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Original Research Article

Study of thyroid hormone profile in women presenting with abnormal uterine bleeding attending gynaecology out patient department, tertiary care centre Raipur

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ABSTRACT

Background: Menstrual disorders pose a huge burden on genecology OPD, accounting for 10-30% of attendance. Women with HMB have a significant impact on physical, emotional, social, professional and family perspectives which leads to decrease in work productivity. Thyroid gland is closely linked with the process of ovarian maturation and endometrial hyperplasia, its dysfunction also causes abnormal uterine bleeding (AUB).
Methods: This was an observational cross-sectional study performed at Pt J. N. M. medical college associated with Dr. B.R.A.M. hospital Raipur (C.G.) between 1st January 2020 to 31st December 2020. Total 100 cases between 18-45 years of age with AUB were included routine investigations and ultrasonography done.
Results: Majority of AUB cases belong to the more than 39 years (46%), 41% were multiparous. The 20% cases of AUB have hypothyroidism, 2% have subclinical hypothyroidism, 7% have hyperthyroidism. Commonest pattern of bleeding was heavy menstrual bleeding (52%). They 37% cases had leiomyoma of uterus, 17% cases had adenomyosis, and 14% cases had ovulatory dysfunction. The 12 cases having hypothyroidism and 3 cases having hyperthyroidism presented with heavy and prolonged bleeding.
Conclusions: There is significant increase in thyroid disorders in cases with AUB as compared to general population. More than one fourth of cases of AUB were having thyroid disorder. Hypothyroidism is 3 times more common than hyperthyroidism. It is suggested that women of any age having AUB should be offered thyroid profile test to detect thyroid disorders. Early detection can provide early diagnosis and treatment.

Keywords: Abnormal uterine bleeding, Hypothyroidism, Hyperthyroidism

INTRODUCTION

Abnormal uterine bleeding (AUB) is defined as any bleeding pattern that differs in the regularity, frequency, duration and amount from a pattern observed during a normal menstrual cycle or menopause.[1]

Menstrual disorders pose a huge burden on gynaecology OPD, accounting for approximately 10-30% of attendance.[2-4] Women in pre and postmenopausal age groups are affected by AUB. It is presented in many forms like heavy menstrual bleeding, frequent menstrual bleeding, infrequent menstrual bleeding, and amenorrhea.[5]

Abnormal uterine bleeding includes both structural and non-structural causes. Structural causes are PALM i.e., polyp, adenomyosis, leiomyomas, malignancies and hyperplasia. non-structural causes include COEIN i.e., coagulopathy, ovulatory dysfunction, endometrial causes, iatrogenic and non-classified causes.[5]

Women with HMB have a significant impact on physical, emotional, social, professional and family perspectives. Work productivity decreases due to weakness caused by the amount of blood loss, due to frequent changes of pads, tampons and limited social activities with fear of soiling outer garments with blood.

The thyroid gland plays an important role in the growth, development, metabolism and function of every organ in the body.[6] Because of the autoimmune nature of thyroid disorders, thyroid disorder prevalence is seen more among females.

Thyroid dysfunction is a cause of non-structural AUB. Thyroid is closely linked with the process of ovarian maturation and endometrial hyperplasia.[7] Females with thyroid gland abnormality have chances of reproductive abnormalities ranging from abnormal sexual development, menstrual irregularities, infertility and premature menopause. Menstrual cycle irregularities may accompany or precede clinically overt hypothyroidism or hyperthyroidism.

METHODS

It was a hospital based observational cross-sectional study in which 100 women with the complaint of AUB attending OPD at Pt J. N. M. medical college associated with Dr. B.R.A.M. hospital Raipur (C.G.) were included. Study duration was from 1st January 2020 to 31st December 2020. Detailed history was obtained regarding age, bleeding pattern, onset, duration, and amount of bleeding. Ultrasonography of abdomen and pelvis with endometrial thickness was done.

Inclusion criteria

All women between 18-45 years with abnormal uterine bleeding, no obvious genital lesion, not on hormonal therapy and no evidence of any haematological disorder were included in the study.

Exclusion criteria

Unwilling cases, cases suspected of pelvic infection, woman on oral contraceptives, case with malignant lesion of cervix, IUCD users and cases already in treatment for deranged thyroid hormone were excluded from the study.

Reference range

T3-0.5-2.0 ng/ml, T4- 5.1-14.1 ugm/dl, TSH- 0.27-6.0 uIU/ml, free T3-1.40-4.2 pg/ml, free T4-0.80-2.0 ng/dl.

Statistical analysis

Data entered in MS-excel 2016 sheet and analyzed with SPSS version 20. Frequency distribution tables were made analyzed by Chi square test with $p<0.05$ considered as significant. Based on thyroid dysfunction the cases were categorized to 4 subgroups-euthyroid, subclinical hypothyroid, hypothyroid, hyperthyroid.

Ethical considerations

Ethical clearance approval obtained from the institutions ethical committee.

RESULTS

Table 1 showed demographic table shows that 46% cases were of 39-45years of age, 56% cases belong to class III socioeconomic status, 78% belong to rural areas, 41% cases were having parity ≥3.

Table 1: Demographic distribution in study groups.

Variables	No. of cases	Percentage (%)
Age group (Years)		
18-24	15	15
25-31	14	14
32-38	25	25
39 -45	46	46
Mean=36.07		
Socioeconomic status (modified B.G. Prasad classification 2019)		
Class I	06	06
Class II	24	24
Class III	56	56
Class IV	09	09
Class V	05	05
Residency		
Rural	78	78
Urban	22	22
Parity		
Nullipara	25	25
P1	06	06
P2	28	28
Parity≥3	41	41

Table 2 showed maximum number of cases (81%) of AUB have normal uterine volume i.e., less than 100 cc in ultrasonography.

Table 2: Distribution of cases according to volume of uterus according to USG finding.

Volume of uterus	No. of cases	Percentage (%)
Less than 100 cc	81	81
100-150 cc	08	8
150- 200 cc	05	5
200-250 cc	03	3
More than 250 cc	03	3
Total	100	100
Mean-128.93		

Table 3: Distribution of cases according type of thyroid dysfunction.

Type of thyroid dysfunction	No. of cases	Percentage (%)
Normal	71	71
Subclinical hypothyroidism	02	02
Hypothyroidism	20	20
Hyperthyroidism	07	07
Total	100	100

Table 3 showed 71% cases were euthyroid, 22% cases have hypothyroid and 7% cases have hyperthyroidism, 2% cases had subclinical hypothyroidism.

Table 4 showed 52% cases of AUB have HMB.

Table 4: Distribution of cases according to menstrual pattern.

Menstrual pattern	No. of cases	Percentage (%)
Amenorrhea	4	04
HMB	52	52
infrequent menstrual bleeding	15	15
frequent menstrual bleeding	20	20
Light menstrual bleeding	09	09

Figure 1 showed 37% cases of AUB had leiomyoma in their uterus.

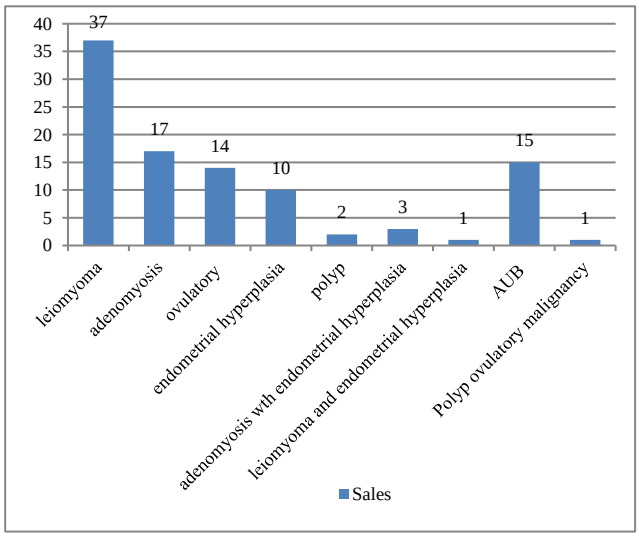

Figure 1: Distribution of cases according to structural abnormalities in AUB.

Table 5 showed that 49% of cases have endometrial thickness within 5.1-10 mm.

Table 6 showed 12 cases (54.4%) of hypothyroidism had HMB and 4 cases (57.15%) of hyperthyroidism had infrequent menstrual bleeding. Chi square value=27.24, p=0.03 (statistically significant).

Table 7 showed 15 cases of AUB-M, 10 cases 66.7% have proliferative endometrium.

Table 5: Distribution of cases according to endometrial thickness seen in USG.

Endometrial thickness (mm)	No. of cases	Percentage (%)
Less than 5	29	29
5.1-10	49	49
10.1-15	17	17
>15.1	5	05
Mean=8.13		

Table 6: Distribution of cases according to menstrual pattern in thyroid disorder.

Menstrual pattern	Hypothyroidism (%)	Hyperthyroidism (%)
Heavy and prolonged menses	12 (54.54)	03 (42.85)
Frequent menstrual bleeding	07 (31.81)	00
Infrequent menstrual bleeding	03 (13.63)	04 (57.15)
Total	22	07

Table 7: Distribution of cases according endometrial histology.

Endometrial histology	Number	Percentage (%)
Secretory	03	20
Proliferative	10	66.7
Hyperplasia	02	13.3
Total	15	100

Table 8 showed chi square value=17.53, p<0.01 (Statistically significant), subclinical hypothyroid cases presented with HMB and frequent menstrual cycle. Cases with TSH value between 10.1-50 uIU/ml had HMB (50%) and frequent cycle (33.33%). All cases with very high TSH had HMB.

Table 8: Distribution of cases on the basis of TSH level and different bleeding pattern.

TSH levels, (uIU/ml)		Amenorrhea	HMB, (n=52) (%)	Frequent menstrual cycle, n=20 (%)	Infrequent menstrual cycle, n=15 (%)	Light menstrual bleeding, n=9 (%)	No. of cases
<0.27, hyperthyroid	N	-	03	00	04	-	07
	H		42.85		57.14		
	V		5.76		26.66		

Continued.

TSH levels, (uIU/ml)		Amenorrhea	HMB, (n=52) (%)	Frequent menstrual cycle, n=20 (%)	Infrequent menstrual cycle, n=15 (%)	Light menstrual bleeding, n=9 (%)	No. of cases
0.27-6.0, euthyroid	N	04	37	13	08	09	71
	H	5.63	52.11	18.30	11.26	12.67	
	V	100	71.15	65	53.33	100	
6.1-10, subclinical hypothyroid	N	-	01	01	00	-	02
	H		50	50	-		
	V		1.92	5	-		
10.1-50, hypothyroid	N	-	09	06	03	-	18
	H		50	33.33	16.67		
	V		17.30	30	26.66		
>50.1, severe hypothyroid	N	-	02	00	00	-	02
	H		100				
	V		3.86				
Total		04	52	20	15	09	100

DISCUSSION

Abnormal uterine bleeding is the most common problem with arrays of symptoms bringing cases to gynecology OPD. Frequent complaints were heavy menstrual bleeding, generalized weakness, lethargy, associated with social embarrassment, significant life style modification, and sexual compromise. The etiology of AUB are diverse may be due to hormones both hypo and hyperthyroidism causes AUB included under non-structural causes of AUB. It may also be due to structural causes like endometrial polyp, carcinoma, fibroid uterus, adenomyosis, endometrial causes. Thyroid hormone profile was studied in all 100 cases of AUB and 22 were found to have hypothyroid 7 were hyperthyroid. Evaluation of thyroid profile is an essential step. Early detection of hypothyroidism in such subjects saves the patient from recurrent curettage and at times hysterectomy. Thyroid disorder in general and hypothyroidism is more common among female due to its autoimmune nature. In present study, the most common age group with menstrual irregularity is more than 40 years with 46% of the cases, the next most common age group is 32-39 years of age 25%. Dass et al in their study also had most common age pattern 41-50 years.[8] Similar results were also found in Manjira et al.[9]

Most of the people belong to class III socioeconomic class by modified B. G. Prasad classification and most of the cases with AUB belong to rural residency. This may be because of preference of government set up by the people of middle class and from rural areas. Study is comparable to study done by Mahapatra et al in and Rashmi et al.[10,11]

In this study most of the women with AUB have parity equal to 2 and more than 2 i.e., 69%. Same result was seen in the study done by Manjeera et al.[9] Any inclination for low and high parity could not be evaluated.

The commonest menstrual irregularity in the study is HMB with 52% cases of total cases followed by increased frequency of menstrual cycle i.e., 20%. Same result was seen in the study done by following:

Table 9: Study results.

Authors	HMB	Frequent menstrual cycle	Infrequent menstrual cycle
Sangita et al[12]	50%	16%	20%
Shaply et al[13]	41%	36%	-
Moghal et al[14]	54%	36%	-
Talukdar et al[15]	45%	14%	-
Present study	52%	20%	15%

In this study 20% of cases with AUB were found to be hypothyroid, and 2% subclinical hypothyroid. Same result seen in study done by Sharma et al 19% hypothyroid, Padmaleela et al 18.1%.[16,17] In present study 7% found to be hyperthyroid which is similar to study done by Sangita et al i.e., 8.4%, Gowri et al where 17.6% have hypothyroidism, 2.7% subclinical hypothyroidism and 4.7% hyperthyroidism.[12,18] Most of the cases with AUB were having normal endometrial thickness. In this study endometrial hyperplasia was present only in 2 cases of AUB.

Most of the cases with HMB found to had hypothyroidism and cases with infrequent and light menstrual bleeding had hyperthyroidism. Nearly same result was seen in studies done by Shapely and study done by Manjira.[9,13] Most of the cases of AUB having leiomyoma associated with hypothyroidism i.e., 5%. Our study shows highest prevalence with 38% leiomyoma as cause of AUB. Overall prevalence of thyroid dysfunction is 29%. Same prevalence was seen in study done by Dhanpal et al 30%.[2]

Limitation

In this study sample size was small, most of the cases belong to premenopausal age group, premenstrual ultrasonographic evaluation of endometrial thickness

could not be done, levels of free T3 and free T4 could not be assessed in all cases, endometrial sampling could not be carried out in all cases. Total number of cases with AUB having thyroid dysfunction were less so proper conclusion could not be drawn about the age relation and thyroid disorder by this study.

CONCLUSION

Present study concluded that there is significant increase in thyroid disorder in case having AUB as compared to general population. More than 1/4th case of AUB used to have thyroid disorder i.e., 29%. Hypothyroidism (22%) is three times more common than hyperthyroidism (7%).

HMB remains the most common type of menstrual abnormality in hypothyroidism and in frequent menstrual cycle is common in hyperthyroidism. Not only non-structure but even structural anomalies with AUB had thyroid dysfunction.

It is suggested that women of any age group having abnormal uterine bleeding should be offered thyroid function test to detect thyroid disorders. Early detection can provide early diagnosis and treatment.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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