

Phenotype of Type 1 diabetes in Emirati adults with young-onset diabetes

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Aim:

To study the phenotype of Type 1 diabetes in young-adults from the United Arab Emirates and establish whether it is distinct from young-onset Type 2 diabetes.

Methods:

Adults with diabetes (<30 years) and controls without diabetes were recruited. Type 1 diabetes was defined as continuous insulin treatment for >3 years from diagnosis; Type 2 diabetes, not insulin-treated from diagnosis for >3 years. Characteristics, autoantibodies and urine c-peptide creatinine ratio (UCPCR) were compared.

Results:

Clinician-labelled diabetes were 'Type 1' in 233 and 'Type 2' in 218, with 25% (58/233) and 42% (91/218) meeting the strict criteria for Type 1 and Type 2 diabetes, respectively. Type 1 diabetes adults were diagnosed younger (17.8 vs 22.9 years, $p<0.001$) and had lower BMI (22.5 vs 29.7kg/m², $p<0.001$) than those with Type 2 and 105 controls (26.2kg/m²). Antibody positivity was significantly higher in Type 1 (62.1% vs 4.4%, $p<0.001$). UCPCR levels were lower in Type 1 diabetes than Type 2 and controls, (0.03, 1.34, 1.58nmol/mmol respectively, $p<0.001$) and HbA1c, significantly higher in Type 1 than Type 2 and controls (10.4% vs 8.8% vs 5.1%, $p<0.001$). HDL levels were highest in Type 1 diabetes (1.42mmol/L) and controls (1.48mmol/L) than Type 2 (1.08mmol/L), $p<0.001$.

When using biomarker criteria to define Type 1 diabetes (C-peptide <0.2 nmol/L or auto-antibodies positive) and Type 2 diabetes (C-peptide >0.6 nmol/L and auto-antibodies negative), a similar phenotype was observed to that of patients when strict criteria are applied.

Conclusion:

Type 1 diabetes in Emirati adults has a typical phenotype with leaner BMI than controls and Type 2 diabetes, limited evidence of insulin resistance, however higher HbA1c than those with Type 2 diabetes. Further work will elucidate whether this phenotype holds true at diagnosis or if a consequence of suboptimal control.