Comorbidity of attention deficit hyperactivity disorder and type 1 diabetes in children and adolescents: Analysis based on the multicentre DPV registry

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Abstract

Background
The interaction between type 1 diabetes mellitus (T1DM) and attention deficit hyperactivity disorder (ADHD) in children and adolescents has been studied rarely. We aimed to analyse metabolic control in children and adolescents with both T1DM and ADHD compared to T1DM patients without ADHD.

Patients and methods
Auxological and treatment data from 56,722 paediatric patients (<20 years) with T1DM in the multicentre DPV (Diabetes Prospective Follow-up Initiative) registry were analysed. T1DM patients with comorbid ADHD were compared to T1DM patients without ADHD using multivariable mixed regression models adjusting for demographic confounders.

Results
We identified 1,608 (2.83%) patients with ADHD, 80.8% were male. Patients with comorbid ADHD suffered twice as often from diabetic ketoacidosis compared to patients without ADHD [10.2; 9.7–10.8 vs [5.4; 5.3–5.4] (P < .0001). We also found significant differences in HbA1c [8.6% (7.3–9.4); 66.7 mmol/mol (56.3–79.4) vs 7.8% (7.0–9.0); 62.1 mmol/mol (53.2–74.7)], insulin dose/kg [0.9 IU/kg (0.7–1.1) vs 0.8 IU/kg (0.7–1.0)], body mass index-standard deviation score (BMI-SDS) [0.2 (−0.5 to 0.8) vs 0.3 (−0.3 to 0.9)], body weight-SDS [0.1 (−0.5 to 0.8) vs 0.3 (0.3 − 0.9)]; (all P < 0.0001), and systolic blood pressure after adjustment [mean: 116.3 vs 117.1 mm Hg]; (P < 0.005).

Conclusion
Paediatric patients with ADHD and T1DM showed poor metabolic control compared to T1DM patients without ADHD. Closer cooperation between specialized paediatric diabetes teams and paediatric psychiatry/psychology seems to be necessary to improve diabetes care and metabolic control in this group of patients.