Clinical Differences in Pediatric Type 1 Diabetes by Islet Autoantibody Type at Diagnosis

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Introduction

The type of islet autoantibody that appears first in children at risk for type 1 diabetes (T1D) marks differential risk and rate of progression to T1D[1,2]. However, the clinical associations of autoantibody type at T1D diagnosis have not been well studied.

Aim

We aimed to compare clinical characteristics by autoantibody type at the time of T1D diagnosis in children.

Methods

We studied 712 children with newly diagnosed autoimmune T1D.

We compared the following characteristics by presence/absence of autoantibodies against insulin (IAA), GAD65 (GADA) or IA-2/ICA512 (IA-2A): Demographic (sex, age, race/ethnicity), clinical (pubertal development stage, BMI percentile, diabetic ketoacidosis [DKA]), laboratory (glucose, hemoglobin A1c [HbA1c], C-peptide, tissue transglutaminase autoantibodies [tTGA], thyroid autoimmunity).

Multivariable analysis was used to adjust for potential confounders.

Results

IAA+ was statistically associated with younger age ($p<0.0001$) and lower HbA1c ($p=0.049$) while Tanner stage, GADA status and number of positive autoantibodies were not significant in the multivariable model.

GADA+ was associated with female sex (OR=3.99, $p=0.002$) and negatively with elevated tTGA titers (>50 U/ml) (OR=0.20, $p=0.023$) but not with age, IAA status, IA-2A status or number of autoantibodies, while there was a trend with thyroid autoimmunity (OR=2.73, $p=0.085$).

None of the associations with IA-2A positivity was statistically significant in the multivariable analysis.

Conclusions

Autoantibody type is associated with differential characteristics at diagnosis of pediatric T1D. Longitudinal and mechanistic studies are needed to further evaluate these associations.

Bibliography

(1) Gorus et al. Twenty-Year Progression Rate to Clinical Onset According to Autoantibody Profile, Age, and.Diabetes Care 2017; 2017;40:1065-1072

(2) Ziegler et al. Seroconversion to multiple islet autoantibodies and risk of progression to diabetes in children. JAMA 2013;309:2473-247

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