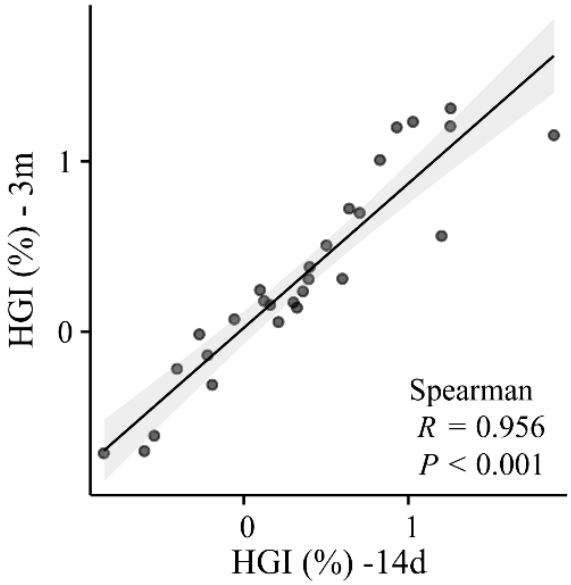

Supplementary Figure 1 Relationship between hemoglobin glycation index-14 days and hemoglobin glycation index 3 months. HGI: Hemoglobin glycation index**.**

Supplementary Table 1 Multivariable regression model for hemoglobin glycation index in type 1 diabetes participants of different disease duration

	Duration of diabetes ≤ 15.1y		**Duration of diabetes > 15.1y**	
Variables	HGI		HGI	
	R^2 = 0.301, *P* = 0.009		R^2 = 0.276, *P* = 0.018	
	Standardized β	*P* value	Standardized β	*P* value
Age (years)	0.028	0.856	-0.008	0.959
Male	-0.086	0.735	-0.022	0.917
Hemoglobin (g/L)	-0.486	0.038	-0.353	0.071
eIS (mg/kg/min)	-0.441	0.008	-0.564	0.002

Data include model performance (R^2 and *P* value), standardized coefficients β and *P* value, with age, gender and hemoglobin entered into the first layer, and possible risk factors incorporated into the second layer (forward selection stepwise; $P < 0.05$ criterion for variable retention). Variables that did not enter into the final model were not included in the table. eIS: estimated insulin sensitivity.

Supplementary Table 2 Characteristics of the study participants

Characteristics	**T1D with long-term CGM data (*n* = 28)**	**T1D without long-term CGM data (*n* = 55)**	***P* value**

Male (n, %)	8 (28.6%)	25 (45.5%)	0.137
Age (years)	32.7 (27.1, 37.2)	33.8 (26.0, 38.0)	0.923
Age at onset (years)	14.4 (11.9, 21.5)	15.8 (8.3, 23.1)	0.720
Duration of diabetes (years)	14.1 (12.8, 18.9)	15.3 (13.4, 19.4)	0.377
GAD+, IA-2A+, or ZnT8+ (n, %)	15 (53.6%)	35 (63.6%)	0.376
Preserved β-cell function (n, %)	16 (57.1%)	36 (65.5%)	0.459
Insulin pump users (n, %)	15 (53.6%)	22 (40.0%)	0.240
Daily insulin dose (u/kg/day)	0.60 (0.51, 0.67)	0.60 (0.50, 0.74)	0.756
≥ 3 IR features (n, %)	7 (25.0%)	13 (23.6%)	0.891
HbA1c (%)	6.8 (6.1, 7.3)	7.1 (6.3, 7.8)	0.081
Mean glucose (mg/dL)	7.0 (6.5, 7.8)	7.6 (6.7, 8.4)	0.296
GMI (%)	6.3 (6.1, 6.7)	6.6 (6.2, 6.9)	0.296
HGI (%)	0.34 (-0.12, 0.77)	0.35 (0.04, 1.29)	0.078

Data are expressed as number (%) or median (25^{th}-75^{th} percentiles). CGM: continuous glucose monitoring; GADA: glutamic acid decarboxylase antibody; IA-2A: insulinoma-associated protein 2 antibody; ZnT8A: zinc transporter 8 antibody; IR: insulin resistance;

HbA1c: glycated hemoglobin; GMI: glucose management indicator; HGI: hemoglobin glycation index.

Supplementary Table 3 Correlation of insulin resistance-related metabolic parameters with hemoglobin glycation index-3 months

IR-related metabolic parameters	**HGI-3 months**	
	β	***P* value**
BMI (kg/cm^2)	0.437	0.033
WC (cm)	0.216	0.311
SBP (mmHg)	0.162	0.449
DBP (mmHg)	0.267	0.207
HDL-C (mmol/L)	0.018	0.934
TG (mmol/L)	0.484	0.016
PBF (%)	0.226	0.289
VFA (cm^2)	0.338	0.106
eIS (mg/kg/min)	-0.497	0.013

Data are beta coefficients and P values from partial correlation analysis. Confounding variables adjusted: age, gender, duration of diabetes and hemoglobin.

IR: insulin resistance; HGI-3m: hemoglobin glycation index calculated from 3-month continuos glucose monitoring data; BMI: body mass index; WC: waist circumference; SBP: systolic blood pressure; DBP: diastolic blood pressure; HDL-C: high-density lipoprotein-cholesterol; TG: triglyceride; PBF: percent total body fat; VFA: visceral fat area; eIS: estimated insulin sensitivity.