Correlation between A1c and Continuous Glucose Monitor Time in Range in a Cohort of Pediatric Patients with Type 1 Diabetes

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ABSTRACT

Hemoglobin A1c (A1c) is the standard of care for evaluating glycemic control in patients with type 1 diabetes. As diabetes technology improves and becomes more accessible, patients and providers are also using other metrics such as time in range, provided by continuous glucose monitoring (CGM) systems. Time in range correlates with A1c in adult patients, but there are few published data in pediatric patients. We evaluated the association between A1c and time in range, as well as the influence of age, duration since diagnosis, and DKA at diagnosis in a large pediatric cohort.

We evaluated patients who were seen at the Barbara Davis Center for Diabetes between January 2018 and December 2020, who were <22 years old, and who used CGM at least 70% of the time (n=1952).

There was a linear correlation between A1c and time in range, and the correlation coefficient was comparable to previous studies in adult patients. CGM TIR decreased by 10.6 percentage points for each 1 percentage point increase in A1c. There was no statistically significant difference when correcting for age, duration of diabetes, or DKA at diagnosis. Time in range reliably correlates with A1c in pediatric patients with type 1 diabetes.