REMOTE PATIENT MONITORING FOR ADULTS WITH TYPE 2 DIABETES

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BACKGROUND/PURPOSE: Mobile health (mHealth) technologies have the potential to improve health outcomes and increase access to care for at-risk patient populations. Although evidence from a range of "virtual clinic" models for remote patient monitoring (RPM) has emerged, such programs typically provide their own coaching services, and it is not well understood whether an RPM program can be effectively implemented and scaled by traditional clinics and lead to glycemic improvements. This randomized controlled trial compared RPM to usual care at individual endocrinology clinics.

METHODS: We conducted a parallel, 2-arm, randomized controlled trial involving persons with type 2 diabetes (PWT2D) comparing an mHealth-enabled RPM program (RPM arm) to usual care without RPM (control arm). Participants in the RPM program were provided with a mobile app that enabled their diabetes device data to be accessible by the study care team. The care team monitored RPM arm participants' self-monitoring of blood glucose (SMBG) data via the connected platform on a weekly basis and made telephonic contacts, if appropriate, if certain behavioral and glycemic criteria were met. The control arm participants were not monitored remotely. The study duration was 24 weeks. To assess the between-arm difference in A1C improvement from baseline to 24 weeks, the researchers tested a linear regression model with A1C change as the outcome and study arm as the predictor. To assess the within-arm improvement in A1C at 24 weeks, the researchers performed a paired t test against baseline A1C for each study arm. For participants who were missing outcomes data at 24 weeks, a last observation (ie, at 12 weeks) carried forward imputation was performed.

RESULTS: Data from 139 participants were included in this interim analysis. Median age for the cohort was 60 years (IQR: 52-67), with 55% being female, 82% White, 71% currently taking insulin, living with diabetes for median of 14 years (IQR: 9-22), and median baseline A1C of 8.3% (IQR: 7.8-8.9). Participants in the RPM arm demonstrated mean A1C reduction of −.82%, while control arm participants had mean A1C reduction of −.42% at 24 weeks (both Ps < .005). Between-arm difference in A1C reduction favoring the RPM arm was observed at 24 weeks (P =.046). For study participants with baseline A1C ≥8.5%, the A1C improvement difference was even more pronounced (RPM = −1.46%, control = −.72%; P = .043).

CONCLUSIONS: In the current study, we found that mobile-enabled RPM with weekly monitoring and episodic telephonic coaching led to significantly improved A1C after 24 weeks (~6 months). For at-risk participants who had relatively higher A1C at baseline, the benefits of RPM were even more pronounced, consistent with previous literature. These findings demonstrate the efficacy of a mobile app-enabled RPM program in a population of predominantly midlife and elderly adults with type 2 diabetes. In addition, the trial itself exemplified a care delivery model that leverages a connected data platform to enable clinics to implement RPM into practice.

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