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MENSTRUAL DISORDERS IN THYROID DYSFUNCTION

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ABSTRACT
DUB is abnormal uterine bleeding without any specific cause accounting for approximately 20% of gynaecological OPD. The activity of thyroid is closely linked with the process of ovarian maturation as the thyroid is dependent on direct and indirect stimuli from the ovary to discharge its own functions. The aim of the study was to study the thyroid dysfunction in patients presenting with dysfunctional uterine bleeding(DUB) and prevalence of menstrual disturbances in thyroid disease. This cross sectional study comprised of 100 women in 15-45 years of age group attending gynaecological OPD of Government Medical College, Amritsar. In Group A, 50 women with DUB were studied for thyroid profile and 50 women in group B with thyroid dysfunction were looked for any menstrual abnormality. Menorrhagia, the most common menstrual abnormality found and prevalence of hypothyroidism was 38% in DUB cases. In all hypothyroid women, 29.7% had menorrhagia. Proliferative endometrium was more in hypothyroid than hyperthyroid cases showing association with anovulatory cycles. Thus concluding that thyroid dysfunction is an important cause of menstrual abnormality and its assessment and treatment should be done in all patients to avoid unnecessary surgical intervention.

KEYWORDS: Dysfunctional uterine bleeding, Menorrhagia, Hypothyroidism.

INTRODUCTION
Menstruation is a well programmed and self limiting process of coagulation, thrombosis followed by platelet activation at the basal layer and complex hormonal interaction, which occurs via the hypothalamic pituitary axis. Menarche, pubertal growth and development, menstrual cycles, fertility and fetal development, postpartum period, reproductive years and post menopausal are profoundly influenced by the thyroid status of the women. The activity of the thyroid is closely linked with the process of ovarian maturation as the thyroid gland is itself dependent on direct and indirect stimuli from the ovary to discharge its own functions. Ovarian dysfunction may be caused by either a primary defect, pathological lesion within the ovary itself or it may be secondary to malfunction of other endocrine glands, notably the hypothalamus, pituitary and thyroid. Thyroid disorders are ten times more common in women than in men.[1]

DUB poses a huge burden on gynaecological OPD, accounting for approximately 20% of attendance.[2] Thus frequent occurrence of thyroid disorders in women and common appearance of goitre during puberty, pregnancy and the menopause suggest relationship between thyroid gland and gonads. The current study was done to study the prevalence of menstrual abnormalities in thyroid dysfunction.

MATERIALS AND METHODS
The study was conducted for one year at Bebe Nanki Mother and Child Care Centre, Government Medical College, Amritsar after approval from Institutional thesis and Ethical committee. The study included 100 women in reproductive age.

Group A: 50 women of DUB in reproductive age group (15-45 years) presenting with menstrual irregularities like menorrhagia, oligomenorrhea, amenorrhea, hypomenorrhea and polymenorrhea were studied for their thyroid profile and thyroid related complaints.

Group B: 50 women with thyroid dysfunction attending Medicine OPD were studied for menstrual irregularities.
The study protocol included a thorough history taking including age, parity, infertility and menstrual disorders, thyroid related symptoms 2) General physical examination followed by pelvic examination in patients with menstrual complaints, clinical evaluation for thyroid related symptoms 3) Routine investigations, serum T3,

T4, with TSH estimation by radio immuno assay, Transabdominal ultrasonorgraphy (USG) and endometrial biopsy. Patients having organic lesions of genital tract, on hormones, bleeding disorders and IUCD users, recent delivery or abortion were excluded.

The reference values in our study were from Biochemistry laboratory from Government Medical College, Amritsar. Serum levels of T4:- 0.4-30 µg/dl, Serum levels of T3:-0.51-1.58 ng/ml, Serum levels of TSH:- 0.44-3.45 µIU/ml.

RESULTS AND DISCUSSION

In group A, majority of the DUB patients were in the age group of 25-34 years (44%), followed by 35-45 years and 15-24 years (28% each) In group B, comprising mostly the hypothyroid women belonged to the age group 25-34 years (55.5%). However, hypothyroid and hyperthyroid with menstrual disturbances were in 35-45 years of age group (54.5%) followed by 25-34 years (27.27%) showing presentation of menstrual disturbances more in perimenopausal patients.

Table 1: Distribution of DUB Cases According To Parity (Group A)

PARITY	NUMBER OF PATIENTS	PERCENTAGE
Unmarried	10	20
Nullipara	07	14
Multipara	33	66
Total	50	100

Table 2: Distribution of Thyroid Disorder Cases According To Parity (Group B)

Thyroid Status	Unmarried	Nulliparous	Multiparous
Hypothyroid n=45	05 (11.1%)	01 (2.2%)	39 (86.6%)
Hyperthyroid n=5	0	0	05 (100%)
Total =50	05 (10%)	01 (2%)	44 (88%)

In both the groups majority of the patients were multiparous. (Table 2).

TABLE-3: T3, T4, TSH Levels in DUB Cases (Group A)

	Raised level	Normal	Decreased level
T3	01(2%)	39(78%)	10(20%)
T4	01(2%)	40(80%)	09(18%)
TSH	19(38%)	29(58%)	02(4%)
Total = 50			

Table- 4: Thyroid Status In DUB Cases

Thyroid status	No. of patients	Percentage
Euthyroid	29	58%
Hypothyroid	19	38%
Hyperthyroid	02	4%
Total	50	100%

Among the DUB patients, 38% were hypothyroid and 4% were hyperthyroid.

Table 5: Distribution of Menstrual Irregularites In Relation To Thyroid Dysfuction (Group A)

Bleeding pattern	Hypothyroid (n=19)		Hyperthyroid (n=2)		Euthyroid(n=29)	
	No.	(%age)	No.	(%age)	No.	%age
Menorrhagia	12	63.15	0	0	04	13.79
Oligomenorrhea	01	05.2	01	50	13	44.8
Hypomenorrhea	02	10.5	01	50	12	41.3
Polymenorrhea	03	15.7	0	0	0	0
Amenorrhea	01	05.2	0	0	0	0

Menorrhagia was the chief presenting complaint in 32% of DUB patients, with oligomenorrhea & hypomenorrhea in 30% each and polymenorrhea 6% and amenorrhea 2%. Hypothyroidism was diagnosed in 38% of DUB patients. Among them menorrhagia was seen in 63.15%, hypomenorrhea in 10.52%, polymenorrhea in 15.7%, oligomenorrhea in 5.2% and amenorrhea in 5.2%. Hyperthyroidism was 4%, in which women with hypomenorrhea and oligomenorrhea presented equally. (Table-5).

Pahwa(7) studied that menorrhagia is the most common complaint in 50% DUB cases followed by 19% with polymenorrhea. Shapely(8) gave an incidence of menorrhagia as 25%. Pilli et al (9) reported menorrhagia as the commonest type of bleeding (34%), followed by amenorrhea in 14% and polymenorrhea in 11% which is

in accordance to our study. Though different incidence of menstrual disturbances are given by different authors but menorrhagia is the most common and preceeding symptom of DUB in hypothyroid patients.

Table- 6: Menstrual Irregularities in Thyroid Dysfunction Patients (Group B)

Thyroid status	Menstrual disturbance	No. of patients	Percentage
Hypothyroid (n=45)	Menorrhagia	07	15.5%
	Polymenorrhea	02	4.44%
	Oligomenorrhea	02	4.44%
	Hypomenorrhea	0	0
	Amenorrhea	0	0
Hyperthyroid (n=5)	Menorrhagia	0	0
	Polymenorrhea	0	0
	Oligomenorrhea	0	0
	Hypomenorrhea	01	20%
	Amenorrhea	0	0

In group B, 50 diagnosed cases of thyroid disorder included 45 hypothyroid and 5 hyperthyroid patients. 15.5% had menorrhagia, polymenorrhea and oligomenorrhea each in 4.4% women. Majority (75.5%) had normal menstrual cycle in hypothyroid group. (Table-6).

Table 7: Menstrual Irregularities in Group A and Group B (N=100) in relation to Thyroid Status

		GRP A (n=19)	GRP B (n=45)	Total (64)
Hypothyroidism Grp A=19 Grp B=45 A+B=64	Menorrhagia	12 (63.2%)	07 (15.6%)	19 (29.7%)
	Polymenorrhea	03 (15.7%)	02 (4.4%)	05 (7.8%)
	Oligomenorrhea	01 (5.2%)	02 (4.4%)	03 (4.7%)
	Hypomenorrhea	02 (10.5%)	0	02 (3.1%)
	Amenorrhea	01 (5.2%)	0	01 (1.6%)
Hyperthyroidism Grp A=2 Grp B =5 A+B=7	Menorrhagia	0	0	0
	Polymenorrhea	0	0	0
	Oligomenorrhea	01(50%)	0	01 (14.2%)
	Hypomenorrhea	01(50%)	01(20%)	02 (28.6%)
	Amenorrhea	0	0	0

Collectively, among 64 all hypothyroid patients in both the groups(Table 7), 19(29.7%) had menorrhagia, 5(7.8%) had polymenorrhea, 3(4.7%) had oligomenorrhea, 2(3.1%) had hypomenorrhea and 1(1.6%) had amenorrhea. In 7 hyperthyroid patients, 2(28.6%) had hypomenorrhea and 1(14.2%) had oligomenorrhea.

Doifode & Fernandes(6) showed 28.17% incidence of hypothyroidism in DUB patients. Padmaleela(5) in her study gave 26.5% prevalence of thyroid disorder in DUB cases with hypothyroidism being 18.1% and hyperthyroidism 8.4%. Ajmani(2) showed 44% prevalence of thyroid disorder with 20% subclinical hypothyroid and 14% overt hypothyroidism. Thus all of them are in accordance to our study. Among the 38% hypothyroid in DUB patients, incidence of menorrhagia was 29.7%, polymenorrhea 7.8%, oligomenorrhea 4.68%, hypomenorrhea 3.12% and amenorrhea 1.56%. Among hyperthyroid 28.57% had hypomenorrhea and 14.2% had oligomenorrhea. Menon and Bharucha(10) gave an incidence of 46.15% menorrhagia/polymenorrhea and 23.07% oligomenorrhea.

Table 8: Signs and Symptoms of Thyroid Dysfunction in DUB Cases(Group A)

Sign/Symptoms	Percentage of DUB cases (n=50)	Those detected hypothyroid (n=19)	Those detected hyperthyroid (n=2)
Weight gain	20 (40%)	15 (75%)	0
Fatiguability	17 (34%)	11 (64.7%)	2 (100%)
Weakness	13 (26%)	08 (61.5%)	2 (100%)
Cold intolerance	08 (16%)	06 (31.5%)	0
Constipation	09 (18%)	09 (100%)	0
Irritability	05 (10%)	05 (100%)	0
Hair fall, dry hair	10 (20%)	08 (80%)	02 (20%)
Depression	04 (8%)	03 (75%)	0

Dry, rough pale skin	03 (6%)	01 (33.3%)	0
Decreased libido	02 (4%)	02 (100%)	0
Muscle cramps	02 (4%)	02 (100%)	0
Heat intolerance	02 (4%)	0	02 (100%)
Weight loss	04 (8%)	0	02 (50%)
Goitre	01 (2%)	0	01 (50%)
Hypertension	02 (4%)	0	01 (50%)
Tachycardia	02 (4%)	0	02 (100%)
Eye signs	01 (2%)	0	01 (100%)

Most DUB patients had weight gain (40%), fatiguability (34%), weakness (26%), cold intolerance (24%), hair fall/dry hair(20%), constipation(18%), irritability(10%), depression(8%), decreased libido(4%), muscle cramps(4%) and heat intolerance(4%). A high percentage of women presenting with weight gain, cold intolerance, fatigue, weakness, irritability, muscle cramps, decreased libido, hair fall turned out to be hypothyroid when investigated biochemically. Most of them had TSH in higher ranges. Similarly a high percentage of women with heat intolerance, weight loss, goitre, hypertension, tachycardia and eye signs turned out to be hyperthyroid. Multiple signs and symptoms of thyroid dysfunctions were present in most of the patients.

Table 9: Endometrial Biopsy in Cases of Hypothyroidism and Hyperthyroidism in Group A and B.

	Proliferative endometrium		**Secretory endometrium**		**Glandular stromal asynchrony**	
	Group A	**Group B**	**Group A**	**Group B**	**Group A**	**Group B**
Hypothyroidism (n=7)	03 (42.8%)	02 (28.5%)	01 (14.2%)	-	-	01 (14.2%)
Hyperthyroidism	-	-	-	-	-	-

Endometrial biopsy was done in selected patients of DUB excluding unmarried women in whom endometrial hyperplasia was seen on Ultrasonography. Proliferative endometrium was the dominant picture on histopathology in 71.4% as compared to secretory endometrium in 14.2% in hypothyroid patients. One patient showed stromal glandular asynchrony. None of the hyperthyroid needed EB.(Table 9).

Incidence of proliferative endometrium was more than secretory endometrium in hypothyroid patient from both the groups showing more anovulatory cycles. Doifode & Fernandes(6) found 40% proliferative, 21.67% secretory and 23.33% hormonal imbalance in their study which are in accordance with the 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.

Among 30 hypothyroid patients with menstrual abnormality on treatment showed improvement (43.3%) in initial 3 months. 33.3% in next 6 months and 16.6% later. All hyperthyroid were relieved within 6 months. Pahwa(7) showed relief in 17 out of 22 patients of hypothyroidism with thyroxine. Scrutiny of the recent literature reveals that menstrual irregularities are significantly more frequent in patients with thyroid dysfunction.[11, 12, 13]

CONCLUSION

Thyroid dysfunction is closely related to menstrual disorders. Menorrhagia is the most common and preceeding presenting symptom in hypothyroidism though other menstrual disturbances are also seen. Normalising the thyroid status gives relief in menstrual symptoms in majority. Thus thyroid assessment should be performed in all the patients with menstrual irregularities. This would avoid unnecessary hormonal treatment and surgery in DUB patients.

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