

Thyroid Dysfunction in Perimenopausal women with Abnormal Uterine Bleeding

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Abstract

Menopause refers to permanent cessation of menses. Menopause is not just cessation of menses, it is depletion of ovarian follicles leading to decrease in ovarian hormones. Abnormal uterine bleeding is a term used to describe any type of bleeding that doesn't fall within normal range for amount, frequency, duration and cyclicity. Thyroid disorders may cause early onset of menopause (before age of 40 or in early 40's). This cross-sectional, analytic study conducted in postgraduate department of Gynaecology and Obstetrics, Lalla Ded Hospital, Srinagar, over a period of 18 months after obtaining the institutional ethical permission including 100 perimenopausal women over the age of 41 years, who were diagnosed with abnormal uterine bleeding. Detailed examinations and investigations were carried out in all the cases. Findings revealed that the mean age of study participants was 44.8 ± 2.71 years. Mean parity in present study population was 3.7 ± 1.05 . The average duration of menstrual flow in our patients was 6.7 ± 3.61 days. There was statistically significant

association between thyroid dysfunction and number of sanitary napkins used per cycle, with type of bleeding and thyroid status and with menorrhagia. The present study concluded that thyroid disorders are associated with symptoms similar to those of menopause transition and hence the symptoms can be masked. Hence thyroid evaluation should be made mandatory in perimenopausal females who present with abnormal uterine bleeding and these cases can be referred to the physician for proper medical management.

Keywords: Perimenopausal women, Thyroid, Uterine bleeding, Thyroid disorders, Menstrual cycle and Menorrhagia.

Introduction

Perimenopause is defined as the period beginning with menopause transition and ending 12 months after the last menstrual period^{1,2}. Menopause Transition is characterized by elevated FSH levels associated with variable cycle lengths and missed menses³. Menopause refers to permanent cessation of menses. Diagnosis is made when an individual has had 12 months of

amenorrhoea. Menopause is not just cessation of menses, it is depletion of ovarian follicles leading to decrease in ovarian hormones. Menopause usually occurs between ages of 45 and 52 years but it isn't uncommon to meet women of 53 or 54 yrs who are still menstruating regularly.⁴

Abnormal uterine bleeding (AUB) affects 10-30% of reproductive age group women and 50% of perimenopausal women⁵. Abnormal uterine bleeding is a term used to describe any type of bleeding that doesn't fall within normal range for amount, frequency, duration and cyclicity.⁶

Thyroid disorders may cause early onset of menopause (before age of 40 or in early 40's). Menstrual irregularities and bleeding problems due to thyroid disorders are attributed to multiple mechanisms. They are altered TSH response; TRH induced increased prolactin levels, altered LH response, and peripheral conversion of androgens to estrogens, altered SHBG and affect on the coagulation factors.⁷ The menstrual pattern is influenced by thyroid hormones directly through impact on the ovaries and indirectly through impact on SHBG, prolactin, GnRH secretion and coagulation factors. Severe hypothyroidism is commonly associated with ovulatory dysfunction due to numerous interaction of thyroid hormones with female reproductive system.⁸

In women, diseases of thyroid are among the most prevalent disorders worldwide, second only to diabetes. Thus this cross-sectional, analytic study was done to determine the association of thyroid dysfunction in perimenopausal women presenting with abnormal uterine bleeding.

Aims and Objectives

- To find out the association between thyroid disorders and abnormal uterine bleeding in perimenopausal women.
- To analyze the pattern of menstrual irregularities present in association with thyroid dysfunction in perimenopausal women.

Material and methods

This cross-sectional, analytic study conducted in postgraduate department of Gynaecology and Obstetrics, Lalla Ded Hospital, Srinagar, over a period of 18 months after obtaining the institutional ethical permission.

A total of 100 perimenopausal women over the age of 41 years, who were diagnosed with abnormal uterine bleeding were included in the study after obtaining the informed consent from the participants.

Inclusion Criteria

All perimenopausal women above the age group of 40 years up to menopause who reported to the Hospital with abnormal uterine bleeding in which organic causes related to uterus, ovary and cervix had been ruled out.

Exclusion Criteria

1. Refusal for participation in study
2. Patients with malignancies involving uterus, cervix, ovaries, thyroid and patients with hematological malignancies.
3. Patients with structural/ organic lesions of uterus, ovaries and cervix.
4. IUCD users.
5. Patients in whom tubal ligation was done
6. On any of hormonal preparations
7. History of bleeding diathesis and clotting abnormalities
8. Known case of systemic hypertension and diabetes mellitus

9. Patients on drugs like aspirin and heparin

A detailed history was collected from all the patients and thorough clinical examination including general physical examination, neck examination, systemic and gynaecological examination including per speculum and per vaginal examinations were carried out.

All the patients were subjected to routine investigations i.e. complete blood count, bleeding and clotting time, liver function test, kidney function test, Random Blood Sugar, Coagulogram, thyroid profile, ECG, chest x ray, USG abdomen and pelvis, TVS and PAP Smear and endometrial aspiration/ biopsy wherever indicated. Fasting 5 ml blood sample was taken in dry glass contains without any anticoagulant and thyroid profile was done in all the patients which included T3, T4 and TSH. TSH assay was performed using chemiluminescent immunoassay (i1000SR Abbott, Germany) and the reference values were taken: Serum T3= 0.9-1.95 ng/ml, Serum T4= 4.5-12.5 µg/dl and Serum TSH= 0.25-4.27 µIU/ml.

Data was tabulated, organized, analyzed and interpreted in both descriptive and inferential statistics i.e. frequency and percentage distribution, by using statistical package for social science software (SPSS), version 20. Categorical variables were expressed as number and percentage and Continuous variables were expressed as Mean±SD. Chi – square test was done to determine the association and P-value of less than 0.05 was considered statistically significant.

Observations and results

In this cross-sectional, analytic study a total of 100 patients were included. Mean age of study participants was 44.8±2.71 years. 9 women (9%) were para 2, 44 women (44%) were para 3, 25 women (25%) were para

4, 19 women (19%) were para 5, 1 woman (1%) was para 6 and 2 women (2%) were having a parity of 7. Mean parity in present study population was 3.7±1.05.

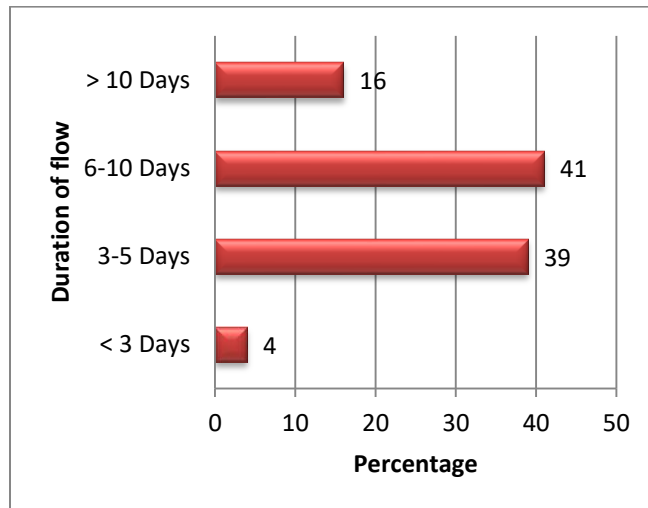


Figure 1: Duration of menstrual flow (days) in study patients

Figure 1 represents the duration of menstrual flow in days. The average duration of menstrual flow in our patients was 6.7±3.61 days. Only 4 women (4%) had flow <3 days, 39 women (39%) had flow of 3-5 days, 41 women (41%) had flow of 6-10 days and 16 women (16%) had flow > 10 days.

Table 1: Number of sanitary napkins used per cycle

No. of pads	Frequency	Percentage
< 10	26	26%
10-15	52	52%
> 15	22	22%

Table 1, depicted that majority of the study participants (52%) used about 10-15 sanitary napkins per cycle, 26 women (26%) used less than 10 sanitary napkins per cycle and 22 women (22%) used more than 15 sanitary napkins per cycle.

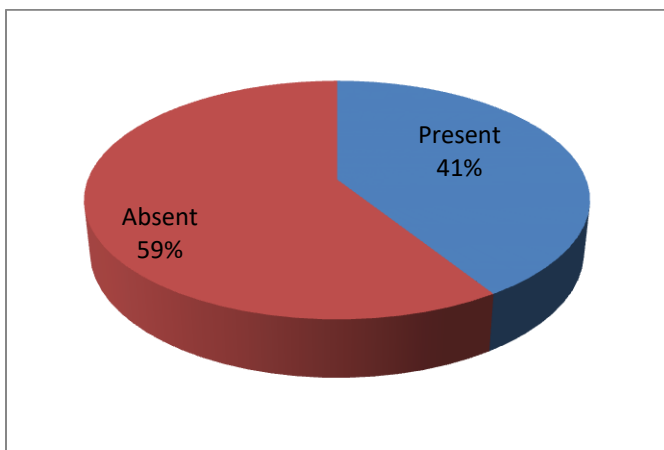


Figure 2. Dysmenorrhoea

Figure 2, showed that 41% of the study participants had dysmenorrhoea.

Table 2: Type of bleeding

Types of bleeding	Frequency	Percentage
Menorrhagia	52	52%
Polymenorrhea	10	10%
Polymenorrhagia	12	12%
Metorrhagia	6	6%
Menometorrhagia	11	11%
Oligomenorrhoea	9	9%

Table 2, represented that maximum number of patients presented with menorrhagia. 52 women (52%) complained of menorrhagia, 12 women (12%) had polymenorrhagia, 11 women (11%) had menometorrhagia, 10 women (10%) had polymenorrhoea, 9 women (9%) had oligomenorrhoea and only 6 patients (6%) had metorrhagia.

Table 3: Thyroid status

Thyroid status	Frequency	Percentage
Euthyroid	66	66%
Subclinical Hypothyroid	24	24%
Overt Hypothyroid	6	6%
Central Hypothyroid	3	3%
Hyperthyroid	1	1%

Table 3 showed that only 34 women (34%) were having thyroid abnormalities and rest 66 women (66%) had euthyroid. Out of those 34 women having thyroid abnormalities, most had subclinical hypothyroid. 24 women (24%) were having subclinical hypothyroidism. 9 women (9%) had hypothyroid. Out of these 9 women, 6 women (6%) had overt hypothyroid and 3 women (3%) had central hypothyroid. Only 1 patient (1%) in the present study was hyperthyroid.

Table 4: Association of Thyroid status with dysmenorrhoea

Thyroid Status	Dysmenorrhoea Present		Dysmenorrhoea Absent	
	No.	%age	No.	%age
Euthyroid	28	68.3	38	64.4
Subclinical Hypothyroid	10	24.4	14	23.7
Overt Hypothyroid	2	4.9	4	6.8
Central Hypothyroid	1	2.4	2	3.4
Hyperthyroid	0	0.0	1	1.7
Chi-square=0.973; P-value=0.914				

Table 4 showed that Dysmenorrhoea was present in 28 (68.3%) euthyroid women and was absent in 38 (64.4%) of them. It was present in 10 (24.4%) women having subclinical hypothyroidism and was absent in 14 (23.7%) of them. Dysmenorrhoea was present in 2 (4.9%) overt hypothyroid women and was absent in 4 (6.8%) of them. It was present in 1 (2.4%) central hypothyroid woman and was absent in 2 (3.4%) of them. No woman with hyperthyroidism had dysmenorrhoea. And there was no statistical significant association between thyroid status and dysmenorrhoea.

Table 5: Association of Thyroid status with number of sanitary napkins used per cycle

Thyroid Status	< 10 Sanitary napkins		10-15 Sanitary napkins		> 15 Sanitary napkins	
	No.	%age	No.	%age	No.	%age
Euthyroid	18	69.2	39	75.0	9	40.9
Subclinical Hypothyroid	6	23.1	13	25.0	5	22.7
Overt Hypothyroid	0	0.0	0	0.0	6	27.3
Central Hypothyroid	1	3.8	0	0.0	2	9.1
Hyperthyroid	1	3.8	0	0.0	0	0.0
<i>Chi-square=31.28; P-value<0.001 (Statistically Significant)</i>						

Table 5, depicted that 26 patients used <10 sanitary napkins per cycle, among them 69.2% (n=18) were euthyroid, 23.1% (n=6) were subclinical hypothyroid, 3.8% (n=1) were central hypothyroid, 3.8% (n=1) was hyperthyroid. 52 patients used 10-15 sanitary napkins per cycle, among them 75% (n=39) were euthyroid, 25% (n=13) were subclinical hypothyroid. 22 patients used >15 sanitary napkins per cycle, among them 40.9% (n=9) were euthyroid, 22.7% (n=5) were subclinical hypothyroid, 27.3% (n=6) were overt hypothyroid and 9.1% (n=2) were central hypothyroid. There was statistically significant association between thyroid dysfunction and number of sanitary napkins used per cycle.

Table 6: Association of Thyroid status with type of bleeding

Thyroid Status	Type of Bleeding					
	Menorrhagia	Polymenorrhea	Polymenorrhagia	Metorrhagia	Menometorrhagia	Oligomenorrhoea
Euthyroid	27 (51.9)	9 (90)	10 (83.3)	5 (83.3)	8 (72.7)	7 (77.8)
Subclinical Hypothyroid	19 (36.5)	1 (10)	0 (0)	1 (16.7)	2 (18.2)	1 (11.1)
Overt Hypothyroid	4 (7.7)	0 (0)	1 (8.3)	0 (0)	1 (9.1)	0 (0)
Central Hypothyroid	2 (3.8)	0 (0)	1 (8.3)	0 (0)	0 (0)	0 (0)
Hyperthyroid	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (11.1)
<i>Chi-square=11.35; P-value=0.046 (Statistically Significant)</i>						

Table 6, showed that 52 patients who presented with menorrhagia, 27 (51.9%) were euthyroid, 19 (36.5%) were subclinical hypothyroid, 4 (7.7%) were overt hypothyroid, 2 (3.8%) were central hypothyroid and none were hyperthyroid. Among 10 patients who presented with polymenorrhoea, 9 (90%) were euthyroid and 1 (10%) had subclinical hypothyroidism. Among 12 patients of polymenorrhagia, 10 (83.3%) were euthyroid and 2 (16.66%) were hypothyroid. Out of these 2 patients, 1 (8.3%) had overt hypothyroidism and 1 (8.3%) had central hypothyroidism. Among 6 patients of metorrhagia, 5 (83.3%) were euthyroid and only 1 (16.7%) patient had subclinical hypothyroidism. Among 11 patients who came with menometorrhagia, 8 (72.7%) were euthyroid, 2 (18.2%) were subclinical hypothyroid and only 1 (9.1%) patient had overt hypothyroidism. Out of 9 patients of oligomenorrhoea, 7 (77.8 %) were euthyroid, 1 (11.1 %) was subclinical hypothyroid and 1 (11.1 %) had hyperthyroidism. There was a statistically significant association between type of bleeding and thyroid status.

Table 7: Association of Thyroid status with menorrhagia

Thyroid Status	Menorrhagia Present		Menorrhagia Absent	
	No.	%age	No.	%age
Euthyroid	27	51.9	39	81.3
Subclinical Hypothyroid	19	36.5	5	10.4
Overt Hypothyroid	4	7.7	2	4.2
Central Hypothyroid	2	3.8	1	2.1
Hyperthyroid	0	0.0	1	2.1
Chi-square=12.21 P-value=0.016 (Statistically Significant)				

Table 7, depicted that 52 patients presenting with menorrhagia, 51.9% (n=27) were euthyroid, 36.5% (n=19) were subclinical hypothyroid, 7.7% (n=4) had overt hypothyroidism and 3.8% (n=2) had central hypothyroidism. Out of 48 patients in whom menorrhagia was absent, 81.3% (n=39) had euthyroidism, 10.4% (n=5) had subclinical hypothyroidism, 4.2% (n=2) had overt hypothyroidism, 2.1% (n=1) had central hypothyroidism and 2.1% (n=1) had hyperthyroidism. There was a statistical association between menorrhagia and thyroid status.

Discussion

In this study 100 perimenopausal women over the age of 41 years, who were diagnosed with abnormal uterine bleeding were included. Detailed examinations and investigations were carried out in all the cases. Data was analyzed and discussed with previous literature.

In the present study age of patients ranged from 40-51 years. Our maximum patients were in the age group of 43-45 years of age. We had 49 patients (49%) in the 43-

45 years age group. This was in accordance with study conducted by Bhavani N et al⁹ in which maximum patients (40%) were in the age group of 41-50 years and study conducted by VermaSK et al¹⁰ in which maximum patients (42.5%) were in the age group of 41-50 years.

In our study, maximum patients had parity of 3 (44%). This was in accordance with study conducted by Ezhil R et al¹¹ in which maximum patients (38%) were having parity of 3 and study conducted by RaniS et al¹² in which maximum patients (37%) were para 3. Lotha L et al¹³ conducted a study in perimenopausal women in which maximum patients (64.8%) were multigravida.

The mean duration of menstrual flow in our study patients was 6.7 days with maximum number of patients (41 patients) having flow from 6 to 10 days. In our study, maximum number of women (52 patients) used 10-15 pads per cycle. We found a statistically significant association between thyroid status and number of pads used per cycle (Pvalue <0.001) i.e. women with thyroid dysfunction used more number of pads per cycle as compared to euthyroid women.

It was observed that, 41 women (41%) had dysmenorrhoea and in 59 women (59%) dysmenorrhoea was absent and association between dysmenorrhoea and thyroid status was statistically insignificant. Majority of the patients presented with menorrhagia. 52 women (52%) presented with menorrhagia, 12 patients (12%) presented with polymenorrhagia, 11 patients (11%) with menometorrhagia, 10 patients (10%) with polymenorrhoea, 9 patients (9%) with oligomenorrhoea and 6 patients (6%) presented with metorrhagia. According to study conducted by Lotha L et al¹³ in Assam Medical College in perimenopausal women, menorrhagia was present in 49% patients, polymenorrhagia in 24%, metorrhagia in 11%,

menometorrhagia in 8%, polymenorrhoea in 6% and oligomenorrhoea in 2% patients.

The present study revealed that, patients presenting with abnormal uterine bleeding, 66 patients (66%) came out to be euthyroid and 34 patients (34%) had thyroid abnormality. Out of these 34% patients, 24 patients (24%) were subclinical hypothyroid, 9 patients (9%) were hypothyroid, out of which 6 were overt hypothyroid and 3 were having central hypothyroidism and only 1 patient (1%) was hyperthyroid. According to study conducted by Byna P et al¹⁴ in Nellore A.P. India, which studied thyroid abnormality in perimenopausal women with AUB, 34.5% women with abnormal uterine bleeding had thyroid abnormality.

In our study, thyroid dysfunction was commonest in patients with menorrhagia. Most common type of menstrual abnormality in hypothyroidism was menorrhagia. 25 patients (48.07%) presenting with menorrhagia were hypothyroid, out of which 19 patients (36.5%) were subclinical hypothyroid and 6 patients (11.53%) were hypothyroid (4 were overt hypothyroid and 2 were central hypothyroid). This association was statistically significant (p value <0.001). Our results were comparable to study conducted by Byna P et al¹⁴ in which heavy menstrual bleeding was present in 41.6% of hypothyroid women.

In our study, there was statistically significant association between type of bleeding and thyroid status. 1 patient (10%) with polymenorrhoea had subclinical hypothyroidism. 2 patients (16.6%) with polymenorrhagia had hypothyroidism. 1 patient (16.7%) with metorrhagia had subclinical hypothyroidism. 2 patients (18.2%) with menometorrhagia had subclinical hypothyroidism and 1 patient (9.1%) had overt hypothyroidism. 1 patient (11.1%) with oligomenorrhoea

had subclinical hypothyroidism and 1 patient (11.1%) had hyperthyroidism.

According to Byna P et al¹⁴ study, frequent menstrual abnormality in women with hypothyroidism (12 women) was heavy menstrual bleeding in 5 (41.6%) women, 3 (25%) had oligomenorrhoea, 4 (33.3%) had polymenorrhagia. Out of 7 women with hyperthyroidism, 2 (28.57%) had oligomenorrhoea, 3 (42.8%) had heavy menstrual bleeding, 2 (28.57%) had polymenorrhagia. Somani SR et al¹⁵ conducted a study in Nalgonda, Telangana, India to study thyroid dysfunction in premenopausal women with AUB. In that study, out of 43 hypothyroid patients, 27 patients (62.3%) had menorrhagia, 7 had polymenorrhoea, 4 had acyclic bleeding, 4 had oligomenorrhoea and 1 patient had metorrhagia.

Conclusion

The present study concluded that there was a statistical significant association between thyroid disorders and menstrual abnormalities in perimenopausal age females with heavy menstrual bleeding being the commonest. Thyroid disorders are associated with symptoms similar to those of menopause transition and hence the symptoms can be masked. It proves beyond doubt that TSH assay can be used in selective screening of women with abnormal uterine bleeding. Hence thyroid evaluation should be made mandatory in perimenopausal females who present with abnormal uterine bleeding and these cases can be referred to the physician for proper medical management.

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