

Thyroid Function Test in Abnormal Uterine Bleeding

Kattel P¹, Baral G¹

¹Department of Obstetrics and Gynaecology, Paropakar Maternity and Women's Hospital, Thapathali, Kathmandu, Nepal

Received: 5-Mar-2017; **Accepted:** 30-May-2017

Aims: To evaluate and detect the thyroid dysfunction in patients with abnormal uterine bleeding (AUB) from puberty to menopause.

Methods: This is an observational descriptive study of 90 patients of abnormal uterine bleeding at Paropakar Maternity and Women's Hospital, Kathmandu from 17th January 2016 to 16th January 2017. Besides thyroid function test, Pap smear, endometrial biopsy and histo-pathological examination of uterus following hysterectomy was done in selected cases.

Results: The incidence of AUB was 6.2 % with mean age of 37 years. The most common presenting complaint was menorrhagia (36.7%) followed by metrorrhagia (23.3%). Thyroid dysfunction accounted for 20% of AUB with major share occupied by subclinical hypothyroidism (11%) and least by hyperthyroidism (1%). The most common association of thyroid dysfunction with AUB was overt hypothyroidism (27.3%) with menorrhagia. Non-structural causes of AUB accounted for 30.4% of thyroid dysfunction.

Conclusions: This study shows that thyroid dysfunction plays significant role for AUB so it is wise enough to perform TFT on routine basis in order to avoid unnecessary hormonal treatment with estrogen, progesterone or their combination and even the hysterectomies.

Keywords: menorrhagia, metrorrhagia, thyroid function tests, thyroid hormones, uterine haemorrhage

DOI: 10.3126/njog.v12i2.19959

INTRODUCTION

Abnormal Uterine Bleeding (AUB) with varied presentations is a common problem among women of reproductive age group. It occurs in about 9-14% of women between menarche and menopause imposing significant impact on quality of life and financial burden.¹ About one third of the hysterectomies were carried out for menstrual disorders alone in 2001 worldwide and thyroid dysfunction is one among important causes for menstrual disorders.² Thyroid disorders may present as abnormal sexual development, menstrual irregularities, infertility and premature menopause.^{1,3} Both hyperthyroidism and hypothyroidism may result in menstrual disturbances.^{4,5} Women with thyroid dysfunction often have menstrual irregularities, infertility and increased morbidity during pregnancy which can be reversed following treatment.⁶ Heavy Menstrual Bleeding (HMB) and subclinical hypothyroidism

have not been carefully elicited that is as high as 9.5% in women.^{1,7,8}

Any menstrual irregularity in non-pregnant patients especially HMB warrants thyroid stimulating hormone (TSH) estimation. With the introduction of serum free tetraiodothyronine (T₄) and TSH radioimmunoassay, there has been increased sensitivity and specificity of Thyroid Function Test (TFT). Hence this study is to evaluate the TFT in patients with AUB from puberty to menopausal age group.

METHODS

This is a hospital based observational descriptive study conducted at Paropakar Maternity and Women's Hospital (PMWH) Kathmandu for 12 months from 17th January 2016 to 16th January 2017. There were 90 cases of AUB attending gynecological out-patient department (OPD) from puberty to menopause. Patients under hormonal treatment, bleeding disorder and contraceptive devices were excluded. Urine pregnancy test followed by complete blood count, bleeding time, clotting time, blood grouping, TFT and abdomino-pelvic ultrasonography were done. Histopathological test was also observed in indicated cases.

CORRESPONDENCE

Dr Pramod Kattel
Paropakar Maternity and Women's Hospital, Thapathali,
Kathmandu, Nepal
Phone: +977-9847088684
E-mail: pramodkattel85@gmail.com

RESULTS

The mean age for AUB noted is 37 years (range: 14-52) and most of the cases belong to age group of 31-40 years i.e. 41 % (Table 1). Structural and non-structural causes of bleeding were almost equal, and half of the structural cause (26.7%) was due to leiomyoma (Table 2).

Table-1: Age group wise distribution (N=90)

Age group (in years)	No. of Cases	Percentage (%)
<20	9	10.0
21-30	12	13.4
31-40	37	41.1
41-50	29	32.2
>50	3	3.3

The pattern of bleeding was predominantly menorrhagia (36.7%) and metrorrhagia (23.3%) (Figure-1). Eighty percent of AUB occurred in euthyroid cases. Thyroid dysfunction was mainly subclinical hypothyroidism (11%) followed by

overt hypothyroidism (8%) and hyperthyroid (1%) (Figure 2). Thyroid dysfunction was commonest in patients with Menorrhagia, Polymenorrhoea and Menometrorrhagia followed by Oligomenorrhoea and Metrorrhagia (Table 3). Altogether, 20% had thyroid dysfunction and 78% of thyroid dysfunction was seen in non-structural causes. Structural causes were leiomyoma, adenomyosis, and malignancy/hyperplasia (Table 4).

Table-2: Causes of abnormal uterine bleeding

Causes	No. of cases	Percentage (%)
I. Structural	44	48.9
-Polyp	9	10.0
-Adenomyosis	5	5.5
-Leiomyoma	24	26.7
-Malignancy and hyperplasia	6	6.7
II. Non-Structural	46	51.1

Table-3: Pattern of bleeding and thyroid dysfunction

Pattern of bleeding	No. of Cases	Euthyroid	Overt hypo thyroid	Sub-clinical hypothyroid	Hyper thyroid	Total thyroid dysfunction	Percent %
Hypomenorrhea	3	3	0	0	0	0	0.0
Oligomenorrhea	6	5	0	0	1	1	16.7
Polymenorrhea	11	8	1	2	0	3	27.3
Menorrhagia	33	24	4	5	0	9	27.3
Metrorrhagia	21	19	1	1	0	2	9.5
Meno metrorrhagia	12	9	1	2	0	3	25.0
Intermenstrual bleeding	1	1	0	0	0	0	0.0
Post coital bleeding	3	3	0	0	0	0	0.0
Total	90	72	7	10	1	18	

Table-4: Causes of bleeding and thyroid dysfunction

	Causes of bleeding	No. of Cases	Euthyroid	Overt hypothyroid	Sub-clinical hypothyroid	Hyperthyroid	Total thyroid dysfunction	%
Structural Causes	Polyp	9	9	0	0	0	0	0.0
	Adenomyosis	5	4	0	1	0	1	20.0
	Leiomyoma	24	22	1	1	0	2	8.3
	Malignancy and hyperplasia	6	5	0	1	0	1	16.7
Non-Structural		46	32	6	7	1	14	30.4
	Total	90	72	7	10	1	18	

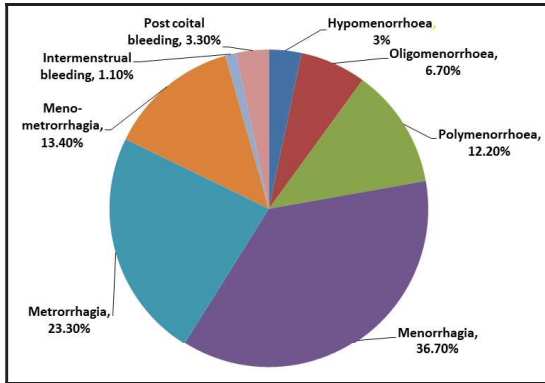


Figure-1: Pattern of bleeding

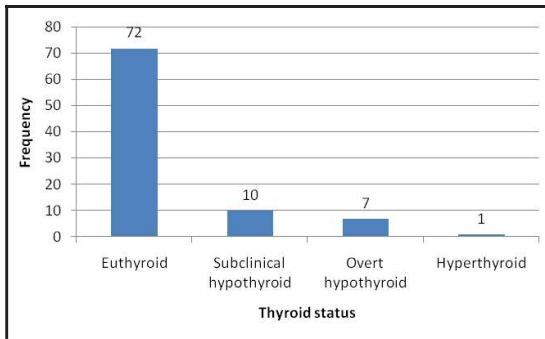


Figure-2: Thyroid function status

DISCUSSION

In this study, the mean age of AUB is 37 years with the range of 14 to 52 years. It is similar to the mean age of 40 years (Range 32-75), 42 years (18-83), 43 years, 45 years (40-60) and 47(31-75) years in the study done by Khan et al.,⁹ Milosevic et al.,¹⁰ Upadhyaya et al.,¹¹ Sah et al.¹² and Tansathit et al.,¹³ respectively.

The mean age is quite different from the study done by Rawdha et al.¹⁴ and Savelli et al.¹⁵ as 49 years among 384 cases and 55 years (21-88) respectively.

In this study, most of the AUB patients were in the age group 31-40 years (41%) followed by 41-50 years (32%), 21-30years (13.4%), ≤ 20yrs (10%). The least, i.e. 3.3%, of women were found over 50 years of age. This finding is comparable to the study done by Pawha et al.¹⁶, Bhavani et al.¹, Ali et al.¹⁷ and Narula¹⁸ as 42%, 37%, 37% and 32.8%, respectively.

Age group of 35-45 was the commonest one for AUB as 54%, 53.3% and 53% as reported by Sharma et al.¹⁹, Subedi et al.²⁰ and Padmaleela et al.⁴ Muzaffar et al.²¹, Bhavani et al.¹ and Dass et al.²² found 41-50 years as the common age group for AUB as 48%, 40% and 32.5% respectively. Likewise, Bhosle et al.²³ and Sah¹² found age group of 40-45 years

as the commonest one for AUB as 76% and 57%, respectively. In contrast, the most common age group was 26-30 years (22%) in study done by Gowri et al.⁶

The reason for increased incidence of AUB in age group of 31-40 years could be due to high prevalence of uterine fibroids. Following this the other common age group where AUB was more common was 41-50 years. It may be due to the fact that these patients were in their climacteric period. As women approach menopause, cycles shorten and often become intermittently anovulatory due to decline in the number of ovarian follicles and the estradiol level. The incidence of AUB in women with age more than 50 years was lower as compared to other age groups.

The most common cause of AUB is found out to be non-structural cause (51%) followed by uterine leiomyoma (27%), polyp (10%), malignancy & hyperplasia (7%). The least common cause of AUB was adenomyosis (6%). It is similar to the study conducted by Bhavani et al.¹ where non-structural cause accounted for 45.5% of cases followed by uterine leiomyoma (38.5%), malignancy and hyperplasia (7.5%), adenomyosis (6%) and polyp (6%). According to Day et al.²⁴ prevalence of leiomyoma is up to 70% in Caucasians and up to 80% in women of African ancestry.

The most common pattern of AUB is menorrhagia (36.7%) followed by metrorrhagia (23.3%), menometrorrhagia (13.4%), polymenorrhoea (12.2%), oligomenorrhoea (6.7%), hypomenorrhoea (3.3%), postcoital bleeding (3.3%) and intermenstrual bleeding (1.1%). This is similar to the study done by Khan et al.⁹, where most common presenting complaint of AUB was menorrhagia (57.8%) followed by metrorrhagia (32.8%). Upadhyaya et al.¹¹ found menorrhagia in 57.55% followed by metrorrhagia in 33.96%, polymenorrhoea 6.6% and menometrorrhagia in 1.89%. Mehrotia et al.²⁵ found an incidence of menorrhagia to be 54.2% in their study similar to the findings of study by Bhavani et al.¹, 54%.

In study conducted by Sah et al.¹², menorrhagia was present in 52.86% of 105 cases of AUB followed by metrorrhagia in 26.41%, menometrorrhagia in 13.21%, postmenopausal bleeding in 4.72% and polymenorrhagia in 1.89%. Muzaffar et al.²¹ found menorrhagia in 51.9% followed by metrorrhagia in 35.4%, polymenorrhoea in 9.2% and polymenorrhagia in 3.5% of cases whereas Fakhar et al.²⁶ observed menorrhagia in 45% followed by polymenorrhagia in 30%, irregular bleeding in 14% and postmenopausal bleeding in 11%. Likewise, Ali et al.¹⁷ reported

menorrhagia in 42% followed by oligomenorrhoea (26%), metrorrhagia (12%), menometrorrhagia (9%), amenorrhoea (7%) and polymenorrhoea (4%).

In contrast to above studies, according to Tansathit et al.¹³, among 226 women with AUB, 45.1% had metrorrhagia followed by postmenopausal bleeding in 19.5%, menometrorrhagia in 14.6%, menorrhagia in 13.7%, endometrial hyperplasia in 5.7% and postcoital bleeding in 1.3%.

Universally it is recognized that, clinical alterations in thyroid function may accompany menstrual disturbances and every clinician has encountered altered menstrual patterns among women suffering from thyroid dysfunction of hypothyroidism or hyperthyroidism.

In this study, 18 out of 90 cases i.e. 20% of cases had thyroid dysfunction whereas 80% of cases were euthyroid. Subclinical hypothyroidism was present in 11.1% followed by overt hypothyroidism in 7.8%. Similar to this, Bhavani et al.¹ reported 19% thyroid dysfunction and among them 10% were sub-clinical hypothyroidism, 7.5% overt hypothyroidism 1.5% of hyperthyroidism. Gowri et al.⁶ observed hypothyroidism in 17.65% followed by hyperthyroidism in 5.5% whereas Pahwa et al.¹⁶ found 22% of hypothyroid and 2% hyperthyroid; and Kaur et al.⁵ reported 14% of hyperthyroidism and only 1% of hypothyroidism in out of 100 cases studied.

In this study, the most common type of menstrual abnormality in hypothyroidism was menorrhagia and polymenorrhoea (27.3% each) followed by menometrorrhagia (25%) and metrorrhagia (9.5%). Subclinical hypothyroidism was present in 15% whereas overt hypothyroidism was present in 12% of menorrhagic women. It was also noted that, subclinical hypothyroidism was present in 18% whereas overt hypothyroidism was present in 9% of polymenorrhoeic women. The most common type of abnormality in hyperthyroidism was oligomenorrhoea (16.7%). Thyroid dysfunction was not observed in women with complaint of hypomenorrhoea, intermenstrual bleeding and post-coital bleeding.

In the study conducted by Bhavani et al.,¹ the most common type of menstrual abnormality in hypothyroidism was menorrhagia with 73.3% overt hypothyroidism and 65% subclinical hypothyroidism whereas Doifode et al.²⁷ found it as 63.33% of overt hypothyroid. In studies conducted by Nair et al.²⁸, Padmaleela et al.⁴ and Menon et al.²⁹ 53.3%, 57.13% and 46.15% of cases of menorrhagia were hypothyroid, respectively. In study done by Ali et al.

¹⁷, 53.5% of hypothyroid patients had menorrhagia followed by metrorrhagia (14%), menometrorrhagia (10%) and polymenorrhoea (4.2%) whereas 58.6% of hyperthyroid patients had oligomenorrhoea. Douglas et al.⁷ observed that 22.3% cases with menorrhagia had subclinical hypothyroidism. Hypomenorrhoea, polymenorrhoea and menorrhagia each sharing 33.3% were noted in hyperthyroid patients.

In this study, 80% were euthyroid. Similar findings were reported by Bhavani et al.¹ and Shruthi et al.³⁰ as 81% and 85%, respectively. Among the 90 recruited cases, 18 cases (20%) had thyroid dysfunction of which 9% of structural causes and 30.4% of non-structural causes had thyroid dysfunction. Among the total thyroid dysfunction, 22% occurred in structural cause and rest 78% occurred in non-structural cause. Among structural cause, leiomyoma was associated with most of the thyroid dysfunction especially hypothyroidism. It was comparable to the study conducted by Bhavani et al.¹, among 200 cases of AUB with 19% thyroid dysfunction of which 23.6% of thyroid dysfunction occurred in structural cause and 76.4% non-structural.

CONCLUSION

This study showed that AUB is associated with thyroid dysfunction. So it is wise enough to perform TFT routinely in cases of AUB in order to avoid unnecessary hormonal treatment with estrogen, progesterone or their combination and even radical approach of hysterectomy for mere control of bleeding caused by benign condition of thyroid abnormality.

This study provides a gateway to further study. However such study needs to be carried out in large scale with adequate follow up to see the long term result and even to see whether the medications only will be enough or will ultimately land up in hysterectomy.

Even this study shows that patient with structural dysfunction are also associated with thyroid dysfunction so that in those cases only treating structural abnormalities surgically may not be their ultimate treatment and even they may need thyroid medication depending upon the type of thyroid dysfunction.

REFERENCES

- Bhavani N, Sathineedi A, Giri A, Chippa S, Reddy P. A study of correlation between abnormal uterine bleeding and thyroid dysfunction. *International Journal of Recent Trends in Science and Technology*. 2015;14(1):131-5.
- Coulter A, Mc Pherson K, Vessey M. Do British women undergo too many or too few hysterectomies? *Soc Sci Med*. 1988;27:987-94.
- Thomas R and Reid RL. Thyroid diseases and reproductive dysfunction. *Obstet Gynaecol*. 1987;70:789-98.
- Padmaleela K, Vimala T, Lavanya KM. Thyroid Disorders in 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(01):41-6.
- Kaur T, Aseeja V, Sharma S. Thyroid Dysfunction in Dysfunctional Uterine Bleeding. *Webmed Central Obstetrics and Gynaecology*. 2011;2(9):WMC002235.
- Gowri M, Radhika BH, Harsini V, Ranaiaha R. Role of thyroid function tests in women with abnormal uterine bleeding. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*. 2014;3(1):54-7.
- Douglas LW, Bernard G. Early hypothyroidism in patients with Menorrhagia. *Am J Obstet and Gynaecol* 1990;163(2):697
- Maruna P. Gynaecological aspects of thyroid disorders-A review. *Ceska Gynecol*. 2006; 71(4):332-8
- Khan S, Hameed S, Umber A. Histopathological pattern of Endometrium on Diagnostic D& C in patients with Abnormal Uterine Bleeding. *Annals*. 2011;17(2):166-70.
- Milosevic J, Djordjevic B, Tasic M. Influence of menopausal status on frequency and pathohistological features of endometrial hyperplasia and carcinoma in patients with abnormal uterine bleeding. *Acta Medica Medianae*. 2008;27(2):33-7.
- Upadhyaya I, Malla DS. Endometrial Aspiration Cytology is Comparable with Endometrial Biopsy in Case of Women with Abnormal Uterine Bleeding. *PMJN*. 2009;8(2):56-63.
- Sah P, Vaidya A. Accuracy of Endometrial Sampling by Karman's Aspirator in Abnormal Uterine Bleeding (MD thesis). Mahabouddha, Kathmandu: National Academy of Medical Sciences; 2012.
- Tansathit T, Chichareon S, Tocharoenvanich S, Dechsukhum C. Diagnostic evaluation of Karman endometrial aspiration in patients with abnormal uterine bleeding. *J Obstet Gynaecol Res*. 2005;31(5):480-5.
- Al-Kamil RK. Clinical effectiveness of hysteroscopy in abnormal uterine bleeding. *J Obstet Gynaecol*. 2001;21:614-16.
- Savelli L, De Iaco P, Santini D, Rosati F, Ghi T, Pignotti E et al. Histopathologic features and risk factors for benignity, hyperplasia and cancer in endometrial polyps. *Am J Obstet Gynecol*. 2003;188(4):927-31.
- Pahwa S, Gupta S, Kaur J. Thyroid Dysfunction in Dysfunctional Uterine Bleeding. *Journal of Advanced Researches in Biological Sciences*. 2013;5(1):78-83.
- Ali J, Das KK, Konyak P. Study of Relation of Thyroid Profile with Abnormal Uterine Bleeding. *Scholars Journal of Applied Medical Sciences*. 2015;3(7D): 2688-92.
- Narula ER. Menstrual Irregularities. *J Obstet Gynecol India*. 1967;17:164.
- Sharma N, Sharma A. Thyroid Profile in Menstrual Disorders. *JK Science*. 2012;14(1):14-7.
- Subedi S, Banerjee B, C. Manisha. Thyroid disorders in women with dysfunctional uterine bleeding. *Journal of Pathology of Nepal*. 2016;6:1018-20.
- Muzaffar M, Akhtar KA, Yasmin S, Mahmood UR, Iqbal W, Khan MA. Menstrual irregularities with excessive blood loss: a clinic-pathological correlation. *J Pak Med Assoc*. 2005;55(11):486-89.
- Dass A, Chugh S. Dysfunctional Uterine Bleeding. *J Obstet Gynaecol India*. 1964:348-53.
- Bhosle A, Fonseca M. Evaluation and Histopathological Correlation of Abnormal Uterine Bleeding in Perimenopausal Women. *Bombay Hospital Journal*. 2010;52(1):69-72.
- Day BD, Dunson DB, Hill MC, Cousins D, Schechtman JM. High cumulative incidence of uterine leiomyoma in black and white women: ultrasound evidence. *Am J Obstet Gynaecol*. 2003;188(1):100-07.
- Mehrotia VG, Mukherjee K, Pandey M, Sumanth V. A study to evaluate etiological factor and management of puberty menorrhagia. *J Obst Gynae India*. 1972;12:684.
- Fakhar S, Saeed G, Khan AH, Alam AY. Validity of pipelle endometrial sampling in patients with abnormal uterine bleeding. *Ann Saudi Med*. 2008;28(3):188-91.
- Doifode CD, Fernandes K. Study of thyroid dysfunction in patients with DUB. *J Obs Gyn India*. 2001;51(2):93-5.
- Nair RV. Evaluation of thyroid profile in patients with Abnormal Uterine Bleeding. *International Journal of Health Sciences and Research*. 2015;15(9):94-8.
- Menon VK, Barucha KE. Menstrual dysfunction and thyroid disease. *J Obst Gynae. India*. 1995;45(4):521-6.
- Shruthi T, Shivanna SB. Prevalence of hypothyroidism in patients with provisional diagnosis of DUB. *Journal of Evolution of med and dental sciences*. 2014;3(1):2967-72.