Editorial

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Antigen-Reactive T Cells and Autoantibodies

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Description

Type 1 diabetes mellitus is considered as a T cell-mediated immune system illness. Not with standing, the assurance of immune system status in type 1 diabetes mellitus depends on autoantibodies clinically, which can be missing on account of idiopathic sort 1 diabetes. In the current examination, islet antigen-reactive T-cell measure in mix with Abs recognition could work on the analytic affectability of immune system diabetes.

Type 1 diabetes mellitus, in the strict sense, should be diagnosed as autoimmune diabetes rather than idiopathic type 1 diabetes mellitus, and might obtain additional benefits from immune therapy; for example, islet function preservation. Unfortunately, the lack of follow up precluded us from identifying the effect of T-cell reactivity on the progressive β-cell dysfunction in type 1 diabetes mellitus patients. In addition, other limitations to the present study include the relatively small sample size. Therefore, further prospective studies with larger sample size are required for confirmation in the future.

Epitope information without human leukocyte antigen restriction, significantly expanding the testing population. Furthermore, the combinatorial detection of two islet antigens-specific T cells might further increase the sensitivity. In the present study, we detected interferon (IFN)-γ-secreting T-cell responses to antigen GAD65 and CP by enzyme-linked immunospot (ELISPOT) assay, and investigated the diagnostic value of combined assay of islet antigen-reactive T cells and Abs for immunophenotyping in type 1 diabetes mellitus.

Positive control tetanus toxoid (Sanofi, Marcy-l'Étoile, France; 1 μg/mL) were added in duplicate wells. Peripheral blood mononuclear cells were resuspended with an AIM-V medium (Invitrogen, Carlsbad, CA, USA) containing recombinant human interleukin-2 (R&D, Minneapolis, MN, USA; 2.5 U/mL), seeded at cells/well and cultured at 370C for 40–48 h. IFN-γ secretion was visualized with biotinylated anti-IFN-γ detection Ab (U-CyTech), ExtrAvidin-Alkaline Phosphatase (Sigma) and color developer NBT-BCIP tablets (Roche, Mannheim, Germany). Spots were automatically counted by an ELISPOT plate reader (CTL, Cleveland, OH, USA). A stimulation index (SI) was calculated as the ratio of mean value of spots in experimental wells divided by the mean value of spots in negative control wells.

Continuous data are expressed as the mean ± standard deviation, median (25th percentile to 75th percentile) or as indicated. Categorical variables are presented as the number or percentage. Comparison between groups was carried out with an independent Student's t-test if their normality were not rejected, or the Mann-Whitney U-test was used otherwise. The χ2-test was carried out to compare categorical data. Spearman rank correlation analysis was carried out to explore the relationship between Abs and T-cell assays. A two-sided P-value <0.05 was considered statistically significant.

A total of 15 patients with autoimmune type 1 diabetes mellitus and eight patients with idiopathic type 1 diabetes mellitus were genotyped, and the correlation between HLA-DR-DQ haplotypes and the positivity of ELISPOT. Interestingly, positive T-cell responses were observed in three of the four idiopathic type 1 diabetes mellitus patients and in one autoimmune type 1 diabetes mellitus patients with protective haplotypes.