



Evaluation of Thyroid Profile in Patients with Abnormal Uterine Bleeding

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ABSTRACT

Introduction: Menstrual disorders were the reason for 19.1 % of 20.1 million visits to physician office for gynecologic conditions over a 2-year period. It has long been recognized that thyroid dysfunction may have profound effects on the female reproductive system.

Abnormal uterine bleed includes both DUB and bleeding from structural causes. DUB is characterized by heavy and regular cycles or menorrhagia. Fibroids, polyps, pregnancy complications, endometrial carcinoma etc include the structural causes. It Systemic causes include hypothyroidism, coagulation disorders and cirrhosis.

Aims & Objectives: To evaluate & Compare the T3, T4 and TSH Levels between patients with abnormal uterine bleeding and controls and to evaluate and Compare the levels of thyroid profile in patients with abnormal uterine bleeding.

Materials and Methods: A cross sectional study was conducted with 2 groups of women attending the outpatient department of Obstetrics and Gynaecology of Sree Mookambika Institute of Medical Science. With Software Power 89, sample size was calculated to be 30 in cases and 30 in control. Women between 15-45 years of age with abnormal uterine bleeding were selected. Women with thyroid tumours or post thyroid surgery, those on anti-thyroid medication, gynecological cancers, bleeding disorders, IUCD users, and organic lesions of genital tract and those with pregnancy complications were excluded.

Results: Maximum number of patients presenting with AUB were in the age group of 41-45 years. 36.67% of all the 60 patients in the study had unhealthy cervixes and 23.3% had abnormal discharge PV. . The most common menstrual pattern was menorrhagia, accounting for a total of 57.13%. Hypothyroidism is most common in patients more than 40 years that is the perimenopausal age group.

Conclusions: Thyroid dysfunction was found to be much more prevalent in patients with AUB. Hypothyroidism was more common than hyperthyroidism among the cases.

Keywords: Thyroid, Abnormal uterine bleeding (AUB), Hypothyroidism, hyperthyroidism.

INTRODUCTION

Menstrual disorders were the reason for 19.1 % of 20.1 million visits to physician office for gynecologic conditions over a 2-year period. ^[1] It has long been recognized

that thyroid dysfunction may have profound effects on the female reproductive system.

Abnormal uterine bleed includes both DUB and bleeding from structural causes. Anovulatory DUB is characterized by unpredictable irregular bleeding and

ovulatory DUB is characterized by heavy and regular cycles or menorrhagia. [1] Fibroids, polyps, pregnancy complications, endometrial carcinoma etc include the structural causes. [2] It can also be caused by contraceptive methods. Systemic causes include hypothyroidism, coagulation disorders and cirrhosis. [3]

Aims & objectives:

1. To evaluate and compare T3, T4 and TSH Levels between patients with abnormal uterine bleeding and controls.
2. To evaluate and Compare the levels of thyroid profile in patients with abnormal uterine bleeding.

MATERIALS AND METHODS

Study design: cross sectional study.

Study Place: 2 groups of women attending the outpatient (Gynaecology) of Sree Mookambika Institute of Medical Sciences.

Study Period: April 2013 to March 2014.

Sample size calculation: Using software, Power 89, 95% CI, Prevalence of control 1% and case are 23.45 and the calculated sample size was 30 in cases and 30 in control.

Sampling technique: convenient.

Inclusion criteria: Women between 15-45 years of age with abnormal uterine bleeding were selected.

Exclusion criteria: Women with thyroid tumours or post thyroid surgery, those on anti-thyroid medication, gynecological cancers, bleeding disorders, IUCD users, and organic lesions of genital tract and those with pregnancy complications were excluded.

After taking a detailed history which included the menstrual and obstetric history, vitals were taken and systemic examination was done. Per abdomen examination, local examination, per speculum and per vaginam examination was done for all patients. Ultrasound was taken for all patients. 2ml blood was collected and Hb, platelet count, bleeding time and clotting time were done.

Serum was separated for thyroid hormone estimation by ELISA method.

Statistical test used are mean, SD, ANOVA.

RESULTS

Table 1 shows that maximum number of patients presenting with AUB were in the age group of 41-45 years i.e. 43.3% and 33.3% were in the age group of 31-40 years and the least were in the age group <20 years. But the majority of patients attending the OPD for complaints other than AUB were between 31-40 years.

According to Table 2, there was no significance in mean values for age at menarche, duration of cycle between control and case groups. But duration of flow showed significant difference between controls and cases.

According to Table 3, there was significant difference in the parity, number of abortions, last child birth between the controls and cases.

In 8.33% of the population speculum was not done. 36.67% of all the 60 patients in the study had unhealthy cervixes and 23.3% had abnormal discharge PV. These points to the importance of complete gynecological examination in all patients presenting to the department of Gynaecology according to Table 4.

Table 5 shows that only hemoglobin levels showed significant difference between the groups. No significant differences were noted in platelet counts, bleeding time and clotting time, compared between case and control. There is a numerical difference in the values but it is not statistically significant.

Comparison of mean TSH values showed high significant difference compared between controls and cases. The p value was 0.01. T3, T4 also showed significant difference when controls and cases were compared. The p values were 0.02-0.04, which were statistically significant, according to Table 6.

Table 7 demonstrates the menstrual pattern among patients suffering from hypothyroidism. The most common menstrual pattern was menorrhagia, accounting for a total of 57.13%. Each of the other patterns like polymenorrhagia, metrorrhagia and menorrhagia with infrequent cycles were seen 14.29%. No patient with hypothyroidism had menometrorrhagia, polymenorrhea or oligomenorrhea.

Table 8 shows the age distribution of patients with thyroid dysfunction. Hypothyroidism is most common in patients more than 40 years that is the perimenopausal age group. They account for 57.14% of hypothyroid patients. The 1 patient detected to have hyperthyroidism also comes in the same age group. The rest of the hypothyroid patients were equally distributed among all the other age groups.

Table 1: Distribution of Number of Patients According To Age AIN Cases and Controls Groups

AGE(YEARS)	GROUP-I (CONTROL)(n=30)	GROUP-II (CASES)(n=30)
<20 years	00	02
21-30 years	07	05
31-40 years	14	10
41-45 years	09	13

Table 2: Comparison of Previous Menstrual History of Cases and Control Groups (N= 30 Each For 2 Group)

MENSTRUAL HISTORY	GROUP-I(CONTROL) (MEAN±SEM)	GROUP-II(CASES) (MEAN±SEM)	P VALUES (ANOVA)
Age of menarche	14.00±0.22	13.90±0.21	0.786
Duration of cycle (days)	29.57±0.31	31.83±1.43	0.567
Duration of flow (days)	4.13±0.18	5.17±0.28	0.02

Table 3: Comparison of Obstetric History between Cases and Controls (N= 30 Each For 2 Group)

OBSTETRIC HISTORY	GROUP-I(CONTROL) (MEAN±SEM)	GROUP-II(CASES) (MEAN±SEM)	P VALUES (ANOVA)
Married life	12.65±7.55	12.65±7.55	0.26
Para	0.93±0.98	1.70±0.98	0.00
Abortion	0.33±0.71	0.07±0.25	0.05
Last delivery	7.37±7.96	11.83±7.96	0.03

Table 4: Distribution of Patients According To Per Speculum Findings in the Study Population (N= 30 each for 2 group)

Per speculum examination	Total study population- number	Total study population-percentage (%)
Normal	33	55.00
Cervix unhealthy	22	36.67
Discharge	14	23.33
Not done	5	08.33

Table 5: Comparison of Hematological Parameters between Controls and Cases (N= 30 each for 2 group)

HEMATOLOGICAL PARAMETERS	GROUP-I(CONTROL) (MEAN±SEM)	GROUP-II(CASES) (MEAN±SEM)	P VALUE (ANOVA)
hemoglobin	11.86±0.22	10.39±0.47	0.01
Platelet count	3.45±0.08	3.60±0.09	0.21
Bleeding time	1.53±0.13	1.63±0.16	0.63

Table 6: Comparison of Thyroid Profile between Controls and Cases (N= 30 each for 2 group)

THYROID PROFILE	GROUP-I(CONTROL) (MEAN±SEM)	GROUP-II(CASES) (MEAN±SEM)	P VALUE (ANOVA)
TSH	3.13±0.27	7.27±1.99	0.01
T ₃	3.90±0.11	3.95±0.32	0.02
T ₄	14.73±0.46	15.20±1.13	0.04

Table 7: Distribution of Number And Percentage Of Hypothyroidism In Patients In Relation To Menstrual Patterns In The Cases Group (N= 30 each for 2 group)

S.NO.	MENSTRUAL PATTERNS	HYPOTHYROIDISM-NUMBER	HYPOTHYROIDISM-PERCENTAGE (%)
1	Menorrhagia	4	57.13
2	Polymenorrhagia	1	14.29
3	Metrorrhagia	1	14.29
4	Menorrhagia with infrequent cycle	1	14.29
5	Menometrorrhagia	0	00.00
6	Polymenorrhea	0	00.00
7	Oligomenorrhea	0	00.00
	TOTAL	7	100

Table 8: Distribution of Patients with Thyroid Disorders According To Age (N= 30 each for 2 group)

AGE (YEARS)	<20 YEARS	21-30 YEARS	31-40 YEARS	41-45 YEARS
Hypothyroidism	1	1	1	4
Hyperthyroidism	0	0	0	1
Euthyroid	2	4	7	9
Total	3	5	8	14

DISCUSSION

In the present study, maximum numbers of patients with AUB were in the age of 41-45 years, which accounted for 43.33%. But in the control group about 46.67% were in the age group of 31-40 years. This demonstrates an increasing incidence of menstrual abnormalities in the peri-menopausal age group probably due to increasing number anovulatory cycles.

In a study K Padmaleela et al [4] in 2011-2012, 83 patients in Visakhapatnam were studied, of which 53% were in the old age group of 35-45 years. About 31.3% were in age group of 25-34 years, 33.3% were in the age group of 31-40 years, 16% were in the age group of 21-30 years and 6% <20 years.

The previous cycles of the patients were compared with the cycles of the control. There was no significant difference in the previous cycle length among the 2 groups, but there was an increase in the number of days of flow among cases compared with control and the values were statistically significant. There may be a relation between present duration of flow and future progression to abnormal bleed. This may suggest a change in the action of normal hemostatic mechanism coming into play towards the end of menstruation in those with future predisposition to AUB. This may be due to an inadequate secretion of oestrogen derived from the emerging cohort.

In the present study 46.67% controls and 20% cases were nulliparous. 43.33% of women were para 2, 20% para 3, and both together were 63.33%. Uniparous women accounted for 16.67% cases. In the study by Pahwa et al, [5] a majority i.e. 80% belonged to the group para 2 to 4, 4.12% were uniparous and 7% nulliparous. In a study by

Pilli et al, 87% of patients with DUB was multiparous and 7% uniparous. 6% were nulliparous.

The mean T3, T4 and TSH values of all control groups were within normal range. Thus all patients with normal cycles with normal flow were euthyroid. The mean TSH values were high and above the normal range in patients with AUB. The mean T3 and T4 values were also higher in cases and controls with respective p values of 0.02 and 0.04, which were statistically significant, thus inferring that thyroid dysfunction was more common in patients with AUB than control group.

The commonest menstrual pattern in hypothyroid patients in the present study was menorrhagia, accounting as high as 57.13%. Hypothyroidism was also associated with menstrual patterns like polymenorrhagia, metrorrhagia, menorrhagia with infrequent cycles each accounting for 14.7%. K Padmaleela et al [4] studied abnormal menstrual pattern in hypothyroid patients. Similar to this study, here 53.3% had menorrhagia, 13.3% had polymenorrhea and another 13.3% had oligomenorrhea, polymenorrhagia, hypomenorrhea and amenorrhea in 6.7% each. But Pahwa et al [5] demonstrated menorrhagia as many as 78.94% of patients followed by polymenorrhea in 10.5%, menometrorrhagia and metropathia hemorrhagica accounted for the rest of the cases (each 5.26%). But study by Sharma Neelu et al [6] on patients presenting to the endocrinology department in Jammu and Kashmir showed that 44.1% of the hypothyroid patients had normal cycles whereas menorrhagia was found in 35.2 % and polymenorrhea in another 23.52%.

Only 3% of patients had hyperthyroidism in the present study and the

percentage of menorrhagia was 100%. In the study controlled by Padmaleela et al [4] among hyperthyroid patients 42.8% had menorrhagia, 28.6% had polymenorrhea and 14.3% of polymenorrhagia and hypomenorrhea. Kaur et al had 1 patient with hyperthyroidism who presented with hypomenorrhea. In the study by Singh et al [7] oligomenorrhea was the commonest menstrual pattern 63.6%. Menon and Barucha et al found oligomenorrhea in 23.07% of cases. Study by Sharma N showed the commonest pattern as normal cycle (37.5%).

In the present study, 63.33% of patients with AUB had developed anemia. Most patients had Hb between 8-10.9g/dl and around 16.6% had Hb<8g/dl. The most frequent menstrual patterns associated with anemia were menorrhagia and polymenorrhagia.

CONCLUSION

Thyroid dysfunction was found to be much more prevalent in patients with AUB. Hypothyroidism was more common than hyperthyroidism among the cases.

So Patients with abnormal uterine bleeding have more prevalence of thyroid dysfunction.

Limitation: Unless a proper evaluation function tests are done among these patients, we are bound to miss the etiology of AUB leading to nonspecific and ineffective,

invasive and noninvasive procedures and treatments.

Conflict of Interest: No.

Institutional Ethical Clearance: Taken.

Source of funding: Self

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