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Clinical and Psychosocial Factors Associated With Suicidal Ideation in Adolescents With Type 1 Diabetes


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A B S T R A C T

Purpose: This study delineates clinical and psychosocial characteristics of adolescents with type 1 diabetes and suicidal ideation (SI) and reports clinical and psychosocial outcomes after mental health intervention (safety assessment and brief in-clinic intervention).

Methods: Adolescents aged 13–17 years with type 1 diabetes completed the Children's Depression Inventory (CDI) from January 2011 to 2012. Youth with significant depressive symptoms and/or SI endorsement underwent mental health intervention. Two control subjects were matched to each adolescent endorsing SI and compared using t-tests to assess clinical and psychosocial variables. Trajectory of depressive symptoms and outcomes for case subjects were observed through January 2013.

Results: Twenty-seven percent (127/473) exhibited moderate to high risk for depression based on CDI scores and 38 (8%) endorsed SI. Adolescents who endorsed SI were more likely to have higher CDI scores and public insurance when compared with youth who denied SI. There was no difference in glycemic control, measured by hemoglobin A1c, between case and control groups. During the year after intervention, 28 participants who initially endorsed SI underwent repeat assessment; mean CDI scores declined by 10.57 (standard deviation: 6.92) points and 78% no longer endorsed SI.

Conclusions: Given the potential lethality of insulin when taken in intentional overdose, the need for consistent identification of suicidality is an important feature of depression screening. Study findings indicate statistically significant differences in depressive symptoms and insurance status, when comparing adolescents who endorsed SI to those who denied. Improvement in depressive symptoms and SI endorsement occurred after integrating brief mental health intervention into diabetes visits.

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IMPLICATIONS AND CONTRIBUTION

This study emphasizes the importance of routine depression screening by delineating the clinical and psychosocial characteristics of youth with type 1 diabetes who endorse suicidal ideation. Furthermore, it discusses the trajectory of depressive symptoms, suicidality, and health-related outcomes during the year after these youth undergo a mental health intervention.

Conflicts of Interest: The authors have no conflicts of interest to disclose.

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Adolescents are frequently affected by depressive symptoms but are not consistently identified by pediatric providers, even among patients requiring more frequent medical care due to chronic illness [1,2]. Approximately 30% of youth in the United States are affected by chronic illness, such as type 1 diabetes

(T1D) [3]. Adolescents coping with depression and T1D are at risk for poorer glycemic control (defined by hemoglobin A1c [HbA1c]) [4–6], lower blood glucose monitoring (BGM) frequency [5,7], and more frequent emergency department (ED) visits [8] and hospitalizations [9]. Depression and suicidal ideation (SI) are more prevalent in adolescents with chronic illness and may have negative effects on adherence and health-related outcomes [10].

Suicide is the second to third leading cause of death among youth in the United States [11,12]. In a study examining SI among adolescents with T1D, 13% reported SI over 12 months and 26% endorsed SI in their lifetime; findings also showed a strong correlation between SI and nonadherence [13]. Even when controlled for socioeconomic status (SES) and environmental factors, youth with T1D have an increased risk of psychiatric disorders and suicide attempts [14]. In light of the potential lethality of insulin when taken in intentional overdose, the need for consistent identification of suicidality is a vital factor in patient safety.

Despite clinical guidelines recognizing the importance of screening adolescents for depression and identifying chronic illness as a risk factor for depressive symptoms [15,16], screening for SI is not universally implemented or widely discussed. Thus, the need for routine screening for both depression and SI is crucial for all adolescents [7], particularly those with a chronic illness.

As noted in the pediatric self-management model for youth with T1D [17], adherence and subsequent health outcomes are influenced by individual contextual domains such as depression. This model proposes that individual interventions are helpful in improving health outcomes by modifying psychosocial functioning. Prior prospective study of adolescents with T1D suggests that results of psychological screening for depression and anxiety have predictive value for diabetes outcomes [18]. However, studies specifically exploring the characteristics of youth with T1D and SI and psychosocial outcomes after referral for psychological intervention is completed are limited.

To address the gaps in the literature, the first aim of this cohort study was to describe the clinical and psychosocial characteristics of adolescents with T1D and SI and identify differences in these factors when compared with the general population of adolescents with T1D who did not endorse SI. In addition, this study examines prospective outcomes of glycemic control, health care utilization, and trajectory of depressive symptoms after identification of SI and subsequent mental health intervention (e.g., safety assessment, brief in-clinic psychosocial intervention by social workers, and referrals for follow-up mental health resources at a future date) for adolescents with T1D.

Methods

Cincinnati Children's Hospital Medical Center is an urban, tertiary-care center that offers a multidisciplinary approach to patient care in a diabetes center. The study population includes adolescent patients aged 13–17 years with T1D who were screened for depressive symptoms and suicidality at ambulatory diabetes visits at least once from January 2011 to January 2012 (see Figure 1). The quality improvement-driven development of a screening and referral process for depressive symptoms has been previously discussed elsewhere [7]. Institutional review board approval was obtained before initiating a retrospective chart review of study participants.

Measures

Children's Depression Inventory. Adolescents completed the Children's Depression Inventory (CDI), a 27-item questionnaire that includes an inquiry for SI, approximately every 3 months at diabetes clinic visits [19]. Specifically, participants selected one of three statements about SI associated with a score of 0, 1, or 2, respectively: "I do not think about killing myself," "I think of killing myself but would not do it," or "I want to kill myself." Total CDI scores were calculated for each patient; scores 0–9 were considered low risk for depression, whereas scores 10–15 or 16–54 were considered moderate or high risk, respectively.

Medical chart review. Baseline data collected through chart review included age, sex, HbA1c, insulin delivery system (injections or pump), duration of T1D, number of T1D-related ED visits or hospitalizations and number of admissions to inpatient psychiatry over the 12-month study period, total CDI scores, SI endorsement, and self-reported race, ethnicity, and BGM frequency. Insurance status was classified as private or public (Medicaid/Medicare coverage) based on the primary payer and served as a surrogate marker for SES. Longitudinal data collected from each clinic visit in the 12 months following mental health intervention included HbA1c, BGM frequency, CDI score, SI endorsement, enrollment in mental health services (patient-reported and documented by providers or SW), health care utilization (e.g., number of T1D-related ED visits or admissions, outpatient diabetes visits, and inpatient psychiatry admissions), and barriers to care.

Mental health intervention

Mental health intervention described in the present study is a systematic process for providing an individualized safety assessment and brief in-clinic psychosocial intervention in immediate response to the identification of depressive symptoms or SI on the CDI. A multidisciplinary team of medical providers, social workers (SWs), and psychologists developed a same day, SW-driven intervention for youth who reported a moderate to high risk for depression or any endorsement of SI. This included three components with the patient and their parent/caregiver: (1) safety assessment, (2) brief psychosocial intervention, and (3) referral for ongoing mental health treatment. If indicated based on their safety assessment, SW would also have patients transferred to the ED for evaluation by psychiatry to determine if inpatient psychiatric hospitalization was warranted.

SW would also perform a brief intervention by providing family education about depression in the setting of chronic illness, supportive listening, enhancing coping strategies, safety planning, providing emergency crisis numbers, and addressing barriers to follow-up. Additionally, SW assessed family structure, role of primary and secondary caregivers, support systems, involvement in community agencies/resources, school/educational concerns, issues regarding health care coverage, finances, transportation, childcare, home safety, and other barriers to treatment. Outcome of SW intervention included either a referral to an outpatient mental health provider if the patient did not have established care or encouraging follow-up with the patients' established mental health provider. SW contacted the current mental health provider with the family's permission to convey the adolescent's depressive symptoms and/or SI endorsement. CDI was readministered at each subsequent

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