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A1c Improvement After Initiating Real-Time Continuous Glucose Monitoring Among People with Type 2 Diabetes Not on Insulin Therapy

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BACKGROUND and AIMS

- A1c is a key metric in diabetes management for people with type 2 diabetes (PwT2D).[1]
- Studies in type 1 diabetes have demonstrated greater A1c improvement with real-time continuous glucose monitoring (rtCGM) use compared to intermittently-scanned continuous glucose monitoring (isCGM) use.[2, 3]
- This study evaluated the difference in glycemic benefits between rtCGM and isCGM among PwT2D not on insulin therapy (NIT).

METHODS

- A retrospective study was conducted using de-identified US administrative health claims data from Merative™ MarketScan® Research Database (09/2017 to 09/2022).
- The cohort included CGM-naïve PwT2D NIT who initiated rtCGM (Dexcom G-series) or isCGM (FreeStyle Libre, Libre 14 day, Libre 2). Index date was defined as the date of first CGM claim.
- The two cohorts were propensity score matched on demographics and healthcare resource utilization at baseline.
- A1c improvement was measured 12 months pre- (baseline) and post-index (follow-up) by: (1) average change in A1c after CGM initiation and the difference-in-difference (DiD) between cohorts, (2) proportion achieving ADA's A1c target of <7.0% at follow-up, and (3) proportion with baseline A1c ≥7.0% achieving ADA's A1c target of <7.0% after CGM initiation.[1]

RESULTS

- The mean age for the rtCGM cohort was 52.36 (SD=7.75) and 52.52 (SD=8.08) for the isCGM cohort. The average Charlson comorbidity score was 0.84 (SD=1.27) among rtCGM users and 0.80 (SD=1.27) for isCGM users.
- RtCGM users had a greater A1c reduction over time compared to isCGM users (-1.01% vs -0.68%, DiD=-0.32%, p<0.0001. Figure 1).
- More rtCGM users achieved an A1c level <7.0% during follow-up compared to isCGM users (52.45% vs. 43.68%, p<0.0001. Figure 2).
- Among those with baseline A1c ≥7.0%, more rtCGM users achieved an A1c <7.0% at follow-up compared to isCGM users (28.78% vs 21.00%, p<0.0001. Figure 3).

Figure 1. Changes in A1c Over Time

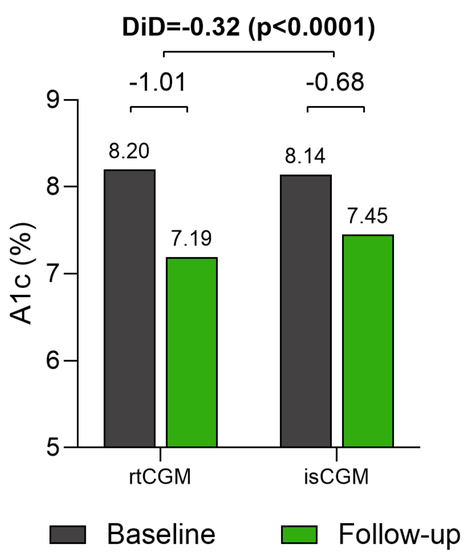


Figure 2. Proportion Achieving A1c <7.0% at Follow-up

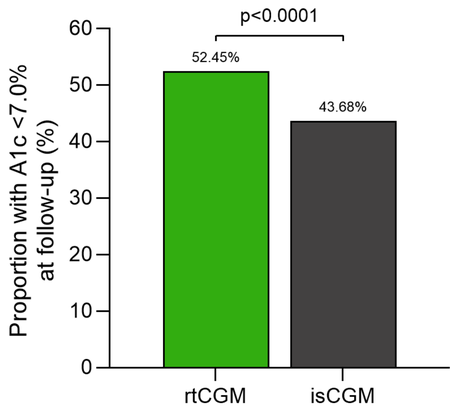
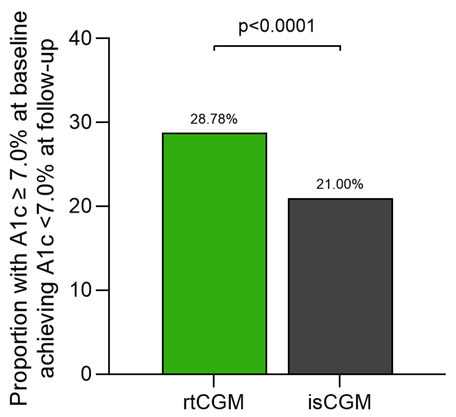


Figure 3. Proportion Improving from A1c ≥7.0% at Baseline to <7.0% at Follow-up



STRENGTHS and LIMITATIONS

Strengths

- Cohorts were propensity score matched to mitigate differences in demographic characteristics.

Limitations

- The nature of observational study design precludes causal inference.
- Generalizability may be limited outside of US.
- The extent to which CGMs were worn by participants during the follow-up period is unknown.

DISCUSSION and CONCLUSION

- The greater A1c reduction and higher proportion of PwT2D NIT achieving target A1c levels with rtCGM compared to isCGM highlight rtCGM's value in glycemic management.
- Differences in glycemic outcomes may be related to higher adherence rates among rtCGM users compared to isCGM users.[4]

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