

**Value of thyroid antibodies in the screening of 1ry
hypothyroidism in type 1 diabetic patients**

Thesis

Submitted for partial fulfillment of Master Degree
in Pediatric Medicine

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The aim of this study to detect the frequency of thyroid autoimmunity and thyroid dysfunction in a cohort of type 1 diabetics randomly selected from the Diabetic Endocrine and Metabolic Pediatric Unit (DEMPU), Children's Hospital, Cairo University and to study possible epidemiologic risk factors, including age, sex, and duration of diabetes and to highlight the value of thyroid autoantibodies in screening of thyroid dysfunction in type 1 diabetic patients.

One hundred Type 1 diabetic children, with different ages and variable diabetes duration, and one hundred age and sex-matched normal children and adolescents were screened for thyroid autoimmunity (by detection of thyroid antibodies) and thyroid dysfunction

The diabetics included 52 females and 48 males with a female to male ratio 1.1:1 , a mean age of 9.1 ± 3.9 years (range 1-18 years), and mean duration of diabetes of 3.1 ± 2.8 years. Their mean height SDS was -0.1 ± 1.2 (range -5.2 to 2). Fifteen had goiter on examination.

Laboratory screening for thyroid antibodies (anti-TG-Ab and anti-TPO-Ab in all revealed thyroid autoimmunity in 21 patients of the diabetic group (21%) (TPOAb and/or TGAb) and 10 of the control group (10%).

The majority of patients (91/100, 91%) were euthyroid, while nine of the diabetics (9%) had laboratory evidence of hypothyroidism in the form of elevated TSH while one only of the controls had elevated TSH
However, only two of the diabetics with elevated TSH had low T4

The 21 diabetics with evidence of thyroid autoimmunity included 13 females and 9 males with a female to male ratio 1.4:1, age range 1.5 to 18 years, their diabetes duration ranged from .04 to 11 years and their HSDS ranged from -5.2 to 1.4 . Goiter was present in 10/21 of the patients (47%) but none had symptoms suggestive of clinical hypothyroidism. However, thyroid functions were more affected in children with a goiter.

The present study revealed higher prevalence of thyroid autoimmunity in diabetics compared to non-diabetic children.

12 out of the 21 with positive thyroid autoantibodies (57%) were above 10 years.

There was significant difference between diabetics with and without thyroid autoimmunity regarding HSDS and mean level of FT4

However there was no significant difference between the 2 groups regarding age, sex, duration of diabetes, FT3..

CONCLUSION AND RECOMMENDATIONS:

- * There is a higher prevalence of thyroid autoimmunity in diabetics compared to non diabetic children. Therefore, screening of type 1 diabetics is recommended using Anti-TG and Anti-TPO in spite of cost.
- * Autoimmunity may occur at any time and shows no clear relation to diabetes duration or age of the child, although more common in those over 10 years of age.
- * Since autoimmunity can occur at any time it is hard to establish the best time to start and may be related more to the cost.
- * The autoimmune process in children with combined diabetes and thyroid disease appears to be more aggressive than in children with autoimmune thyroid disease but no diabetes.
- * The presence of goiter in children with type 1 diabetes is highly suggestive of autoimmune thyroid disease. Such children should be investigated immediately.
- * Screening should be done even in absence of goiter or any clinical evidence of hypothyroidism for early detection.
- * Screening by TSH at diagnosis and yearly remains the simplest and less costly method. In children in whom TSH is affected, thyroid antibodies can be tested for.
- * Children with subclinical hypothyroidism, in the form of elevated TSH, show growth impairment and should be considered for treatment with replacement thyroid hormone to improve growth.
- * Hyperthyroidism is not common in DM children.

- * Celiac disease and hypothyroidism should be suspected in DM children with severe growth failure
- * Follow up of diabetics with positive thyroid autoimmunity is needed.