Effect of Remote Patient Monitoring on Subsequent 3-month Hemoglobin A1c in Youths and Young Adults with Type 1 Diabetes with Suboptimal Glycemic Control

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Background/Objective

Deterioration of glycemic control between diabetes clinic visits is common in youth and young adults (YYA) with T1D. Remote Patient Monitoring (RPM) is a telehealth intervention that offers patients additional one-on-one visits with healthcare providers between standard clinic visits, focusing on optimizing diabetes self-management. We investigated whether YYA with elevated HbA1c who participate in RPM, versus those who do not, experience improved HbA1c.

Methods

All patients had ≥2 elevated HbA1c results (≥9.0%) within 12 months and were offered RPM. Of these, 20 patients enrolled and completed at least one 15–20-minute RPM visit; 26 patients either declined, did not attend their appointment or were lost to follow-up. We evaluated change in HbA1c by comparing baseline HbA1c and HbA1c obtained 3 months after RPM was offered.

	Total	Completers	Non-Completers
Total No	46	20	26
Sex			
Female	17 (37%)	7 (35%)	10 (38.5%)
Male	29 (63%)	13 (65%)	16 (61.5%)
Race			
White	28 (60.9%)	12 (60%)	16 (61.5%)
Black	8 (17.4%)	4 (20%)	4 (15.4%)
American Indian or Alaska Native	1 (2.2%)	1 (5%)	0 (0%)
Multiracial	5 (10.9%)	2 (10%)	3 (11.5%)
Asian	1 (2.2%)	0 (0%)	1 (3.8%)
Hispanic	2 (4.3%)	0 (0%)	2 (7.7%)
Declined	1 (2.2%)	1(5%)	0 (0%)
Age at T1D Onset	8.3±3.8	8.0±4.4	8.5±3.4
Duration of T1D at baseline (years)	3.8 (2.3-9.5)	3.4 (2.2-9.3)	4.2 (2.4-9.5)
CGM Present at Baseline	38 (82.6%)	17 (85%)	21 (80.1%)
Pump Present at Baseline	27 (58.7%)	13 (65%)	14 (53.8%)
Baseline HbA1c	10 (9.1-12.2)	10.2 (9.2 - 12.6)	9.8 (9.1-11.7)

Results

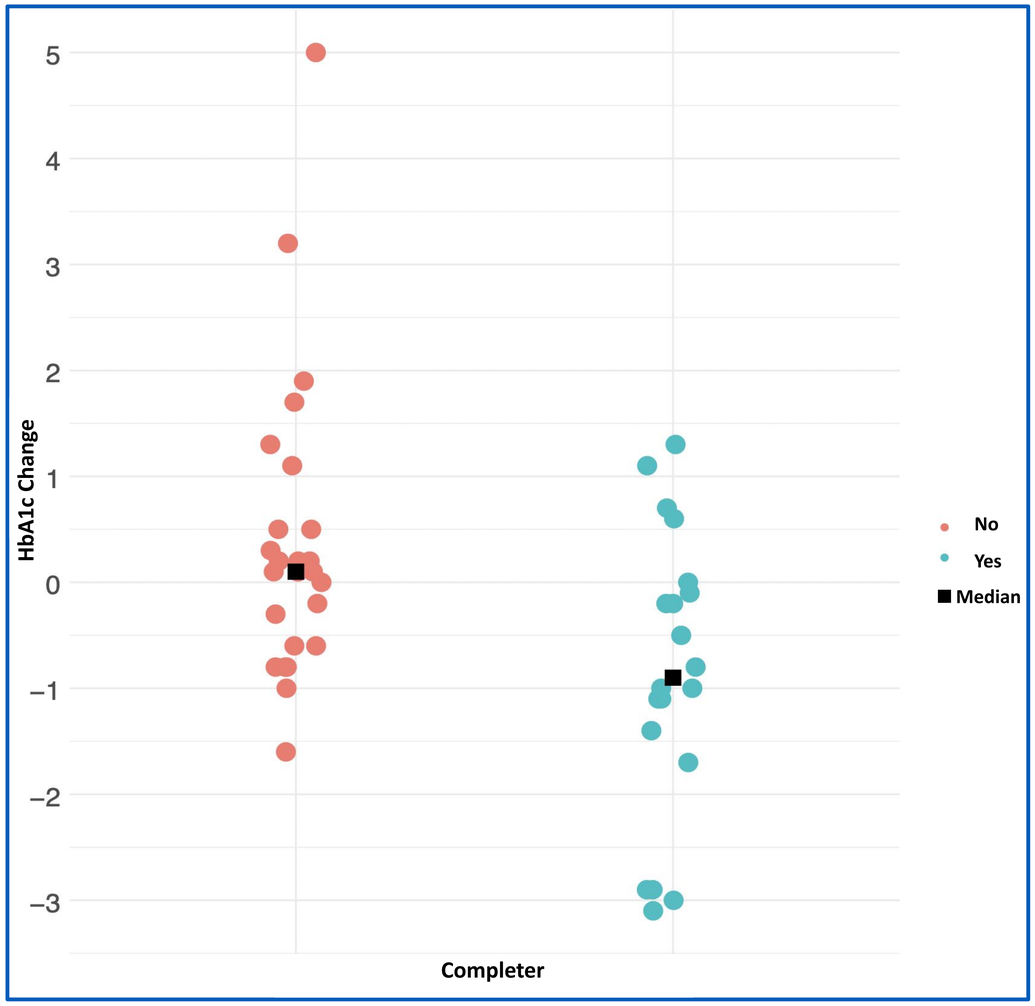
HbA1c improved in 75.0% (15/20) of completers and 34.6% (9/26) of non-completers. In completers, median change in HbA1c was -0.9%; in non-completers, median change was +0.1%. In completers whose HbA1c improved, median change was -1.1%.

Data Management

- Patients are screened based off their most recent clinic visit; of those qualifying, approximately 5 are offered RPM each week.

HbA1c results included in analysis

- If patients had a subsequent HbA1c result recorded prior to RPM outreach than their qualifying HbA1c, this was considered their baseline.
- If patients did not have a HbA1c result recorded within 3 months (± 2 weeks), their baseline HbA1c and a subsequent HbA1c result were used to interpolate an approximate 90-day result.



Conclusions and Future Work

Completers experienced a substantial decrease in median HbA1c. By facilitating proactive diabetes management, RPM for YYA with elevated HbA1c (≥9.0%) may lead to significant improvements in glycemic control. Future research with larger matched patient cohorts is warranted, to enable rigorous evaluation of intervention efficacy and ideal dose.

Acknowledgements

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