Follow-up Mental Health Care in Youth and Young Adults with Type 1 Diabetes After Positive Depression Screen and/or Suicidal Ideation

Kelly Wigglesworth, Erin Youngkin, Shideh Majidi
Barbara Davis Center for Diabetes, University of Colorado School of Medicine Anschutz Medical Campus

BACKGROUND

- Youth with type 1 diabetes (T1D) are at increased risk for depressive symptoms and suicidal ideation (SI) compared to the general population.1-6
- Youth with T1D who exhibit depression or subclinical depressive symptoms have worse glycemic control and check blood glucose less frequently,1,6,7
- Similarly, those with suicidal ideation (SI) were more likely to be non-adherent, have a longer duration of T1D, and have a comorbid psychiatric diagnosis.6
- There are no studies in youth with T1D evaluating follow-up of patients after suicidal ideation is endorsed in clinic to see whether symptoms persisted and if families followed-up with recommended resources.
- This is a critical area of study to determine how best to manage suicidal ideation presenting in the clinical setting to improve follow-up therapeutic management.
- Depression screening has been clinically evaluated in patients 10 years of age and older annually since January 2016 at Barbara Davis Center for Diabetes (BDC), via the Patient Health Questionnaire 9 (PHQ-9), a standardized screen for depressive symptoms, including SI (question 9).
- This study aims to:
  1. Evaluate the psychological resource use in adolescents with T1D after initial endorsement of depressive symptoms and/or SI, and
  2. Compare T1D management between those who utilized resources versus those who did not utilize resources and understand predictors of mental health care follow up in those with depression and/or SI.

HYPOTHESES

- Hypothesis 1: Due to the frequency of providing resources to individuals with SI or positive depressive symptoms, we predict that over 50% of patients who endorsed SI or depressive symptoms will have utilized a provided resource.
- Hypothesis 2: Patients who utilized the given resources (i.e. therapy) will have lower follow-up depression scores and will be less likely to continue to endorse SI in subsequent PHQ-9 screens during routine T1D visits.
- Hypothesis 3: Patients who utilized resources will have improved diabetes characteristics (lower hemoglobin A1c (HbA1c), increased insulin pump use, and increased CGM use) compared to those who did not utilize resources.

METHODS

- Participants were identified by clinic database of PHQ-9 scores.
- Clinic PHQ-9 protocol was followed during the initial screening process:
  - If individuals had a PHQ-9 score ≥10, their T1D health care provider discussed the screen and provided resources.
  - If individuals endorsed suicidal ideation, a licensed professional conducted Suicide Risk Assessment, discussed a safety plan, and provided resources.
- Inclusion criteria:
  - Aged ≥20 years
  - Diagnosis of T1D and seen at the BDC
  - Completed PHQ-9 as routine clinical care between January 1, 2016 to May 31, 2018
  - A total PHQ-9 score of ≥10 Or question 9 (suicidal ideation) score of ≥1
- Retrospective data was collected via electronic medical records (EMR) on all participants meeting the inclusion criteria.
- EMR was used to determine resource use.
- Data analysis was performed using R version 4.0.4 software (R Foundation for Statistical Computing, Vienna, Austria).

RESULTS

- From January 2016 to May 2018, 1,376 patients 10-25 years old were screened for depressive symptoms using the PHQ-9.
- Of those screened, 200 (14.5%) scored positive for depressive symptomology and/or endorsed suicidal ideation.
- 52% (n=104) of those with positive depressive symptoms/SI utilized given resources through therapy (30%, n=60), psychiatric medications (5%, n=10), or both (17%, n=34)
- Higher initial PHQ-9 score and previous mental health treatment were predictive of obtaining mental health follow-up (p=0.02), but SI and other demographics were not (Table 1).
- Demographic information including race, age, and T1D duration did not vary significantly, but those who used resources were less likely male (p=0.03). Male sex was also predictive of not following up.
- HbA1c over time had a decreasing slope for those with follow up, compared to those who did not follow up with mental health care (Figure 1).

CONCLUSIONS

- Nearly 15% of our pediatric T1D patients screened at the Barbara Davis Center endorsed depressive symptoms or SI, which is greater than the general population of about 5-9%.4
- Regarding hypothesis 1, although more than 50% of those with a positive PHQ-9 or SI utilized resources, it was not considerably more than 50%.
- Though diabetes management was not different between groups, those who followed up with mental health care did have a decreasing HbA1c slope.
- Suggesting mental health treatment may improve diabetes outcomes further out than a year.
- Duration, frequency, and type of mental health treatment should be further stratified in future research.
- Additional studies should investigate how to improve utilization of resources in youth with depressive symptoms or SI, particularly in males and Spanish speaking populations.
- Investigate how to overcome barriers to seeking mental health care in these groups.

Table 1: Predictive Factors in Obtaining Mental Health Follow-Up

<table>
<thead>
<tr>
<th>Percent Change</th>
<th>(Intercept)</th>
<th>Male</th>
<th>Non-White</th>
<th>Hispanic</th>
<th>Private Insurance</th>
<th>PHQ9 Score</th>
<th>No Pump</th>
<th>No CGM</th>
<th>No Previous Mental Health Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>9.6</td>
<td>-64.8†</td>
<td>38.4</td>
<td>-61.8</td>
<td>-31.9</td>
<td>3.1</td>
<td>-29.4</td>
<td>57.5</td>
<td>-66.9†</td>
</tr>
</tbody>
</table>

p<0.05; †p<0.01; t:p<0.001; ⌂Race = Non-White = Black/African American, American Indian/Alaskan Native, Other, and More Than One Race.

**REFERENCES**

1 The authors have no relevant disclosures. Funding for this project was provided by The Medical Student Research Program in Diabetes, and is sponsored in part by the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), T32 Grant, Award #5T32DK063687-15.