Associations of Youth and Parent Weight Status with Reported versus Predicted Daily Energy Intake and Hemoglobin A1c in Youth with Type 1 Diabetes Mellitus

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Abstract

Background:
The epidemic of overweight/obesity affects youth with type 1 diabetes mellitus (T1DM) and their families. In youth with T1DM and their parents, we examined weight status with reported and expected energy intake and with youth hemoglobin A1c (HbA1c).

Methods:
In 243 youth (48% female, 13 ± 3 years) and their parents (84% female, 45 ± 6 years), we assessed body mass index (BMI), prevalence of overweight/obesity, reported energy intake (REI), and youth glycemic control (HbA1c). The REI was compared with predicted daily energy requirements (DER; based on age, weight, sex, and physical activity).

Results:
Youth had diabetes duration of 6.3 ± 3.4 years and HbA1c of 8.5% ± 1.3%; 69% used insulin pump therapy. Overweight and obesity affected 23% and 11% of youth and 30% and 24% of parents, respectively. Youth and parent BMI (r = 0.38; p < .001) and weight status (overweight/obese; p < .001) were significantly associated. The ratio of REI:DER was significantly lower in overweight/obese compared with underweight/normal weight parents (1.0 ± 0.4 versus 1.2 ± 0.5; p = .001) but did not differ among youth by weight status. Both youth and parent BMI were positively correlated with youth HbA1c (r = 0.14, p = .02; r = 0.16, p = .01, respectively). Hemoglobin A1c tended to be higher in obese than in overweight and normal weight youth (mean ± standard deviation [SD] 8.4 ± 1.4, 8.4 ± 1.3, and 8.8 ± 1.0, respectively; p = .06) and was significantly higher in youth whose parents were obese versus overweight or underweight/normal weight (mean ± SD 8.2 ± 1.2, 8.5 ± 1.4, and 8.9 ± 1.5, respectively; p < .001).

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Abstract cont.

Conclusions:
Similar to the general population, overweight and obesity are prevalent among families of youth with T1DM. Weight status appears to influence self-REI in parents and glycemic control in youth with T1DM, suggesting the need for family-based dietary interventions.