

Menstrual cycle disorders in young women with type 1 diabetes mellitus

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Introduction and objectives

Epidemiologic observations suggest that women with type 1 diabetes mellitus (T1DM) often suffer from menstrual cycle disorders. There may also be a negative association between the age of onset of T1DM and the age of menarche. Delayed menarche, in turn, may be associated with increased risk for diabetic complications.

Our aim was to investigate abnormal manifestations of reproductive function in young women with T1DM and their possible association with stress, glycemic, metabolic, autoimmune or family history parameters.

Methods

❖ We studied 53 women with T1DM 19.4±4.3 years old with T1DM duration of 8.0±5.6 years.

❖ Anthropometric measurements, age and clinical presentation at diagnosis, insulin regimen, glycemic control and hypoglycemic episodes, diabetic complications and other autoimmune diseases were recorded.

❖ Information regarding reproductive function included age of menarche, duration of menstrual cycle and manifestations of hyperandrogenism, hirsutism or acne.

Results and Conclusions:

Table 1. General Characteristics

	Women with T1DM (n=53)
Age (years)	19.4±4.3
T1DM duration (years)	8.0±5.6
Age at diagnosis (years)	11.5±4.7
Ketoacidosis at diagnosis	17% (9/53)
Multiple daily insulin injections	83% (44/53)
Insulin pump therapy	17% (9/53)
Total insulin requirements	0.7±0.22 u/kg
Last HbA1c	8.4±1.8%

Table 2. Parameters that might affect reproductive function

	Women with T1DM (n=53)
Hypoglycemic episodes per month	7.3±7.9
BMI (kg/m ²)	22.2±2.7
Diabetic retinopathy	1.9% (1/53)
Albuminuria	5.7% (3/53)
Autoimmune thyroiditis	22.6% (12/53)
Autoimmune disease	26.4% (14/53)
Maternal age at birth (years)	29.3±5.5
Reported birth weight (gr)	3.214±629

Table 3. Characteristics of reproductive function

	Women with T1DM (n=53)
Primary amenorrhea	3.8% (2/53, 15.5 and 16.6 y)
Mean age of menarche (years)	12.7±1.3
Time from menarche (years)	7.3±4.7
Oligomenorrhea	23.5% (12/51)
Hirsutism	32.1% (17/53)
Acne	45.3% (24/53)
Family history for menstrual disturbances	13.2% (7/53)

❖ Young women with T1DM present increased frequency of menstrual disturbances and signs of hyperandrogenism compared with those reported in non-diabetic Greek females.

❖ The exact effects of glycemic regulation, exogenous hyperinsulinemia, diabetic complications or autoimmunity should be further clarified.

❖ The findings may be also the result of hypercortisolism and hyperandrogenism due to chronic hyperactivation of the hypothalamic-pituitary-adrenal axis.

References:

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