

Thyroid Disorders in Patients with Abnormal Uterine Bleeding**Pooja Singh^{1*}, Renu Singh², Manjari Gupta³, Prachi⁴**¹Assistant Professor, Department of Obstetrics and Gynecology, Heritage Institute of Medical Sciences, Varanasi²Assistant Professor, Department of Obstetrics and Gynecology, Heritage Institute of Medical Sciences, Varanasi³Associate Professor, Department of Obstetrics and Gynecology, Heritage Institute of Medical Sciences, Varanasi,⁴Junior Resident -3, Department of Obstetrics and Gynecology, Heritage Institute of Medical Sciences, Varanasi

Received: 25-07-2023 / Revised: 28-08-2023 / Accepted: 30-09-2023

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Conflict of interest: Nil

Abstract:**Introduction:** Abnormal Uterine Bleeding is a common problem amongst women and is associated with an array of symptoms. AUB is the overarching term used to describe any departure from normal menstrual cycle pattern.**Aim:** To evaluate thyroid profile and detect thyroid disorders in patients with Abnormal Uterine Bleeding and menstrual patterns in women found to have thyroid disorders.**Method:** study conducted on 300 women from menarche to menopausal age group presenting with complaint of AUB presenting in the Department of Obstetrics and Gynaecology, Heritage Institute of Medical Sciences, Varanasi in collaboration with Department of Biochemistry. Proper counselling was done and written informed consent was taken. Women with complaints of AUB attending the Department of Obstetrics and Gynaecology were included in the study. A detailed history was taken with special relevance to age and bleeding pattern. A thorough clinical examination including general physical examination, gynaecological examination, neck examination with special reference to thyroid dysfunction was done. All these patients were subjected to routine investigations and Ultrasound examination.**Result:** The mean age was 37.89±8.94 years in the study group and 36.89±8.55 years in the control group. 24% subjects were hypothyroid and 43% subclinical hypothyroid in study group. 51.67% had menorrhagia as the chief menstrual complaint. In subjects having menorrhagia as the presenting complaint, hypothyroidism was the chief thyroid dysfunction. In subjects having hypomenorrhea as bleeding pattern, hyperthyroidism was main thyroid dysfunction.**Conclusion:** Thyroid dysfunction should be considered as an important etiological factor for menstrual abnormality as there is high prevalence of thyroid disorders in patients having Abnormal Uterine Bleeding as the presenting complaint.**Keywords:** Abnormal Uterine Bleeding, Menarche and Menopause.This is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.**Introduction**

Abnormal Uterine Bleeding is a common problem amongst women and is associated with an array of symptoms. AUB is the overarching term used to describe any departure from normal menstrual cycle pattern. The key characteristics are regularity (variation $\pm 2-20$ days), frequency (24-38 days), heaviness of flow (5-80 ml) and duration of flow (4.5-8 days). [1] AUB is reported to occur in 9-14% women between menarche and menopause. [2] In India the reported prevalence is around 17.9%. [3] Chronic AUB is defined as 'bleeding from the uterine corpus that is abnormal in volume, regularity and /or timing that has been present for

the majority of the last 6 months'. Values exceeding the accepted 5th-95th percentiles indicate abnormality. [4] With regard to volume, however, both the RCOG and ACOG prefer the patient-centred definition of HMB, 'excessive menstrual blood loss which interferes with a woman's physical, social, emotional and/or material quality of life' as an indication for investigation and treatment options. [5] Abnormality of menstruation is primarily a disorder of HPO axis directly or indirectly by their effect on target organ. Endocrinological disturbances form a small but significant sub-group in the

etiopathogenesis of AUB. Amongst the endocrinological causes, after pituitary, thyroid is probably the most important endocrine organ which exerts a broad range of effects on development, growth, metabolism and function of almost every organ system in human body. [6]

Aim

To evaluate thyroid profile and detect thyroid disorders in patients with Abnormal Uterine Bleeding and menstrual patterns in women found to have thyroid disorders.

Method

The present study was a Hospital based prospective observational study conducted on 300 women from menarche to menopausal age group presenting with complaint of AUB presenting in the Department of Obstetrics and Gynaecology, Heritage Institute of Medical Sciences, Varanasi, in collaboration with Department of Biochemistry. Proper counselling was done and written informed consent was taken. Women with complaints of AUB attending the Department of Obstetrics and Gynaecology were included in the study. Pregnant and puerperal patients, Carcinoma thyroid, IUCD users, History of bleeding disorders, Patients on drugs like aspirin, warfarin, heparin, Tamoxifen, TCAs, SSRIs, antipsychotics, phenytoin, rifampicin, oral

contraceptive drugs and Patients having malignancy of any genital organ were ruled out from the study. The data was collected using a prepared proforma meeting the objectives of the study by means of personal interview of the patient after taking informed consent. A detailed history was taken with special relevance to age and bleeding pattern. Onset, duration, interval and amount of bleeding, complaints related to thyroid dysfunction was noted in detail. The method of contraception used was also noted. A thorough clinical examination including general physical examination, gynaecological examination, neck examination with special reference to thyroid dysfunction was done. All these patients were subjected to routine investigations and Ultrasound examination. Then all patients were tested for serum TSH, T3 AND T4 on day 5th of menstrual cycle.

The concentration of TSH in a patient sample or controls was then determined by interpolation on calibration curve.

Expected values:-

- Euthyroid - 0.25_5.0 μ Iu/ml
- Hypothyroid > 7.0 μ IU/ml
- Hyperthyroid < 0.15 μ IU/ml

Result

Table 1: Sociodemography

Age (Years)	Study Group (n=300)		Control Group (n=100)		P value
	Subjects	Percentage	Subjects	Percentage	
≤20	27	9%	8	8%	
21-30	38	12.67%	14	14%	
31-40	105	35%	36	36%	
41-50	116	38.67%	38	38%	
>50	14	4.67%	4	4%	
Mean Age	37.89±8.94years		36.89±8.55years		0.330
Area					
Rural	154	51.33%	50	50%	0.832
Urban	146	48.67%	50	50%	
Socio Economic Status					
Lower class	5	1.67%	0	0%	0.074
Upper lower class	47	15.67%	20	20%	
Lower middle class	163	54.3%	50	50%	
Upper Middle class	85	28.33%	30	30%	

In both the groups the majority of subjects were between 41-50 years of age. The mean age was 37.89±8.94 years in the study group and 36.89±8.55 years in the control group. p value is 0.330 which is non-significant.

Majority of the subjects presented from rural area .154 (51.33%) subjects in the study group and 50(50%) subjects in the control group belonged to rural area, while 146(48.67%) subjects in study group and 50(50%) subjects in control group were from urban areas.

P value is 0.832 which is non-significant. Maximum subjects in both the study and control group belonged to lower middle class according to modified kuppuswamy scale.163 subjects (54.3%) in study group and 50 subjects (50%) in control group belonged to lower middle class. 85 subjects (28.33%) in study group and 30 subjects (30%) in control group belonged to upper middle class.

5 (1.67%) subjects in the study group belonged to lower class.47 subjects (15.67%) in study group and 20 subjects (20%) in control group belonged to

upper lower class. p value is 0.074 which is non-significant.

Table 2: Thyroid Profile

Euthyroid	Study Group(N=300)		Control Group(N=100)		P Value
Yes	228	76%	95	95%	0.001
No	72	24%	05	5%	
Overt Hypothyroid					
Yes	24	8%	1	1%	0.012
No	276	92%	99	99%	
Subclinical Hypothyroid					
Yes	43	14.33%	4	4%	0.009
No	257	85.67%	96	96%	
Hyperthyroid					
Yes	5	1.67%	0	0%	0.194
No	295	98.33%	100	100%	

Above table shows that 230 subjects (76.67%) in study group and 77 subjects (77%) in control group were overweight. The mean BMI was 26.26 ± 1.82 Kg/m² in study group and 26.61 ± 1.73 Kg/m² in control group. ($p > 0.05$)

In the study group, 228 (76%) subjects were euthyroid while in the control group, 95(95%) were euthyroid. In the study group, 24 subjects (8%) were overt hypothyroid while in the control group only 1 (1%) was overt hypothyroid. In the study group, 43 (14.33%) subjects were subclinical hypothyroid while in the control group, only 4 (4%) were subclinical hypothyroid. In the study

group, 5(1.67%) subjects were hyperthyroid while in the control group, no subjects were hyperthyroid.

Majority of the subjects had menorrhagia (Heavy menstrual bleeding) as the most common menstrual complaint. Majority of subjects in the study group had nonstructural cause of abnormal uterine bleeding. Nonstructural causes were seen in 160 subjects (53.33%) while structural causes were seen in 140 subjects (46.67%). Amongst structural causes of abnormal uterine bleeding, maximum number of subjects had leiomyoma 74 subjects (52.86%), followed by thick endometrium which was present in 33 subjects (23.57%).

Table 3: Thyroid Disorders in Patients with Abnormal Uterine Bleeding

Bleeding Patterns	Subjects (n=300)	Euthyroid	Overt Hypothyroid	Subclinical Hypothyroid	Hyperthyroid
Hypomenorrhea	19	16 (84.21%)	0 (0%)	1 (5.26%)	2 (10.53%)
Menorrhagia	155	118 (76.13%)	13 (8.39%)	22 (14.19%)	2 (1.29%)
Metrorrhagia	28	18 (64.29%)	3 (10.71%)	7 (25%)	0 (0%)
Oligomenorrhea	48	37 (77.09%)	1 (2.08%)	9 (18.75%)	1 (2.08%)
Polymenorrhagia	23	20 (86.96%)	2 (8.70%)	1 (4.34%)	0 (0%)
Polymenorrhea	27	19 (70.37%)	5 (18.52%)	3 (11.11%)	0 (0%)
Total	300 (100%)	228	24	43	5

Above table depicts that in subjects with hypomenorrhea, 1(5.26%) had subclinical hypothyroidism and 2(10.53%) were hyperthyroid. In subjects with menorrhagia, 13(8.39%) were overt hypothyroid, 22(14.19%) had subclinical hypothyroidism and 2 (1.29%) were hyperthyroid. In subjects with oligomenorrhea, 1(2.08%) was overt hypothyroid, 9(18.75%) had subclinical hypothyroidism and 1 (2.08%) had hyperthyroidism.

In subjects with polymenorrhagia, 2 (8.7%) were overt hypothyroid and 1 (4.35%) had subclinical hypothyroidism. In subjects with polymenorrhea, 5 (18.52%) were overt hypothyroid and 3 (11.11%) had subclinical hypothyroidism. So in subjects with menorrhagia as the presenting complaint, hypothyroidism was the chief thyroid dysfunction. In subjects having hypomenorrhea as bleeding

pattern, hyperthyroidism was main thyroid dysfunction.

Discussion

Maximum number of patients in present study were in age group of 41-50 Years (38.67%) which is in accordance with N Bhavani et al (2015) [7] that was 40%. Similar results were seen in Singh S et al (2018) [8] in age group of 41-50 years (43.27%). In present study, maximum number of subjects (32%) belonged to para 2 and least number of subjects (9%) belonged to ≥ 4 para. Comparable results were seen in Javed Ali et al (2015) [9] 30% and 32.7% by Singh S et al (2018) [8] Present study shows that 24 subjects (8%) were hypothyroid, 43 (14.33%) were subclinical hypothyroid and only 5(1.67%) were hyperthyroid. Similar results were seen in study conducted by N Bhavani et al (2015)

[7] where 7.5% subjects were hypothyroid, 10% subclinical hypothyroid and 1.5% hyperthyroid. The results are comparable with studies conducted by Ghosh et al (2017) [10] and Sharma P et al (2018) [11]. Maximum subjects (51.6%) are presented with menorrhagia which is similar to studies done by other authors. Menorrhagia was seen in 54% subjects in study by 40% by Ghosh et al (2017) [10] and 44% by Sharma P et al (2018) [11]. 33.33% thyroid dysfunction was seen in age \leq 20 years which is comparable with study done by Sharma P et al(2018) [11] ,i.e. 28%.

Present study shows that 52.2% of hypothyroid subjects had menorrhagia as the chief menstrual complaint which is comparable with studies conducted by Javed Ali et al(2015) [9] and K. Padmaleela et al (2013) [12]. Present study shows that 40% hyperthyroid subjects had menorrhagia which is comparable with study by N Bhavani et al (2015) [7] in which 33.33% hyperthyroid subjects had menorrhagia. 40% hyperthyroid subjects had hypomenorrhea which is comparable with study by Somani Rathi et al (2015) [13] and N Bhavani et al(2015) [7]. 20% hyperthyroid subjects had oligomenorrhea which is comparable with study of Javed Ali et al (2015) [9] Structural causes were seen in 46.67% subjects and nonstructural causes were seen in 53.33% subjects which is comparable with the study conducted by N Bhavani et al(2015) [9]

Conclusion

Thyroid dysfunction should be considered as an important etiological factor for menstrual abnormality as there is high prevalence of thyroid disorders in patients having Abnormal Uterine Bleeding as the presenting complaint. With the advent of modern hormonal assay techniques, precise estimation of thyroid hormone in serum is possible in a rapid and reliable manner. Hence the biochemical evaluation of T3, T4 and TSH is extremely important in detecting these patients. This would also avoid unnecessary exposure to hormones and surgery in these patients.

References

1. Malcolm G., Munro MD, Ians Fraser, MD. The FIGO Recommendations on Terminologies and Definitions for Normal and Abnormal Uterine Bleeding. *Seminars in Reproductive Medicine*. 2011; 29:383-389.
2. Fraser IS, Langhman S, Unl. Hochraeker K. Health related quality of life and economic burden of AUB. *Expert Review Obstet Gynaecol*. 2009; 4(2): 179-189.
3. Sharma A, Dogra Y. Trends of AUB in tertiary Centre of Shimla Hills. *J Midlife Health*. 2013; 4:67-8.
4. Munro MG, Critchley HO, Fraser IS. The FIGO classification of causes of abnormal uterine bleeding: Malcolm G. Munro, Hilary O.D. Critchley, Ian S. Fraser, for the FIGO Working Group on Menstrual Disorders. *Int J Gynaecol Obstet* 2011;113: 1-2.
5. NICE. Clinical Guideline 44; Heavy menstrual bleeding 2007. National Institute for Health and Clinical Excellence (NICE); Available at: <http://www.nice.org.uk/nicemedia/pdf/CG44FullGuideline.pdf>.
6. David Olive, Steven Palter. *Reproductive Physiology Im: Jonethen S. Berek, eds. Berek and Novak's Gynaecology*. 14th ed. Philadelphia: Lippincott. Williams and Wilkins Company; 2002: 161-186.
7. Bhavani N, Avanthi S, Aradhana G, Sangeeta C, Prasannakumar VS. A study of correlation between abnormal uterine bleeding and thyroid dysfunction. *Int J Recent Trends in Sci Technol*. 2015; 14(1):131-135.
8. Singh S, Sahoo S, Das PC. A study of thyroid dysfunction in dysfunctional uterine bleeding. *Int J Reprod Contracept Obstet Gynecol*. 2018;7: 1002-6.
9. Ali J, Das KK, Konyak P. Study of relation of thyroid profile with Abnormal Uterine Bleeding. *Sch. J. App. Med. Sci.*, October 2015; 3(7D): 2688-2692.
10. Ghosh R, Patel RR. Study of association of thyroid disorders with abnormal uterine bleeding. *Int J Reprod Contracept Obstet Gynecol*. 2017; 6:2302-5.
11. Sharma P, Patil P. Evaluation of thyroid disorders in abnormal uterine bleeding. *Int J Reprod Contracept Obstet Gynecol*. 2018; 7:1764-7.
12. Padmaleela K, Vimala T, Lavanya KM, Kiranmai D. Thyroid disorders and dysfunctional uterine bleeding (DUB) among reproductive age group women. A cross sectional study in a tertiary care hospital in Andhra Pradesh, India. *Int j Med Pharm Sci*. 2013; 4(1): 41-46.
13. Somani SR, Somani S.G. Study of thyroid dysfunction in premenopausal women with Abnormal Uterine Bleeding. *Int J of Sci and Res*. 2015; 4(7):487-489.