Abstract title

Predictors of c-peptide in Type 1 diabetes within the first 60 days of diagnosis: Routine laboratory data from the After Diabetes Diagnosis Research Support System (ADDRESS-2) cohort

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Aim:

To describe the factors predicting c-peptide within 60 days of diagnosis, in a multi-ethnic, incident Type 1 diabetes cohort.

Methods:

ADDRES S-2 recruits patients with clinician-assigned Type 1 diabetes within 6 months of diagnosis. Clinical, demographic and routine laboratory data are collected.

Islet autoantibodies: GADA, IA-2A and ZnT8A are measured in those opting to give a blood sample (52%). We analysed data collected between 01 September 2011 and 30 June 2017.

Results:

Of the 4, 606 participants recruited 341 (7.4%) had a random c-peptide measured in clinic within the first 60 days of diagnosis (80% within the first week of diagnosis). The median c-peptide was 0.23 nmol/L (IQR 0.14–0.38 nmol/L). C-peptide was more likely to be lower if participants: were children (0.19 vs 0.26 nmol/L, p=0.01); presented with diabetic ketoacidosis (0.19 vs 0.25 nmol/L, p<0.001); and autoantibody positive (0.23 vs 0.32 nmol/L, p=0.004). There were no significant differences in c-peptide with gender, ethnicity (white vs non-white), BMI, or time from diagnosis to date of c-peptide measurement. On multiple linear regression of all significant variables (n=179), autoantibody positivity (coeff. -0.014, p=0.005) and presenting with diabetic ketoacidosis (coeff. -0.13, p=0.002) were strong independent predictors of lower c-peptide. When excluding antibody status from the regression model (n=333), presenting with DKA (coeff. -0.16, p=0.02) remained the only significant independent predictor of lower c-peptide.

Conclusion:

Patients with Type 1 diabetes have lower c-peptide close to diagnosis if they present with diabetic ketoacidosis and they are autoantibody positive, irrespective of age.