

Celiac Disease screening should be routinely offered in the pediatric population with Autoimmune Thyroid Disorders

Maria Resta, Panagiota Triantafyllou, Charalampos Agakidis, Olga Maliahova, Athanasios Christoforidis

1st Pediatric Department, Aristotle University of Thessaloniki, Greece

Identifier / Topic ; Thyroid

Introduction

Autoimmune thyroid disorders (AITD), comprising Hashimoto's Thyroiditis (HT) and Grave's Disease (GD) are known to cluster with other autoimmune disorders (AID) [1]. The epidemiological indications of a higher prevalence of AID in patients with AITD, compared to that in the healthy pediatric population, is consistent with the common pathophysiological basis of immunomodulating genes [2] and environmental risk factors [3] involved in the pathogenesis of more than one AID. Celiac Disease (CeD) has a worldwide and increasing incidence with a prevalence of nearly 1% among Western nations [4]. Furthermore, this condition is asymptomatic or presents with non-specific clinical features in a large proportion of patients, frequently eluding physicians [5]. The hazard of long-term CeD complications which deteriorate the quality of life and increase mortality is lower when diagnosis is made at a younger age, due to longer adherence to a gluten – free diet [6].

Objective

Taking into account the aforementioned, we conducted this study to determine the prevalence of CeD among asymptomatic pediatric patients with AITD and no other comorbidities, so as to justify CeD screening in this population.

Methods

Children and adolescents with AITD and no other comorbidities that were followed at our Pediatric Endocrinology Outpatient Clinic were serologically tested for Immunoglobulin A (IgA) tissue transglutaminase antibodies (IgA anti-tTg), as well as for their total IgA serum levels in order for IgA deficiency to be excluded. Intestinal biopsy for a definite diagnosis of CeD was offered to those with a confirmed positive IgA anti-tTg titer in two blood samples.

Results

Eighty-eight children and adolescents (62 females and 26 males), eighty of which had HT and eight of which had GD, with a mean age of 11.8 ± 3.14 years, were included in the analysis.

Three of them (3.41%), all of which were females diagnosed with HT, were found positive for IgA anti-tTg in two blood samples and had the diagnosis of CeD confirmed with an intestinal biopsy. The proportions of CeD diagnosis in HT patients and female HT patients alone are 3.75% and 5.36% retrospectively. Those percentages are significantly higher compared to that of the CeD prevalence in the general pediatric population.

Finally, another two female patients with HT were found to have transient seropositivity for IgA anti-tTg, with borderline positive results in the first test and negative results in the repeating one. It is established that some children carrying a genetic risk for developing CeD might present with fluctuating IgA anti-tTg levels [7] and, thus, should be further investigated with a new serological test.

There were no statistically significant differences regarding the age during the study, the age at diagnosis of the AITD, the time since diagnosis, the anti-thyroid antibodies titers or the anthropometric parameters between the patients diagnosed with CeD and the rest of the studied population (Table 1).

Conclusions

The relatively high prevalence of CeD in patients with AITD in this study justifies screening for CeD in this specific pediatric population and, especially, in females with HT. Our findings support the theoretical association between those autoimmune disorders, as well as the results of other similar studies.

Table 1.

	AITD and CeD	AITD without CeD	p
Number of patients (%)	3 (3.41)	85 (96.59)	
Age during the study	13.45 ± 5.23	11.74 ± 3.07	0.63
Age at AITD diagnosis	11.37 ± 3.85	9.13 ± 2.89	0.42
Weight Z-score	$0.79 + 0.67$	0.66 ± 0.99	0.77
Height Z-score	0.52 ± 0.75	0.49 ± 1.11	0.95
BMI Z-score	0.73 ± 0.51	0.57 ± 0.95	0.65

References

1. Boelaert K, Newby PR, Simmonds MJ, Holder RL, Carr-Smith JD, Heward JM, Manji N, Allahabadi A, Armitage M, Chatterjee KV, Lazarus JH, Pearce SH, Vaidya B, Gough SC, Franklyn JA, Prevalence and relative risk of other autoimmune diseases in subjects with autoimmune thyroid disease, *Am J Med.* **2010**; 123: 183.e1-9
2. Wilmar M. Wiersinga, Thyroid Autoimmunity, Szinnai G (ed): Paediatric Thyroidology. *Endocr Dev.* Basel, Karger, **2014**, vol 26, pp 139–157
3. Antonelli A, Ferrari SM, Corrado A, Di Domenicantonio A, Fallahi P, Autoimmune thyroid disorders, *Autoimmun Rev.* **2015**; 14: 174-180
4. Peter H. R. Green, MD, Benjamin Lebwohl, MD, MS, and Ruby Greywoode, MD, Celiac Disease, *Journal of Allergy and Clinical Immunology.* **2015**; 135: 1099-1106
5. Kivelä L, Kurppa K, Screening for coeliac disease in children, *Acta Paediatr.* **2018**; doi: 10.1111/apa.14468.
6. Katharine C. DeGeorge, MD, Jeanetta W. Frye, MD, Kim M. Stein, MD, Lisa K. Rollins, PhD, Daniel F. McCarter, MD, Celiac Disease and Gluten sensitivity, *Prim Care Clin Office Pract* **2017**; 44: 693–707
7. Liu E, Bao F, Barriga K, Miao D, Yu L, Erlich HA, Haas JE, Eisenbarth GS, Rewers MJ, Hoffenberg EJ, Fluctuating transglutaminase autoantibodies are related to histologic features of celiac disease, *Clin Gastroenterol Hepatol.* **2003**; 1: 356-362



57th ESPE 2018
Meeting ATHENS GREECE
27-29 September 2018

