Sustainable Improvement in Quality of Blood Glucose Control in Users of mySugr’s Integrated Diabetes Management Solution

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BACKGROUND

The mySugr app is the most widespread mobile health application in the diabetes industry, reaching 1.7M patients in over 60 countries. The positive impact of the application among users has previously been reported, indicating reduction of risk scores and improvement of blood glucose (BG) control in a number of user groups with Type 1 Diabetes², mySugr’s Integrated Diabetes Management solution, the mySugr Bundle (Figure 1), introduces unlimited test strip delivery and Certified Diabetes Educator (CDE)-led coaching via in-app messaging interface.

METHODS

We analyzed changes in BG control (BG-mean, BG-SD, estimated A1c (eA1c), tests in range (TIR), tests above range) and frequency of testing. Participants monitored BG ≥ 3 times/day on average during the observation period. Data from the first 2 weeks after registration for the app (t₀), 0 to 8 weeks before (t₁), 0 to 8 weeks after (t₂) period. Data from the first 2 weeks after registration for each subgroup.

RESULTS

Significant improvements were observed in BG-mean (-11.8 mg/dl, Figure 2), BG-SD (-5.48 mg/dl), TIR (+6.8%, Figure 3), tests above range (-7.2%) and eA1c (-0.41%) between t₀ and t₁ (Table 1). A significant improvement was also observed in monitoring frequency (+21.4%) between t₀ and t₃ (Figure 4). Further, the participants were split into three equally-sized subgroups by their baseline eA1c (after registration). The above analysis was repeated for each subgroup.

Subgroup 1 (n=20) was defined by a baseline eA1c between 5.0% and 6.2%. At baseline, BG-mean was 115.5±10.7 mg/dl, BG-SD was 56.8±19.7 mg/dl and TIR was 87±12%.

Subgroup 2 (n=20) was defined by a baseline eA1c between 6.2% and 7.1%. At baseline, BG-mean was 142.8±8.2 mg/dl, BG-SD was 56.8±19.7 mg/dl and TIR was 71±11%.

Subgroup 3 (n=21) was defined by a baseline eA1c between 7.1% and 10.6%, Baseline BG-mean was 195.5±32.6 mg/dl, BG-SD was 74±18.3 mg/dl and TIR was 40±17%.

Subgroup analysis showed no significant changes for subgroups 1 and 2 over time. However, for subgroup 3 significant (p<0.01) improvements in mean BG (-42.3 mg/dl), standard deviation (-14.7 mg/dl), tests in range (+24%), tests above range (-25%) and eA1c (-1.48%) were observed from t₀ to t₃ (Table 2).

CONCLUSION

Our previous study suggested use of the mySugr Bundle triggered positive changes of glucose control up to 8 weeks post intervention³. We were now able to show a sustainable improvement in BG control over an extended time period of 16 weeks, indicating the potential benefits of mobile interventions that combine complementary treatment strategies for therapy adherence over longer time periods.

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¹ Diabetes, vol. 66, no. suppl 1, p. 952–P, 2017