HLA-typing, clinical, and immunological characterization of youth with type 2 diabetes mellitus phenotype from the German/Austrian DPV database.

Abstract:
To characterize the clinical and immunological features of HLA-typed youth with pediatric onset of type 2 diabetes mellitus (T2DM). One hundred and seven patients with clinically diagnosed T2DM (aged <=20 yr at diagnosis) were examined. DNA and serum, obtained after a median diabetes duration of 2.2 (Q1-Q3: 0.8-4.6) yr, were used for centralized HLA-typing and autoantibody (GADA, IA-2A, ZnT8A) measurements. 64.6% of patients were female and median age at diagnosis was 13.8 (Q1-Q3: 11.6-15.4) yr. Patients were obese [median body mass index-standard deviation score (BMI-SDS): 2.6 (2.0-3.1)], 88.0% had a family history of diabetes and 40.2% a migration background. Islet autoantibodies were detected in 16 (15.0%), among which 7 (6.5%) had multiple islet autoantibodies. Autoantibody positive patients had poorer metabolic control than autoantibody negative patients [glycosylated hemoglobin A1c (HbA1c): 8.1 (6.9-10.1) % vs. 6.6 (5.9-8.0) %; p = 0.033], while patients with HLA-DR genetic risk had higher BMI-SDS than those with HLA-DRXX [2.6 (2.4-3.7) vs. 2.4 (1.7-2.9); p =
0.007]. Metabolic syndrome (61.7%), microalbuminuria (13.4%), and retinopathy (3.9%) were
diagnosed. Therapies used were lifestyle only (35.5%), oral anti-diabetics (OAD) only (43.3 %), insulin
+ OAD (15.9%) and insulin only (5.6%). Patients with ?-cell autoimmunity or HLA-DR genetic risk
more frequently used insulin than confirmed T2DM patients (50.0 vs. 22.0%; p = 0.037) and less often
had diabetic relatives (61.1 vs. 86.0%; p = 0.030). T2DM was confirmed in about 90% of patients while
about 10% with ?-cell autoimmunity or HLA-DR genetic risk likely had either T1.5DM or 'double
diabetes' or an unknown diabetes type.