

A study of association of thyroid disorders in patients with abnormal uterine bleeding

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Abstract

Background: A relationship between the thyroid gland and the gonads is suggested by far more frequent occurrence of thyroid disorders in women than in men by clinical appearance of goiter during pregnancy, puberty, and menopause. Thyroid disorders are 10 times more common in women than in men. Currently, subclinical thyroid dysfunction is on the rising side than overt dysfunction. **The aim of the study:** To determine the association between menstrual irregularities and thyroid dysfunction. To analyze the pattern of menstrual dysfunction among women with a thyroid disorder. **Materials and Methods:** The study comprised of 110 abnormal uterine bleeding cases admitted in the gynecology ward through OPD. Body mass index was calculated using height and weight. Systemic examination was carried out. Abdominal examination, speculum, and pelvic examination are done to rule out other causes of abnormal uterine bleeding. Investigations-complete blood count, platelet count, bleeding time, and clotting time, urine routine, blood sugar, RFT carried out. USG Pelvis is done. Histopathological examination of endometrium performed by pipelle's curette. Thyroid function test-Serum TSH, free T3, and free T4 are compulsory. 5ml of blood was taken in dry glass contains without any anticoagulant. Fasting sample was taken, TSH assay was performed using IRMA Kit (Immunoradiometric assay) **Results:** Among 110 patients, 48 (48.5%) belongs to normal cohort and 7 (6.3%) belongs to thyroid dysfunction group in the age group 25-35 years. Out of 11 thyroid dysfunction, majority 7 (63.6%) were in the age group of 25-35 years. Menorrhagia presents in 39.4% of patients in normal cohort and 63.6% in thyroid dysfunction cohort. Hypomenorrhoea presents in 4% normal cohort and 9.1% thyroid dysfunction cohort. Hypothyroidism presents in 7.27%, subclinical hypothyroidism in 1.81% and hyperthyroidism in 0.92% of patients. Menorrhagia in 39.4% of patients in the normal cohort and 81.8% patients in thyroid dysfunction cohort. There exist a definite significance between menorrhagia and thyroid dysfunction patients. Hypomenorrhoea presents in 4% of the normal cohort and 9.1% in thyroid dysfunction cohort. No statistical significance between hypomenorrhoea and thyroid dysfunction. 32.3% in the normal cohort and 36.4% in thyroid dysfunction cohort had a bulky uterus. No statistical association exists between thyroid dysfunction and uterine size. **Conclusion:** The significant association between abnormal uterine bleeding and thyroid disorder (10%). It brings into focus the increased incidence of hypothyroidism among women with menorrhagia. It proves beyond doubt that TSH assay can be used in selective screening of women with abnormal uterine bleeding and in the prevalence of subclinical hypothyroidism (21.4%) as per AACE guidelines in this study. We are treating the only the tip of the disease but the submerging part of the disease also needs surveillance at frequent intervals to treat patients at the earliest and prevent morbidities in later life.

Key Word: Aub-(abnormal uterine bleeding), dub-(dysfunctional uterine bleeding), thyroid profile, sex hormone binding globulin.

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Received Date: 29/01/2019 Revised Date: 25/02/2019 Accepted Date: 16/03/2019

DOI: <https://doi.org/10.26611/1012935>

Access this article online

Quick Response Code:



Website:

www.medpulse.in

Accessed Date:
17 March 2019

The effect of thyroid hormones is due to the direct metabolic effects on the gonads as well as indirectly through alterations in anterior pituitary hormones that control the sexual functions. Regular menstruation is a feature of contemporary society.¹ Large family size, prolonged breastfeeding and reduced life expectancy limited the number of cycles experienced by women in the past. Currently, women may experience more than 400 menstruations between menarche and menopause. One of the common causes of women attending gynecology OPD is abnormal

How to cite this article: Sasikalai Kumari, Andal M. A study of association of thyroid disorders in patients with abnormal uterine bleeding. *MedPulse – International Journal of Gynaecology*. March 2019; 9(3): 77-80. <http://medpulse.in/Gynaecology/index.php>

uterine bleeding constituting around 30 percentages.²Majority of women who present with bleeding problems, no underlying abnormality could be made out. It is quite often this situation tackled with fractional curettage and finally a hysterectomy.³AUB encompasses a wide spectrum of disorders such as reproductive tract diseases, systemic diseases, and iatrogenic causes. Thyroid dysfunction accounts for 30% - 40% of cases in systemic disorders causing AUB. The goal of evaluation of AUB is to arrive at an accurate and clinically useful diagnosis in the most efficient and cost-effective manner possible.⁴ Thyroid function test is helpful in women presenting with AUB to detect subclinical conditions and provide an opportunity to treat the cause. This will avoid unnecessary hormonal treatment, surgery and reduce patient morbidity. There is a slight increase in the thyroid size due to increased circulating estrogen, and the associated increase in the secretion of thyroid binding globulin levels due to an elevated level of HCG, which has the inherent property of thyroid stimulating effects. The ⁵Transient decrease in the TSH levels in early pregnancy found after that within normal range and remain the same or increase until parturition. Free T3 decreases throughout pregnancy. Free T4 remains constant but may increase in early pregnancy and then decrease slightly below normal levels than in non-pregnant controls. In choriocarcinoma and hydatidiform mole, the placenta and trophoblastic tissue secretes substances with TSH activity which is responsible for the thyrotoxicosis.⁶

MATERIALS AND METHODS

This is a cross-sectional case-study was conducted in the Department of Obstetrics and Gynecology, Ponniya Ramajayam institute of medical sciences, during the period from 2016-2017 the study comprised of 110 abnormal uterine bleeding cases admitted in the gynecology ward through OPD. Body mass index was calculated using height and weight. Systemic examination was carried out. Abdominal examination, speculum, and pelvic examination were done to rule out other causes of abnormal uterine bleeding. Investigations-complete blood count, platelet count, bleeding time, and clotting time, urine routine, blood sugar, RFT carried out. USG Pelvis is done. Histopathological examination of endometrium performed by pipelle's curette. Thyroid function test-Serum TSH, free T3, and free T4 are compulsory. 5ml of blood was taken in dry glass contains without any anticoagulant. Fasting sample was taken, TSH assay was performed using the IRMA Kit (Immunoradiometric assay)

Inclusion Criteria

1. Age group 18-45 years.
2. Women with any of the following menstrual disturbances- menorrhagia, Oligomenorrhoea, Hypomenorrhoea, Polymenorrhoea, Amenorrhoea with no pelvic pathology
3. Non-IUCD user
4. Not using any hormonal preparations.
5. With symptoms of thyroid dysfunction

Exclusion Criteria

1. Presence of palpable pelvic pathology – Fibroids, polyp, cervical growth.
2. History of Bleeding diathesis and clotting abnormalities.
3. Patient on the drug like aspirin, heparin, antithyroid agents and thyroxine.
4. Known case of diabetes mellitus and systemic hypertension.

Statistical Analysis: The comparison between the cases and controls was done by using one - way ANOVA test using SPSS (Statistical Package for Social Science) software, Sigma stat version 3.5. The significance was drawn at p-value (probability) of < 0.05.

RESULTS

Patients with thyroid dysfunction were grouped as thyroid dysfunction cohort and the remaining patients had AUB alone were grouped as the normal cohort. The following factors were taken for analysis- age, parity, AUB types, socioeconomic status, episodes of AUB, body mass index, family history of thyroid disorders, uterine size, endometrial histopathology, hemoglobin, bleeding time, clotting time and platelet count. The predictor of thyroid dysfunction was analyzed using the fact or duration of AUB and regression coefficient curve. Logistic regression model analysis is used to find out the effective predictor of thyroid dysfunction.

Table 1: Age and thyroid dysfunction distribution

AGE (Years)	Normal cohort		Thyroid dysfunction cohort	
	No of cases	%	No of cases	%
18-24	25	25.3	2	18.2
25-35	48	48.5	7	63.6
36-45	26	26.3	2	18.2

Table: 1 Among 110 patients, 48 (48.5%) belongs to normal cohort and 7 (6.3%) belongs to thyroid dysfunction group in the age group 25-35 years. Out of 11 thyroid dysfunction, majority 7 (63.6%) were in the age group of 25-35 years.

Table 2: AUB and thyroid dysfunction distribution

AUBType	Normal cohort		Thyroid dysfunction cohort	
	No of cases	%	No of cases	%
Menorrhagia	39	39.4	7	63.6
Oligomenorrhoea	28	28.3	0	0
Amenorrhoea	16	16.2	1	9.1
Hypomenorrhoea	4	4	1	9.1
Polymenorrhoea	5	5.1	0	0
Menometrorrhagia	7	7.1	2	18.2

Table2: Menorrhagia presents in 39.4% of patients in the normal cohort and 63.6% in thyroid dysfunction cohort. Hypomenorrhoea presents in 4% normal cohort and 9.1% thyroid dysfunction cohort Out of 110 patients, menorrhagia in 41.81%, oligomenorrhoea in 25.45%, amenorrhoea in 15.45%, hypomenorrhoea in 4.54%, polymenorrhoea in 4.54% and metrorrhagia in 8.18% of the AUB population.

Table 3: Episodes of AUB in study population

Episodes of Aub	Normal cohort		Thyroid dysfunction cohort	
	No of cases	%	No of cases	%
First	83	83.8	8	72.7
Second	160	16.2	3	27.3

Table3: No statistical significance between thyroid and non-thyroid samples with respect to Episodes of AUB. Menorrhagia in 39.4% of patients in the normal cohort and 63.6% patients in thyroid dysfunction cohort. There exist adefinitesignificance betweenmenorrhagia and thyroid dysfunction patients. Oligomenorrhoea presents in 28.3% of patients in the normal cohort and 18.2% patients in thyroid dysfunction cohort. No statistical significance between Oligomenorrhoea and thyroid dysfunction. Amenorrhoea presents in 16.2% of patients of normal cohort and 9.1% of patients of thyroid dysfunction cohort. No statistical significance between amenorrhoea and thyroid dysfunction. Hypomenorrhoea presents in 4% of the normal cohort and 9.1% in thyroid dysfunction cohort. No statistical significance between hypomenorrhoea and thyroid dysfunction. Polymenorrhoea presents in5.1%in a normalcohort and nopatients inthyroid dysfunction cohort. No statisticalsignificanceexists between thyroid dysfunction and polymenorrhoea.

Table 4: Uterine size and thyroid dysfunction distribution (USG)

Uterine size and thyroid	Normal cohort		Thyroid dysfunction cohort	
	No of cases	%	No of cases	%
Normal	67	67.7	3	63.6
Bulky	32	32.3	8	36.4

Table: 4 32.3% in the normal cohort and 36.4% in thyroid dysfunction cohort had a bulky uterus. No statistical association exists between thyroid dysfunction and uterine size.

Table 5: Bleeding time in AUB population

Thyroid Dysfunction	Number	Mean (Secs)	Standard Deviation	Standard Error of Mean
Absent	99	118.22	34.15	3.43
Present	11	106.36	43.36	13.075

Table 5 P>0.05. Not significant. Though the Mean bleeding time in Thyroid dysfunction is decreased than the normal cohort, no statistical significance exists.

Table 6: Clotting time in AUB population

Thyroid Dysfunction	Number	Mean (Secs)	Standard Deviation	Standard Error of Mean
Absent	99	375.53	106.44	10.69
Present	11	398.64	72.80	21.95

Table6: P value-0.485. Mean clotting time in thyroid dysfunction patients – 398.64 secs. Mean clotting time in the normal cohort (AUB patients – 375.53 secs) Mean clotting time in thyroid dysfunction cohort increased than a normal cohort.

DISCUSSION

The study group includes abnormal uterine bleeding after excluding local pathology and systemic diseases like diabetes mellitus, hypertension and known case of thyroid disorder.⁷ The most common age group studied was between 25-35 years (55.5%). The present study concludes that there is no significant association between thyroid disorders with respect to age group. Majority of thyroid dysfunction (63.6%) were in the age group of 25-35 years. Multiparous women (P₂L₂) constitute the major part of this study (54.5%) Most of the women affected by thyroid dysfunction were also multiparous (P₂L₂). Even though nulliparous women present earlier to gynecology OPD for infertility evaluation, thyroid dysfunction is noted in 9.1% population in that age group.⁸ The most common type of AUB presentation in this study is menorrhagia (43.6%). In thyroid dysfunction, menorrhagia constitutes the Thyroid dysfunction is absent in oligomenorrhoea and polymenorrhoea. Next, to menorrhagia, metrorrhagia constitutes about 18.2% in the thyroid dysfunction group. There exists no significant association between the episodes of AUB and thyroid dysfunction.⁹ Even though the majority of women attended Gynecology OPD in the first episode in the normal cohort is 83.8% and thyroid dysfunction cohort is 72%. Majority of women belongs to socioeconomic class upper lower, 43.4% in the normal cohort and 63.6% thyroid

dysfunction cohort. No significant association is found between thyroid dysfunction and socioeconomic status. The family history of thyroid disorders is present in 18.1% of thyroid dysfunction. ¹⁰A bulky uterus is present in 32.3% normal cohort and 36.4% in thyroid dysfunction cohort. A significant association was seen between the uterine size and thyroid dysfunction. BMI in thyroid dysfunction group are in the upper limit of overweight group (mean BMI – 26.95) and normal BMI (mean BMI – 22.5) in normal cohort BMI, BMI, and thyroid dysfunction have got the significant association. highest abnormality (63.6%) and least is polymenorrhoea in both groups, AUB patients alone (5.1%) and thyroid dysfunction. ¹¹ Thyroid enlargement is present in 45.5% normal cohort and symptoms of thyroid disease in a normal cohort is 1% and 36.4% of thyroid dysfunction cohort. Thyroid enlargement and symptoms of thyroid disease have got the significant association with thyroid dysfunction. In the coagulation profile, mean bleeding time in thyroid dysfunction is decreased than the normal cohort and mean clotting time in thyroid dysfunction is increased than in the normal cohort. ¹² Mean platelet count in both groups are around 2.2 lakhs and within normal limits. Mean hemoglobin level in both groups is 9 gm%. Mean duration of AUB in thyroid dysfunction is 7.7 months and in the normal cohort is 5.5 months. Majority of AUB population presented to the gynecology OPD in the first episode 83.8% of the cases. ¹³ Depending on the duration of AUB, regression coefficient curve is used in this study to predict thyroid dysfunction. This test has a high sensitivity (90.9%) than specificity (39.4%). Menorrhagia, symptoms of thyroid disease and thyroid enlargement are the three variables used to predict 93.6% thyroid dysfunction. Menorrhagia alone can predict 11.5% thyroid dysfunction. ^{14,15}

CONCLUSION

The significant association between abnormal uterine bleeding and thyroid disorder (10%). It brings into focus the increased incidence of hypothyroidism among women with menorrhagia. It proves beyond doubt that TSH assay can be used in selective screening of women with abnormal uterine bleeding and in the prevalence of subclinical hypothyroidism (21.4%) as per AACE guidelines in this study. We are treating the only the tip of the disease but the submerging part of the disease also needs surveillance at frequent intervals to treat

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REFERENCES

1. Sood-prevalence of hypothyroidism in infertile women and evaluation of the response of treatment for hyperthyroidism on infertility. International journal of applied basic medical research 2012(2)17-19.
2. Neelu Sharma and Anita Sharma- Thyroid profile in menstrual disorders –JK science .org vol 14 No 1 JAN-MAR 2012.
3. Kaur-thyroid dysfunction in dysfunctional uterine bleeding-web med central obstetrics and gynecology 2011,2(9): WNCOO2235.
4. Kakuno et al –menstrual disturbances in various thyroid diseases endocrinology journal 2010 57(12)1017-22.
5. Pusphabike Ram et al-impaired thyroid function with menstrual disturbances-journal of world applied science.
6. Beckmann and Haberrete-TSH is associated with insulin resistance independently of body mass index and age in women with the polycystic ovarian syndrome-oxford journal of reproductive medicine 2009 24(11)2924-30
7. Re-examine treatment for mild hypothyroidism-journal of clinical endocrinology metabolism November 2008 93(11)-174.
8. Bernadette Biondi and Cooper –The clinical significance of subclinical thyroid dysfunction – Endocrine review 2008 29(1) 76-131
9. Kris Poppe, Brigitte weekenders and Glinoyer - Thyroid disease and female reproduction –clinical Endocrinology (2007) 66, 309-321
10. Effect of levothyroxine replacement on nonhigh density lipoprotein and cholesterol in hypothyroid patients in the journal of clinical endocrinology and metabolism 92,2007 608-11
11. Abdel- subclinical hypothyroidism as a potential factor for dysfunctional uterine bleeding –Journal of gynecological endocrinology 2007 volume 23(2)65-68
12. Association between blood pressure and serum TSH within reference range –population-based study-Journal of clinical endocrinology and metabolism 2007 92:841-845
13. Knudsen et al –small difference in thyroid function may be important for body mass index and the occurrence of obesity in the population-Journal of clinical endocrinology and metabolism, July 2005 90(7)4019-24.
14. Janet R, Albers, Sharonk et al –Abnormal uterine bleeding American Family Physician 2004 15 (8)69 1915-1926
15. Surkset al –subclinical thyroid disease scientific review and guidelines for diagnosis and management –Journal of American Medical Association 2004 Jan 14 292(2):228-38.

Source of Support: None Declared
Conflict of Interest: None Declared