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RESEARCH ARTICLE

Evaluation of thyroid abnormality in perimenopausal females with gynecological complaints

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ABSTRACT

Background: Thyroid disorders are common in the elderly women and most of these women present to gynaecology OPD with menstrual irregularities. **Objectives**: To detect the prevalence of thyroid dysfunction in perimenopausal women with gynaecological complaints and to find out relationship of thyroid abnormalities with menstrual irregularities in women of perimenopausal age group. **Materials and methods**: In the present study, 150 women of perimenopausal age group were evaluated for their symptoms and thyroid function status between the period of 1st May 2020 to 30th April 2021, and any relation between their menstrual patterns were studied. **Results**: The overall prevalence of thyroid abnormality in our study population was found to be 43.33%. Prevalence of overt hypothyroidism is 18% (27 out of 150). Prevalence of subclinical hypothyroidism is 20% and that of hyperthyroidism is 5.33%. Majority of patients (60.67%) in the study population presented with menstrual complaints. Menorrhagia or heavy menstrual bleeding (HMB) was the most frequent menstrual complaint present in 21.33% of the total cases**.** However, 42.67% cases in the study had normal menstrual pattern. **Conclusion:** The prevalence of thyroid disorders increases with age. Most of the perimenopausal females with thyroid function abnormality present with menstrual irregularities.

Keywords: Menstrual, hypothyroidism, hyperthyroidism, subclinical hypothyroidism.

Perimenopause refers to the time period preceding menopause, when fertility wanes and menstrual cycle irregularity increases, until the first year of cessation of menses [1]. It includes the years prior to the FMP (final menstrual period) during which menstrual cycles progress from a regular ovulatory and predictable pattern to irregular and increasingly anovulatory cycles to eventual cessation of menses [2]. The onset of perimenopause precedes the final menses by 2-8 years, with a mean duration of 4 years [1]. Menstrual irregularity is the primary feature in this period that can be used to objectively define and establish what is called menopausal transition.

A large number of perimenopausal women suffer from abnormal uterine bleeding, often to the extent that it affects their quality of life. While structural and endometrial causes account for most of the presenting complaints in the age group of 40-55 years, endocrine and ovulatory dysfunctions still have a major contribution.

A normal thyroid functional status is essential for development and functioning of the reproductive system and for timely menarche, proper pubertal growth and normal fertility. With age, onset of thyroid disorders also increases and it is estimated that 26% of premenopausal and menopausal women are diagnosed with thyroid disease [3]. Furthermore, in middle aged women, symptoms developing during menopausal transition may overlap with symptoms of thyroid or other endocrine abnormalities.

The mechanisms that can explain the relation between thyroid disorders and abnormal uterine bleeding are: [4]

1. Altered TSH response,
2. TRH induced increased prolactin levels,
3. Altered LH response,

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4. Peripheral conversion of androgens to estrogens,
5. Altered SHBG and effect on the coagulation factors.

Hypothyroidism is associated with a broad spectrum of reproductive disorders ranging from abnormal sexual development through menstrual irregularities to infertility. Hyperthyroidism can result in oligomenorrhea or amenorrhoea and elevated levels of plasma estrogen [4].

Subclinical hypothyroidism is present in 5-8.5% adult women and increases upto 20% women by the age of 60. Menorrhagia is an early manifestation among these women. In most of these women, treating thyroid disorders can reverse menstrual irregularities. American Thyroid Association (ATA) and American Association of Clinical Endocrinologists (AACE) have recommended aggressive case finding in elderly women [5]. The American College of Obstetrics and Gynaecology (ACOG) recommends screening of asymptomatic women above age 40 with TSH assay [6].

Objectives: To detect prevalence of thyroid dysfunction in perimenopausal women with gynaecological complaints.

Materials and methods

A cross sectional study was conducted in the Department of Obstetrics and Gynaecology, Gauhati Medical College and Hospital from 1st May 2020 to 30th April 2021. A total of 150 females of age group 40-55 years attending Gynaecology OPD, were evaluated for the study. Serum TSH and Free T4 levels were done at Central Clinical Laboratory, Department of Biochemistry, GMCH, via Electrochemiluminescence Immunoassay (EcLIA) using VITROS/ECi/ECiQ/3600 Immunodiagnostic systems and the VITROS 5600 /XT 7600 Integrated systems.

The reference for normal range of TSH and Free T4 were taken as follows: TSH – 0.465-4.680 mIU/L ; Free T4 – 8-28.2 pmol/L.

Exclusion criteria

1. Women taking thyroid medications, or any drugs affecting thyroid function like aspirin, heparin, sulpha drugs, antithyroid drugs, thyroxine, glucocorticoids, and amiodarone.
2. Patients with concurrent diabetes mellitus or any endocrine disorders.
3. Any infectious pathology.
4. Any malignant pathology.
5. Any bleeding disorders.
6. Local or traumatic causes of bleeding.
7. Women who have attained menopause (Amenorrhoea for more than 12 months).

Complete history taking and examination with regard to age, parity, amount and duration of menstrual flow was done. Their thyroid profile was studied and any correlation of thyroid function with gynaecological complaints was evaluated, with special reference to menstrual irregularities (AUB). The presenting complaints were divided into the following categories: Pain abdomen, menstrual complaints, lump abdomen, others (e.g. white vaginal discharge and prolapse cases).

Data were collected, revised, coded and entered to the Statistical Package for Social Science (IBM SPSS) version 20. Qualitative data were presented as number and percentages while quantitative data were presented as mean, standard deviations and ranges when parametric.

Results

Out of the 27 cases with clinical hypothyroidism, 17 patients were of age group 40-44 years, and 7 patients were of age group 45-49 years, 3 patients were of 50-55 years age group. Out of the 8 females with hyperthyroidism, 25% were of the age group 40-44 years, 62.5% were of age group 45-49 yrs, and 12.5% were of age group 50-55 years (table 1).

The commonest presenting complaint was menstrual complaints, i.e. AUB (Abnormal uterine bleeding) which was seen in 91 cases (60.67%). The second most common complaint was pain abdomen, present in 28% cases (table 2).

Table 1: Thyroid function abnormality among various age groups

Age in years	Hypo-thyroidism		Subclinical Hypothyroidism		Euthyroid		Hyper-thyroidism		Total	
	N	%	N	%	N	%	N	%	N	%
40-44	17	62.96%	16	53.33%	47	55.29%	2	25.00%	82	54.67%
45-49	7	25.93%	10	33.33%	28	32.94%	5	62.50%	50	33.33%
50-55	3	11.11%	4	13.33%	10	11.76%	1	12.50%	18	12.00%
Total	27	100.00%	30	100.00%	85	100.00%	8	100.00%	150	100 %

Table 2: Presenting complaints in the study population

Complaints	No	Percentage (%)
Menstrual complaints	91	60.67%
Pain abdomen	42	28.00%
Lump abdomen	4	2.67%
Others	13	8.67%

Table 3: TSH distribution in the study population

Values of TSH (mIU/L)	No	Percentage (%)
<0.465 mIU/L	8	5.33%
0.465 - 4.68 mIU/L	85	56.67%
> 4.68 mIU/L	57	38.00%
Total	150	100%

Out of 150 cases selected for this study, 85 (56.67%) patients were euthyroid, and 57 (38%) patients were hypothyroid (including both subclinical and overt

hypothyroidism) and 8 (5.33%) patients had hyperthyroidism (table 3). Therefore, total prevalence of thyroid abnormality in this study is 43.33 % (65 out of 150).

Table 4: Presenting complaints of various type of thyroid abnormality

Complaints	Hypothyroidism		Subclinical Hypothyroidism		Euthyroid		Hyper-thyroidism		Total	
	N	%	N	%	N	%	N	%	N	%
Lump abdomen	-	0.00%	-	0.00%	4	4.71%	-	0.00%	4	2.67%
Menstrual complaints	21	77.78%	15	50.00%	48	56.47%	7	87.50%	91	60.67%
Pain abdomen	3	11.11%	11	36.67%	27	31.76%	1	12.50%	42	28.00%
Others	3	11.11%	4	13.33%	6	7.06%	-	0.00%	13	8.67%
Total	27	100%	30	100.00%	85	100%	8	100%	150	100%

Among the females presenting with hypothyroidism 21 patients (77.78%) had menstrual complaints; among the cases of Subclinical hypothyroidism 50% (15 females) had menstrual complaints. Among females with hyperthyroidism, 7 females (87.50%) had presented with menstrual complaints. The number of females with menstrual complaints, who were however euthyroid, was 48 out of 91 (56.47%) (table 4).

Table 5: Menstrual pattern in various thyroid abnormality

Menstrual patterns	Hypo-thyroidism		Subclinical hypothyroidism		Euthyroid		Hyper-thyroidism		Total	
	N	%	N	%	N	%	N	%	N	%
Amenorrhoea	-	0.00%	1	3.33%	8	9.41%	1	12.50%	10	6.67%
Hypomenorrhoea	1	3.70%	2	6.67%	3	3.53%	4	50.00%	10	6.67%
Menorrhagia	7	25.93%	7	23.33%	18	21.18%		0.00%	32	21.33%
Oligomenorrhoea	7	25.93%	1	3.33%	13	15.29%	3	37.50%	24	16.00%
Polymenorrhoea	3	11.11%	3	10.00%	4	4.71%	-	0.00%	10	6.67%
Normal	9	33.33%	16	53.33%	39	45.88%	-	0.00%	64	42.67%
Total	27	100%	30	100%	85	100%	8	100%	150	100%

Among the 27 females with hypothyroidism, 7 (25.93%) females had menorrhagia and another 7 (25.93%) females had oligomenorrhoea. Among the hyperthyroid females, 50% had hypomenorrhoea, 37.50% had oligomenorrhea (table 5). Among the cases with overt hypothyroidism, 19 cases (70.37%) had no abnormal USG findings and 5 cases (18.52%) had uterine fibroid. Among cases with normal USG findings, 19 patients had overt hypothyroidism, 17 had subclinical hypothyroidism and 5 patients had hyper-thyroidism.

Discussion

The present study has been conducted in order to study the thyroid functions during perimenopause in women with various gynaecological complaints, and further its association with menstrual irregularities. There is enough literature showing the association of thyroid functions with menstrual patterns in reproductive age group and early puberty, only a few studies were conducted pertaining to thyroid function during perimenopausal age group.

Prevalence of thyroid disorders in the present study was found to be 43.3% that is 65 out of 150 subjects had abnormal thyroid profile. Similar findings were observed by Anita Ramesh et al [7], that is 48% prevalence. Studies like Byna P et al [8] and Singh P et al [9] had found the incidence to be 34.5% and 35% respectively; which is also somewhat comparable. Sree VS et al [10] also found the prevalence to be 34.4%.

In our study, 20% females had subclinical hypo-thyroidism and 18% females had overt hypothyroidism. The results are comparable to the findings of Joshi et al [11] where incidence of hypothyroidism was 12.5% ; and Goyal et al[12] also found 18% ; Singh P et al[9] found 26% and Byna P et al[8] found 21.8% . In our study, hyperthyroidism was found in 5.33% cases, Singh P et al [9] found prevalence of hyperthyroidism to be 9%, Sree VS et al [10] found 10%, while Anita Ramesh et al [7] found 18% and Byna P et al [8] found 12.5% cases.

The menstrual pattern in hypothyroidism is comparable between the present study and other reference studies, as menorrhagia remains the commonest pattern in hypothyroidism (24.5% in present study) in most of the studies, except Byna P et al [8], who found oligomenorrhoea in 43% cases and menorrhagia in 41.6% cases of hypothyroidism. In our study, hypomenorrhoea was the commonest pattern in hyperthyroidism, found in 50% cases, and 2nd most common being oligomenorrhoea; amenorrhoea was found in another 12.5% cases. It is comparable to Singh P et al [9] who found 27.5% cases with hypomenorrhoea, 25% cases with oligomenorrhoea and 19.4% cases with amenorrhoea.

Conclusion

As there is a higher prevalence of thyroid disorders in elderly women, and it affects the menstrual pattern therefore thyroid function should be screened regularly in women with structural as well as non structural causes. Another reason

why perimenopausal women should be tested is that often symptoms of hypothyroidism may be misinterpreted as symptoms of perimenopause and ignored. Treating the thyroid status also relieves most of these symptoms, and unnecessary surgery can be avoided.

Conflict of interest: None. **Disclaimer:** Nil.

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