ORIGINAL ARTICLE

Thyroid Profile In Menstrual Disorders

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Abstract

To study the thyroid related complaints & thyroid function tests in women with DUB and to study the menstrual pattern in women with thyroid disease. Fifty patients of DUB (GP-A) in reproductive age group presenting with menstrual irregularities like menorrhagia, oligomenorrhoea, amenorrhoea, hypomenorrhoea and polymenorrhoea were studied for thyroid profile and fifty thyroid patients were studied in endocrinology for menstrual patterns (GP-B). Out of 50 women (GP-A), hypothyroidism was detected in 11 (22%) and hyperthyroidism in 7 (14%). In Group-B 56 % of hypothyroid patients had disturbed menstrual cycles with associated problems and 62 % of hyperthyroid patients were found to have disturbed menstrual cycles ranging from menorrhagia to oligomenorrhoea to amenorrhoea. Thyroid function tests must be ordered in women presenting with DUB, to avoid unnecessary hormonal treatment and surgery in such patients

Key Words

Menorrhagia, Oligomenorrhoea, Amenorrhoea, Hypothyroidism, Hyperthyroidism.

Introduction

It has long been recognized that thyroid dysfunction may have profound effects on the female reproductive system. A relationship between the thyroid gland and the gonads is suggested by the far more frequent occurrence of thyroid disorders in women than in men and by the common appearance of goiter during puberty, pregnancy and the menopause (1). Thyroid disorders are ten times more common in women than in men (2).

During the investigations of abnormal uterine bleeding, abnormal sexual development, delayed puberty, hirsuitism, infertility, and recurrent pregnancy loss, the possibility of thyroid dysfunction must always be considered.

While activity of the thyroid is closely linked with the process of ovarian maturation, the thyroid gland is itself dependent on direct and indirect stimuli from the ovary to discharge its own function.

In gynae 20% women present with abnormal uterine bleeding (3). The underlying cause of DUB is still uncertain, but in most cases it is associated with failure of ovulation and is a consequent hormonal imbalance. Ovarian dysfunction may be caused by either a primary defect or pathologic lesion within the ovary itself or it may be secondary to malfunction of other endocrine glands, notably the hypothalamus, pituitary and thyroid (4). Menorrhagia is commonly tackled with curettage and hysterectomy with its attendant morbidity and mortality especially in anaemia, undiagnosed thyroid disease and coagulopathies (5). Recently "occult" menorrhagia has been found to be an early manifestation of sub clinical hypothyroidism with disease becoming symptomatic later.

Most of the patients of hypothyroidism in reproductive age group present with menorrhagia in early stage of the disease. Endometrium is mostly proliferative & some times even atrophic. Urinary pregnanetriol levels are low which suggests failure of LH production, ovulation, and resultant menorrhagia. In later stages, secondary depression of pituitary occurs, leading to ovarian atrophy and amenorrhoea. Hypometabolism in hypothyroidism is held to increase in prolactin secretion which may inhibit gonadotrophin leading to amenorrhoea. The underlying etiology of hypothyroidism commonly found is lymphocytic thyroiditis, thyroidectomy and anti-thyroid drugs.

Menorrhagia being the chief symptom in hypothyroidism, its treatment with thyroxine has been demonstrated by Menon (6). Some encouraging results have been shown by Doifode & Fernandes (7), so avoiding unnecessary hormones and surgery. Thyrotoxicosis on the other hand manifests chiefly with hypomenorrhoea. Cycles may be shortened or prolonged and ultimately amenorrhoea develops. The etiology of menstrual dysfunction in hyperthyroidism is not known, whether it is primary effect of thyroid on ovary or uterus or mediated

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by pituitary dysfunction. Endometrium is proliferative. Singh *et al* (8) found 63 % of hyperthyroid patients had anovulatory cycles.Thus, current study was done to study of thyroid related complaints and thyroid function tests (T3, T4 & TSH) in patients with DUB.

Material & Methods

The study was conducted under two groups -

Group-A: 50 women of DUB in reproductive age group (15-45 years) presenting with menstrual irregularities like menorrhagia, oligomenorrhoea, amenorrhoea, hypomenorrhoea and polymenorrhoea were studied for thyroid profile. For convenience these were clubbed in two groups; one included menorrhagia / polymenorrhoea and second with oligomenorrhoea / amenorrhoea / hypomenorrhoea.The study protocol included a thorough history taking with emphasis on thyroid related symptoms; clinical evaluation for thyroid stigmata; abdominal and pelvic examination; routine investigations; transabdominal USG; endometrial biopsy and serum T3, T 4, & TSH estimation by radioimmunoassay. Patients with organic lesions of genital tract, on hormones, bleeding disorders and IUCD users were excluded. The reference values used in our study were from government medical college laboratory - Serum levels of T4: 60 - 120 ng/ml. Serum levels of T3: 0.8 - 1.6 ng/ml. - Serum levels of TSH: 0.5 - 5.0 mU/L.

Group-B: 50 patients including 34 hypothyroid & 16 hyperthyroid patients from Endocrinology OPD were studied.

The study protocol included:-1) Detailed history taking with emphasis on age, parity, infertility and menstrual disorders. 2) Evaluation by pelvic examination along with general physical examination of those with menstrual complaints. 3) Routine investigations like Hb, BT, CT, TLC, DLC, Platelet count and ABO-Rh in all. 4) Special investigations: (i) Transabdominal USG: (ii) Endometrial biopsy.

Table-1 Age-Wise Distribution of DUB Cases (Group-A)

Menstrual Group (n=50)	15-24 year	25-34 years	35-45 years
Menorrhagia, Polymenorrhoea (n=39)	4 (8%)	10 (20%)	25 (50%)
Oligomenorrhoea, Amenorrhoea, Hypomenorrhoea (n=11)	5 (10%)	4 (8%)	2 (4%

Table-2. Age Wise Distribution of Hypothyroid and Hyperthyroid cases (Group-B)

Age groups (In years)	Hypothyroid (n=34)	Hyperthyroid (n=16)
15-24	5(14.7%)	2(12.5%)
25-34	7(20.58%)	4(25%)
35-45	22(64.7%)	10(62.5%)

Table-3. Parity Wise Distribution of Women with DUB Detected Hypo/Hyperthyroid (Group-A).

Cases	Unmarried	Nullipara	Multipara
Hypothyroidism	1(9.09%)	1(9.09%)	9(81.81%)
Hyperthyroidism	1(14.28%)	0	6(85.71%)

Results

In Group-A, most of the patients with DUB presented in age group of 35-45 years (54%), followed by 25-34 years (28%) *Table-1.* 63.63% of those detected hypothyroid and 85.71% of those detected hyperthyroid were in 35-45 years age group. In Group-B, Most of the hypothyroid patients with menstrual complaints were in 35-45 years (73.68 %) followed by 25-34 years (15.78 %)*Table-2.* In hyperthyroid group with menstrual disturbances, 60 % were in 35-45 years, 20 % each in 25-34 years & 15-24 years age groups. In our study we had 16 % patients with Hashimotos thyroiditis, 20 % with Graves's disease & 8 % hypothyroid following thyroidectomy. As far as parity in DUB was concerned, 74% were multiparous, 6% were para one and 8% were nulliparous. Those detected hypothyroid, 81.81% were multiparous and 9.09% had primary infertility, while those detected hyperthyroid 85.71% were multiparous and 14.28% were unmarried (*Table-3*). 70 % of Group-B patients were multiparous, 16 % were para 1, only 4 % were infertile and 10 % unmarried girls (*Table-4*). Menorrhagia was chief complaint in 70% of DUB patients, with 54% also complaining of polymenorrhoea, while 12% patients complained of amenorrhoea. History suggestive of metropathia hemorragica was present in 14% cases, hypomenorrhoea in 8% and oligomenorrhoea in 10% and many of them presented with more than one type of irregularity. In our study, most of the patients had easy fatigubility (50%) followed by weight gain (16%), hypertension 20%, heat intolerance 12%, cold intolerance 14%, epistaxis 4%, palpitations 16%, tachycardia 18%, weight loss 6%, goiter 6%, oedema 8%, delayed tendon reflexes 6%, dry skin and hair loss 10% and eye signs 4% (*table-5*). None of the patients had bradycardia and hoarseness. A high percentage of women presenting with fatigue, hypertension, obesity, cold intolerance, skin changes and oedema turned out to be hypothyroid when investigated biochemically. Most of them had TSH level

Table-4. Age-Wise Distribution of DUB Cases (Group-A).

	Unmarried	Nullipara	Para 1	Para 2	Para 3 & above
Hypothyroidism	4(8.0%)	2(4.0%)	3(6.0%)	12(24.0%)	13(26.0%)
Hyperthyroidism	1(2.0%)	0	5(10.0%)	4(8.0%)	6(12.0%)

Table-5. Signs and Symptoms of Thyroid Dysfunction in Women with DUB.

Signs & Symptoms	Percentage of DUB cases	Those detected hypothyroid (%)	Those detected hyperthyroid (%)
Fatigue.	50	100	100
Heat Intolerance.	12	0	57.14
Cold Intolerance.	14	45.45	0
Palpitations.	16	18	57.14
Weight Loss.	6	0	42
Goiter.	6	9	28.57
Obesity.	16	54	28.57
Hypertension.	20	45.45	57.14
Pallor.	60	100	57.14
Oedema.	8	36	0
Tachycardia.	18	18	85
Delayed Tendon Reflex.	6	27	0
Eye Signs.	4	9	14
Dry skin & Hair loss	10	36	0

Table-6. T3, T4 & TSH Values Observed in DUB Case

	Raised level	Normal	Decreased level
T3	4 (8%)	38 (76%)	8 (16%)
T4	3 (6%)	44 (88%)	3 (6%)
TSH	11 (22%)	32 (64%)	7 (14%)

Table-7. Prevalence of Hypo & Hyperthyroidism in DUB

Total cases	Euthyroid	Hypothyroid	Hyperthyroid
50	32 (64%)	11 (22%)	7 (14%)

Table-8. Menstrual Disorders in Hypothyroidism & Hyperthyroid Patients (Group-B).

Observed Menstrual Irregularity	Hypothyroidism (n = 34)	Hyperthyroidism (n = 16)
Normal	15 (44.1 %)	6 (37.5 %)
Oligomenorrhoea	2 (5.88 %)	2 (12.5 %)
Hypomenorrhoea	3 (8.82 %)	4 (25.0 %)
Amenorrhoea	2 (5.88 %)	0
Menorrhagia	12 (35.2 %)	4 (25.0 %)
Polymenorrhoea	8 (23.52 %)	3 (18.75 %)

Table-9. Endometrial Biopsy in Menstrual Disorders Detected as Hypo / hyperthyroidism (Group-A).

Proliferative	Secretory	Cystic Glandular Hyperplasia	Stromal Glandular Asynchrony
Hypothyroid-11			
4	4	0	3
36.36%	36.36%	0%	27.27%
Hyperthyroid-7			
3	2	1	0
42.84%	28.56%	14.28%	0.0%

Table-10. Endometrial Biopsy in Hypothyroidism & Hyperthyroidism (Group-B).

Proliferative	Secretory	Stromal Glandular Asynchrony
Hypothyroid-19		
11	07	01
(57.89 %)	(36.84 %)	(5.26 %)
Hyperthyroid-10		
05	04	0
(50.0 %)	(40.0 %)	(0.0%)

in higher range. Similarly a high percentage of women with palpitations, tachycardia, heat intolerance, and fatigue and weight loss turned out to be hyperthyroid. 16 % of our DUB patients had low T3, 6 % had low T4 and 22% had high TSH levels pointing to hypothyroidism, while 8% had high T3, 6% had high T4 and 14% had low TSH levels, detected as hyperthyroidism. Most of our hypothyroid cases detected had TSH values between 5 - 6 mU/L and all had levels less than 10mU/l. Most of our patients detected hyperthyroid had TSH values between 0.1 - 0.6 mU/L (*Table-6*). Prevalence of hypothyroidism in group-A was 22% (with 23.07% in menorrhagia group and 18.18% in oligomenorrhoea / hypomenorrhoea / amenorrhoea group). Prevalence of hyperthyroidism in our DUB patients was 14% (*Table-7*). In our study of group-B, 50 diagnosed cases of thyroid disorders from endocrinology department which included 34 hypothyroid and 16 hyperthyroid cases, gave us an incidence of 44% normal menstrual cycles in hypothyroid group. 35.29% hypothyroid women had menorrhagia/polymenorrhoea and 20.58% had oligo/hypo/amenorrhoea. Incidentally in our study, primary infertility & galactorrhea was found in 5.8% patients. These patients had hyperprolactinemia & presented with oligo/hypomenorrhoea. Among the 16 hyperthyroid patients, 37.5% had normal menstrual pattern, 25% had menorrhagia/polymenorrhoea, and 37.5% had oligomenorrhoea/ammenorrhoea (*Table-8*) which shows individual incidence of menstrual irregularities though they occurred together in many patients. Endometrial biopsy was done in all patients of DUB except unmarried in whom endometrial hyperplasia

was ruled out with USG. *Table-9 & 10 shows* endometrial biopsy of thyroid patients detected in group-A & B.

Discussion

In our study we observed most of the hypothyroid patients detected in group-A as well as overtly hypothyroid patients with menstrual symptoms in group-B were in 35-45 year age group indicating that sub-clinical as well as overt hypothyroidism was common in this age group. Most of the hyperthyroid patients detected in group-A were also in 35-45 year age group, but slightly higher percentage of overtly hyperthyroid patients were in younger age group. Pilli *et al* (9) also reported most of DUB patients (58%) in 21-40 years age group and only 2% below 20 years of age. Doifode & Fernandes (7) had 48.33% patients of DUB with hypothyroidism in 31-40 years, 23.3% above 40 years, 16.67 % in 21-30 years and 11.67% below 20 years. Pilli *et al* (9) also reported 87% multipara, 7% para one and 6% nulliparous patients in DUB. Menorrhagia was the chief complaint in 70% of our DUB patients. Pilli *et al* (9) also reported menorrhagia as the commonest type of bleeding (34%), profuse bleeding following ammenorrhoea in 14% and polymenorrhoea in 11%. Mehrotia *et al* (10) found an incidence of 54.2% menorrhagia in their series. Higher incidence of menorrhagia in our study may be because of higher percentage of perimenopausal age group.

Prevalence of hypothyroidism detected in DUB was 22%. Mukherjee & Gosh (11) showed 44% incidence of hypothyroidism in their study. Doifode & Fernandes (7) showed 28.17 % incidence of hypothyroidism in DUB patients. Wilansky & Greisman (5) based on evaluation of clinically euthyroid menorrhagic women by a Thyrotropin-releasing hormone test quoted a prevalence of 22.38% of early hypothyroidism. In hypothyroid patients Menon & Bharucha (6) gave an incidence of 46.15% menorrhagia / polymenorrhoea and 23.07% oligomenorrhoea that matches our results. 44% of our hypothyroid patients had normal cycles similar to Lahiri *et al* (12) who showed 46.8% normalcy. Menon & Bharucha (6) found 17% menorrhagia, 50% hypomenorrhoea & 33% regular cycles in the hyperthyroid patients, very near to our results. Singh *et al* (8) reported oligomenorrhoea as the commonest anomaly in 63.6 % while menorrhagia only in 9% of hyperthyroidism with infertility. Incidence of proliferative & secretory endometrium was same in hypothyroid patients from both groups but sub-clinical hypothyroid patients showed a slightly higher incidence of proliferative endometrium than overt cases. Doifode & Fernandes (7) found 40% proliferative, 21.67% secretory and 23.33% hormonal imbalance in their study which goes with our results. On the whole, finding of proliferative endometrium was lower in hyperthyroid than hypothyroid cases indicating that depression of HPO axis is not so severe as to cause anovulation in all cases of hyperthyroidism. The finding of proliferative endometrium in DUB also warrants that these women should undergo thyroid function tests for detection of sub-clinical cases. Scrutiny of the recent literature also reveals that menstrual irregularities are significantly more frequent in patients with thyroid dysfunction (13 , 14, 15).

Conclusions

Thyroid function tests, must be done in women presenting with DUB; and also in those presenting with fatigue, obesity, lethargy in addition to infertility, luteal phase defects, delayed puberty and recurrent abortions. Also those presenting with thyroid dysfunction must be screened for menstural disorders. As there is high incidence of thyroid diseases in our area.This would also avoid unnecessary hormonal treatment and surgery in DUB patients.

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