 years (37%). Menorrhagia (42%) was found to be the commonest presenting abnormal uterine bleeding pattern. Majority (71%) were hypothyroids. 53.5% cases of hypothyroids had menorrhagia and 58.6% cases of hyperthyroids had oligomenorrhoea, making menorrhagia and oligomenorrhoea to be the commonest bleeding pattern in hypothyroidism and hyperthyroidism respectively. Thus the study concludes that biochemical evaluation of thyroid function should be made mandatory in all cases of AUB.
Keywords: Thyroid, Abnormal uterine bleeding (AUB), Hypothyroidism, Hyperthyroidism, Menorrhagia, Oligomenorrhoea.

INTRODUCTION

Abnormal uterine bleeding is a common but complicated clinical presentation, accounting for at least 20% of all new outpatient visits [1]. These complaints may significantly affect quality of life [2], result in time off work [3], lead to surgical interventions including hysterectomy [4], and ultimately have a significant impact on the health care system [5]. As commonly used, dysfunctional uterine bleeding (DUB) refers to 'abnormal uterine bleeding which is not due to demonstrable pelvic disease, complications of pregnancy or systemic disease'. It is a diagnosis of exclusion [6]. Abnormal uterine bleeding (AUB) is the overarching term and may be defined as any variation from the normal menstrual cycle, and includes changes in regularity and frequency of menses, in duration of flow, or in amount of blood loss. It is thus used to describe any departure from normal menstruation.

It has long been recognized that thyroid dysfunction may have profound effects on the female reproductive system. Both hypothyroidism as well as hyperthyroidism is associated with a variety of changes in reproductive function, including delayed onset of puberty, anovulatory cycles and abnormally high foetal wastage [7].

Aims and Objectives:

1. To find out the different patterns of menstrual abnormalities associated with thyroid disorders.
2. To determine the type of abnormal uterine bleeding pattern in relation to the different thyroid disorders (hypo and hyperthyroidism).

MATERIALS AND METHODS

Study setting: The study was conducted in the Department of Obstetrics and Gynaecology, Gauhati Medical College and Hospital, Guwahati.

Study design: Hospital based prospective study.

Study period: from 1st June 2014 to 31st May 2015.

Study population: The study group comprised of females attending Obstetrics and Gynaecology department in Gauhati Medical College and Hospital, presenting with abnormal uterine bleeding.

Inclusion criteria: Females presenting with abnormal uterine bleeding, with thyroid dysfunction.

Exclusion criteria: Patients who were pregnant, had an IUCD, were known to have cervical or uterine malignancy, fibromyoma, polyp, etc, any coagulation disorders, liver/renal diseases or were on medications like steroids, neuroleptics, anticoagulants and cytotoxic drugs, etc.

Sample size: This study consists of analysis of 100 gynaecological cases who have fulfilled the selection criteria.

Ethical issue: Before doing the study, synopsis was submitted to the Institutional Ethical Committee (Gauhati Medical College & Hospital) and clearance was obtained for the same. (No animals were used or harmed for any part of this study)

After taking a detailed history, including the menstrual and obstetric history, vitals were taken and systemic examination was done. Per abdomen examination, local examination, per speculum and per vaginum examination was done. Ultrasonography was done for all patients. Baseline investigations like Hb, platelet count, TLC, DLC, RBS, S. Creat, BT, CT and PT were done. S. TSH, FT3 and FT4 were done. Study of relation of thyroid profile with abnormal uterine bleeding was carried out by applying Chi-Square test ($\chi 2$) of significance.

The reference values used in this study were from the same government medical college laboratory (Gauhati Medical College and Hospital).

Serum levels of TSH: 0.465-4.68 mIU/L
Serum levels of T3: 4.26-8.10 pmol/L
Serum levels of T4: 10-28.2 pmol/L.

RESULTS

Age Wise Distribution of the AUB patients showed that most of them were in the age group of 31 – 40 years (37%) followed by the age group 21-30 years (32%). (Table 1).

Parity: Majority of the cases had a parity of ≥ 2 (43%). 40% were nulliparous of which 29% were unmarried. (Table 2)

Bleeding Pattern: Majority of the patients presented with menorrhagia (42%), followed by oligomenorrhoea (26%) and metrorrhagia (12%). (Table 3)

Thyroid dysfunction:

The prevalence of Hypothyroidism was 71% and Hyperthyroidism was 29% among the AUB patients as assessed by the findings of their thyroid function tests. Age wise distribution of Hypothyroidism and Hyperthyroidism cases among AUB patients showed that though thyroid dysfunction is seen in all age groups, it is most common in 21 – 40 years (69%). (Table 4)

Different bleeding pattern in relation to thyroid abnormality: The different uterine bleeding abnormalities in relation to the thyroid abnormality are given below. Majority (53.5%) of the hypothyroid cases had menorrhagia, while majority (58.6%) of the hyperthyroid cases had oligomenorrhoea (significant P-values)(Table-5).

Distribution of cases according to S.TSH values: The S. TSH values were further divided into hyperthyroidism (S.TSH < 0.465 mIU/L) and hypothyroidism (4.69-6.9 mIU/L, 7 – 10 mIU/L and > 10 mIU/L). The result was as follows (Table 6).

Table 1: Showing age-wise distribution of abnormal uterine bleeding (AUB) cases

Age (in years)	No. of patients	Percentage (%)
≤ 20	19	19
21 – 30	32	32
31 – 40	37	37
> 40	12	12
Total	100	100

Table 2: Showing distribution of cases of abnormal uterine bleeding (AUB) according to parity

Total cases	Nullipara	Para 1	Para 2	Para 3	Para ≥ 4
100	40	17	30	08	05

Table 3: Distribution of cases of abnormal uterine bleeding (AUB) according to the different bleeding patterns presented

Bleeding Pattern	No. of Cases
Menorrhagia	42
Metrorrhagia	12
Meno metrorrhagia	09
Polymenorrhoea	04
Oligomenorrhoea	26
Amenorrhoea	07

Table 4: Distribution of thyroid disorders in different age groups

Age group (years)	Hypothyroid	Hyperthyroid
≤ 20	15 (78.9%)	04 (21.05%)
21 – 30	20 (62.5%)	12 (37.5%)
31 – 40	26 (70.3%)	11 (29.7%)
> 40	10 (83.33%)	02 (16.67%)
Total	71	29

Table 5: Showing distribution of different abnormal uterine bleeding (AUB) patterns among the study population in relation to the thyroid abnormality

Bleeding Pattern	Hypothyroid	Hyperthyroid	Total	P-value
Menorrhagia	38	04	42	0.0006*
Metrorrhagia	10	02	12	
Menometrorrhagia	07	02	09	
Polymenorrhoea	03	01	04	
Oligomenorrhoea	09	17	26	<0.0001*
Amenorrhoea	04	03	07	
Total	71	29	100	

*** P-value is statistically highly significant**

Table 6: showing distribution of study population according to the S.TSH levels

S TSH (in mIU/L)	< 0.465 (hyperthyroid)	4.69 – 6.9	7 – 10	> 10
No. of cases	29	25	37	9

Comparison of thyroid profile among the different groups of abnormal uterine bleeding:

Table 7: Showing the range, mean with SD and P-value of the thyroid function profile for each abnormal uterine bleeding pattern

	AUB Pattern	Menorrhagia	Metrorrhagia	Meno metrorrhagia	Polymenorrhoea	Oligomenorrhoea	Amenorrhoea
S.TSH (mIU/L)	Mean± S.D.	17.6± 47.53	5.88 ± 2.95	5.67 ± 3.38	5.25 ± 3.5	5.73 ± 14.9	4.08 ± 3.74
	Range	0.04-275	0.014-10.8	0.026-10.4	0.04-7.42	0.015-75	0.016-7.42
	P-value	<0.0001	0.0004	0.0033	NA*	<0.0001	0.0184
FT3 (pmol/L)	Mean± S.D.	6.49 ± 1.5	6.9 ± 0.6	6.37 ± 0.94	6.8 ± 0.49	6.7 ± 0.57	6.57 ± 0.76
	Range	0.74-10.2	6.15-8.2	4.5-7.4	6.4-7.4	5.4-8.02	5.4-7.4
	P-value	<0.0001	0.098	0.02	NA*	0.0014	>0.1
FT4 (pmol/L)	Mean± S.D.	20.73 ± 4.4	20.97 ± 2.89	18.5 ± 2.5	22.68 ± 0.92	19.2 ± 3.53	19.56 ± 2.3
	Range	4.4-27	16.7-24.4	14.8-22.4	22-24	7.4-27.1	17.42-24.4
	P-value	0.0063	> 0.1	0.078	NA*	<0.0001	>0.1

*P-value not applicable as too few variables

DISCUSSION

In the present study, majority of the patients were in the age group of 31–40 years (37%) closely followed by the age group 21–30 years (32%). In a study done by Narula *et al.;*, 32.8% patients belonged to the age group 31-40 years [8]. In the study by Sangeeta Pahwa *et al.;* 42% cases belonged to this age group [9]. Pilli *et al.;* had 58% cases in the age group 21 – 40 years [10].

42% cases presented with menorrhagia as the presenting complaint in this study, making it the commonest abnormal uterine bleeding pattern in presence of thyroid disorders. This result is quite similar to that of Moghal *et al.;* [11] 41% and quite near to that of the studies of Pilli *et al.;* [10] 34% and Sangeeta Pahwa *et al.;* [9] 50%. Also, the percentage of cases presenting with menorrhagia and metrorrhagia alone or combined was 75% in the study conducted by Scott and Mussey [12] 68% in the study conducted by Sangeeta Pahwa *et al.;* [9] and 63% in our present study, which is comparable.

In the present study, 71% of the cases are hypothyroid. The result is comparable to the study done by K. Padmaleela *et al.;* with the percentage as 71.4%. [13]. Again, 53.5% cases of hypothyroids were exhibiting menorrhagia, making it the commonest abnormal uterine bleeding pattern in them. This result is quite comparable to that of the study carried out by K Padmaleela *et al.;* 53.3%. [13]. The other studies with which the result of the present study is comparable are Rema V Nair *et al.;* [14] 57.13% and Menon Bharucha *et al.;* [15] 46.15%. In the present study, of the total cases with hyperthyroidism, 58.6% had manifested with oligomenorrhoea. The result is comparable to that of the results in the studies of Singh *et al.;* [16] 63.6% and Lakshmi Singh *et al.;* [17] 63.6%. In various studies, oligomenorrhoea was found to be the most common abnormal uterine bleeding pattern in patients presenting with hyperthyroidism.

CONCLUSION

Abnormal uterine bleeding is frequently seen to be associated with thyroid dysfunction and in majority of the patients, menstrual abnormality may even precede the occurrence of other clinical signs and symptoms of thyroid dysfunction. Any type of menstrual disorder should be considered as a possible presenting symptom of thyroid dysfunction and thyroid assessment deemed necessary in such cases. Unless proper evaluation of thyroid function is done among these patients, we often miss an important etiology of AUB. This may in turn lead to unnecessary exposure of the patient to a variety of nonspecific and ineffective diagnostic and therapeutic procedures, including both invasive (surgical) and non-invasive (hormonal) techniques. Correct diagnosis of this etiology of AUB would help in proper management of the patient, treating both the menstrual abnormality along with the thyroid disorder, and would be cost-effective as well.

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