

MENSTRUAL DISTURBANCES IN THYROID DYSFUNCTION

SEMİZ GÜNGÖR G, HEKIMSOY Z, ÖZ D, ALARSLAN P, HATIBOĞLU O, ÖZMEN B.

Celal Bayar University Medical Faculty, Department of Internal Medicine, Division of Endocrinology and Metabolism, Manisa, TURKEY

Introduction

Thyroid hormones play an important role in achieving and maintaining reproductive functions. Thyroid dysfunction affects the menstrual cycle and often leads to menstrual irregularity. We prospectively investigated untreated female patients presenting to our Endocrinology and Internal Medicine outpatient clinics.

Material And Methods

All the patients were of reproductive age and were newly diagnosed with thyroid dysfunction. After a detailed history (including menstrual history) was taken, TSH, fT3, fT4, anti-Tg, anti-TPO levels were measured and thyroid ultrasound was performed in all. Menstrual disturbances were defined as shown in Table 1. Thyroid functional status was determined by measurement of TSH, fT3 and fT4. Patients were subdivided into the following groups: overt hypothyroidism (54 patients), subclinical hypothyroidism (106 patients), overt hyperthyroidism (50 patients), subclinical hyperthyroidism (55 patients), euthyroid patients (Hashimoto's thyroiditis/nodular goiter, 220 patients). Women with normal routine laboratory and imaging studies were classified as controls. Thus, 485 patients and 108 healthy controls were evaluated. The demographic characteristics and results of thyroid hormones of the study groups and controls are summarized in Table 2.

Table 1. Definition of menstrual disturbances

Secondary amenorrhea	Having no bleeding during minimum 3 normal cycles
Hypomenorrhea	Bleeding with regular intervals and normal period but menstrual bleeding below 30 ml
Hypermenorrhea	Bleeding with regular intervals and normal period but increased amount of bleeding
Oligomenorrhea	Regular bleeding with an interval more than 35 days
Polymenorrhea	Regular bleeding with an interval less than 24 days
Menorrhagia	80 ml blood loss per cycle or menstruation or menstruation lasting longer than a week
Metrorrhagia	Frequent bleeding at regular intervals
Menometrorrhagia	Excessive uterine bleeding with irregular intervals

Table 3. Types and frequency of menstrual disturbances with respect to degrees of hypothyroidism

Types of menstrual disturbances	Mild Hypothyroidism (TSH: 5-10 µIU/mL) n (%)	Moderate Hypothyroidism (TSH: 10-50 µIU/mL) n (%)	Severe Hypothyroidism (TSH: >50 µIU/mL) n (%)
Secondary amenorrhea	3 (3.3)	0 (0)	3 (15)
Hypomenorrhea	7 (7.7)	2 (4.1)	3 (15)
Hypermenorrhea	15 (16.5)	16 (32.7)	7 (35) (*)
Oligomenorrhea	25 (27.5)	11 (22.4)	7 (35)
Polymenorrhea	11 (12.1)	8 (16.3)	5 (25)
Menorrhagia	18 (19.8)	10 (20.4)	7 (35)
Metrorrhagia	7 (7.7)	1 (2)	2 (10)
Menometrorrhagia	4 (4.4)	1 (2)	1 (5)

When group of severe hypothyroidism compared with group of mild hypothyroidism, prevalence of hypermenorrhea was found significantly high $p < 0.05$ (*)

Table 2. Frequency of menstrual disturbances in patients with various thyroid diseases and healthy controls

	Controls (n=108)	Patients				
		Subclinical hypothyroidism (n=106)	Overt hypothyroidism (n=54)	Subclinical Hyperthyroidism (n=55)	Overt Hypertyroidism (n=50)	Euthyroid (n=220)
Age (year)	23.75±5.67	32.25±8.91 *	35.18±8.08 *	34.85±8.75 *	31.14±8.93	32.46±8.80 *
fT3 (NV*: 2.5-3.9 pg/ml)	3.14±0.32	3.05±0.39	2.57±0.58 *	3.23±0.42	5.88±2.30 *	3.06±0.32
fT4 (NV: 0.54-1.24 ng/dl)	0.81±0.11	0.72±0.14 *	0.44±0.12 *	0.87±0.15	1.83±0.76 *	0.82±0.23
TSH (NV: 0.34-5.6 µU/ml)	1.73±0.91	8.19±2.86 *	44.16±34.79 *	0.18±0.10 *	0.04±0.07 *	2.33±2.01 *
Types of menstrual disturbances						
Secondary amenorrhea n (%)	2 (1.9)	3 (2.8)	3 (5.6)	3 (5.5)	0 (0)	12 (5.5)
Hypomenorrhea n (%)	9 (8.3)	8 (7.5)	4 (7.4)	4 (7.3)	5 (10)	14 (6.4)
Hypermenorrhea n (%)	6 (5.6)	20 (18.9)	18 (33.3) *	11 (20)	8 (16)	34 (15.5)
Oligomenorrhea n (%)	13 (12)	29 (27.4)	14 (25.9)	10 (18.2)	10 (20)	49 (22.3)
Polymenorrhea n (%)	13 (12)	13 (12.3)	11 (20.14)	11 (20)	7 (14)	23 (10.5)
Menorrhagia n (%)	10 (9.3)	21 (19.8)	14 (25.9)	12 (21.8)	6 (12)	46 (20.9)
Metrorrhagia n (%)	2 (1.9)	7 (6.6)	3 (5.6)	3 (5.5)	2 (4)	10 (4.5)
Meno metrorrhagia n (%)	0 (0)	4 (3.8)	2 (3.7)	1 (1.8)	0 (0)	4 (1.8)

*NV: Normal Value

(*)When compared with controls it was found meaningful difference, $p < 0.05$

Results

Frequency of menstrual disturbances in patients with various thyroid diseases and healthy controls are shown in Table 2. Among patients with overt hypothyroidism, the most frequent menstrual disorders were hypermenorrhea, menorrhagia, oligomenorrhea, and polymenorrhea. Hypermenorrhoea was significantly more common (33.3%) than in controls (5.6%) ($p < 0.05$). Among hypothyroid patients, hypermenorrhoea was more common (35%) in those with severe hypothyroidism (TSH > 50 µIU/mL) than in those (16.5%) with mild hypothyroidism (TSH 5-10 µIU/ml) ($p < 0.05$) (Table 3). The prevalence of menstrual disturbances in the other groups of thyroid dysfunction patients was not significantly different than that of controls.

Conclusions

Thyroid function influences the menstrual cycle and affects reproductive activity, fertility, and pregnancy outcomes. For these reasons, investigation of thyroid function in women with abnormal menstrual activity should be performed.

References

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