

Effective Interdisciplinary Medicine: Psychiatric Care in Children and Adolescents With Type I Diabetes

Amy Lynn Meadows, MD, MHS, Sonya Jayaratna, MD, Victoria Vorholt, MA, Alba Morales Pozzo, MD

Diabetes mellitus type 1 (T1D) is one of the most common chronic illnesses in pediatrics. Child and adolescent psychiatrists (CAPs) may encounter pediatric patients with T1D whose emotional disruption increases the risk for poor glycemic control or diabetes complications. CAPs can assist pediatric providers and patients with T1D by providing collaborative care, including patient and family education, monitoring for common emotional and behavioral concerns, and treatment. We will briefly review common presentations of anxiety, depression, disordered eating, attention-deficit/hyperactivity disorder (ADHD) and family conflict in T1D. Mental health is an essential component of an integrated approach to pediatric diabetes care.

T1D is an autoimmune condition which commonly appears first in youth, which was previously known as juvenile or insulin-dependent diabetes to distinguish it from type 2, or insulin-resistant diabetes. T1D affects nearly 1.25 million people in the United States, with 18,000 new diagnoses per year in those under age 20.^{1,2} Youth diagnosed with T1D must perform a complex set of steps in order to achieve optimal glycemic control. After diagnosis, a child and parent must start treatment with a pediatric endocrinologist, learn to monitor and manage blood sugar, understand meal-based carbohydrate calculations, administer insulin, and react to new signs and symptoms. Because of the challenges of adjustment to living with a chronic illness and the unique stresses of diabetic self-management, CAPs can play a crucial collaborative role in providing education, screening, and treatment of pediatric patients with T1D.

Current American Diabetes Association and American Academy of Pediatrics recommendations suggest screening all children with T1D annually for psychiatric and psychosocial factors that can influence metabolic control.³ While some patients may have mood lability or

irritability in response to glucose highs or lows, they are also at higher risk for psychiatric disorders. Nearly 1 in 3 youth with T1D also have depression, while 1 in 5 have an anxiety disorder.⁴ As a child with T1D grows and gains autonomy over their diabetes management, the risk for emotional disruption increases as children transition into adolescence and young adulthood.⁵ Psychiatric symptoms in adolescents predict risk for hospitalization for diabetic ketoacidosis, a life-threatening complication.^{5,6} Children with diabetes face risks of both acute metabolic complications, such as diabetic ketoacidosis or hypoglycemia, as well as longer term risks of microvascular (retinopathy, neuropathy, nephropathy) or macrovascular complications.⁷ Depression, anxiety, disordered eating, ADHD and family conflict can all be associated with unique management challenges that can increase the risk of these poor metabolic and microvascular outcomes.

Anxiety and Depression

Anxiety and depression are associated with negative impacts on metabolic control and diabetes self-management.⁸ CAPs can help identify specific emotional challenges and formulate team-based responses to those difficulties. For instance, patients with needle phobia can struggle with the need for frequent glucose checks and insulin shot administration. While continuous glucose monitoring systems and insulin pumps may allay some anxieties, they still require frequent and active diabetic management, such as responding to alarms.

Additionally, increasing depressive symptoms is associated with poorer glycemic control.⁹ Adolescents with depression are less likely to accept parental assistance with diabetes care.¹⁰ Moreover, compared to the general population, youth with T1D are at an increased risk

for suicidal ideation, suicide attempts, and suicide.^{11,12} Because youth with T1D have access to potentially lethal means such as insulin, safety planning may have to specifically address how to ensure means restriction while continuing diabetic management.

Diabetes-specific psychotherapy can be helpful for diabetes-related distress and depression or anxiety. For instance, group diabetes-specific coping skills training, which covers both education and adaptation to the illness, has been effective in youth, decreasing isolation and improving coping.¹³ Individual and group cognitive-behavioral therapy has been effective in adults with T1D, but those effects have not been consistently demonstrated in youth.¹⁴⁻¹⁶ Antidepressants, including selective serotonin reuptake inhibitors such as fluoxetine, remain the standard of care for major depressive disorder and anxiety disorders.¹⁷ Augmentation with atypical antipsychotics may have metabolic consequences, including increased risk of hyperglycemia, and require additional caution.^{18,19}

Diabetes Distress

Patients with T1D, especially adolescents and young adults, may also experience difficulties with adjustment, which is sometimes called diabetes distress, characterized by poor coping or denial about the illness.²⁰ As a child understands more about their illness, they may struggle with telling teachers and friends, or have guilt or embarrassment about their diagnosis or being “different.” Diabetes distress may elicit an emotional response to specific daily diabetes self-management, such as fear of injections or anxiety about blood sugar. Cognitive distortions about diabetes have been associated with increased stress and worse glycemic control.²¹ Specific rating scales, such as the Diabetes Distress Scale, can help identify youth at risk.²²

Eating Disorders

Disordered eating, including under-dosing or skipping insulin, is much more common in adolescents, especially female adolescents, with T1D.²³ Not only can under-dosing and associated hyperglycemia lead to unhealthy weight loss, but it can also increase the risk

of complications of T1D.²⁴ The Diabetes Eating Problem Scale can be used to screen for disordered eating and insulin misuse.²⁵ Psychoeducation, providing information about the risks of under-dosing to adolescents with T1D as well as their parent and other care providers, can remediate some of the attitudes and behaviors associated with disordered eating and catch concerning behaviors early.²⁶

Executive Functioning and ADHD

Executive functioning encompasses planning and organizing abilities which may affect outcomes in T1D. To manage diabetes, one has to count carbs for each meal, calculate insulin, remember to bring insulin, figure out when and where they will be eating meals, and many more decisions that require planning and organization. Poor executive functioning has been repeatedly demonstrated to be associated with poor glycemic control, especially for adolescents.²⁷⁻²⁹ Those with a diagnosis of ADHD and T1D experience twice the risk of diabetic ketoacidosis.³⁰ Although stimulant medication remains the treatment of choice for ADHD in those with T1D, the appetite-lowering effects of stimulants could put patients at risk of hypoglycemia.³¹ CAPs can provide guidance to children, parents, and the endocrine team about careful midday insulin dosing in those who experience appetite suppression. Behavioral treatment modalities such as working memory training have been used in adolescents with type 1 diabetes and show some benefits, especially when combined with other psychological treatments.³²

Family Conflict

Parents or caregivers take a primary role in managing T1D for many young children. School-age children are generally expected to understand and communicate symptoms of low blood sugar, carry diabetic supplies, and develop autonomy around eating, glucose checks, and exercise. Older children are expected to slowly and progressively take over the daily responsibilities of diabetes care.³³ Older adolescents should be establishing and reinforcing self-care skills and learning to integrate these skills into their social and academic

lives. This will help to reinforce the relationship between diabetes control, prevention, and screening for its complications.³⁴ Like other developmental milestones, individual and family variation contributes to the progression to independent diabetes self-management. Psychosocial and environmental factors, such as poverty and food insecurity, can play a significant role in family's ability to navigate the additional challenges of T1D.

Given the crucial role of parental monitoring and gradual transition of autonomy, family conflict can be a unique risk factor for children and adolescents with diabetes.^{35,36} Assessing the child's psychiatric symptoms and family functioning can provide meaningful information about the potential need for family intervention. Stressful family situations, including adverse childhood experiences, can contribute to emotional disruption and nonadherence to recommendations.³⁷ Multisystemic Therapy and Family-Based Systems Therapy have demonstrated that intensive, family based treatments can improve glycemic control youth with T1D.^{38,39}

Conclusion

Recognizing that children, adolescents, and young adults with type 1 diabetes may be at risk of emotional disruption is an important opportunity for education, identification, and collaboration between healthcare providers. Because of their ability to identify vulnerability to common psychiatric symptoms and family dynamics in their interactions with patients with T1D, CAPs should be embedded within endocrinology clinics, providing early referral for concerns about patients and their family functioning and immediate response to positive screens. In addition to the benefit of their direct access to patients and their mental health, CAPs can help improve metabolic control and decrease the risk for complications by promoting and discussing the potential effect of these comorbidities with pediatricians and interdisciplinary health systems.

Take Home Summary

Children, adolescents, and young adults with type 1 diabetes commonly experience emotional disruption, conflict, and psychiatric illness that may affect their diabetes management. Collaborative relationships between child and adolescent psychiatrists and diabetes providers can facilitate education, referral, and treatment.

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About the Authors

Amy Lynn Meadows, MD, MHS, is a triple-boarded child psychiatrist who works on the consultation-liaison service at Kentucky Children's Hospital, Lexington, and is currently studying risk and resilience in children with type 1 diabetes.

Sonya Jayaratna, MD, is a PGY3 Triple Board Resident at University of Kentucky, Lexington.

Victoria Vorholt, MA, is an M3 Medical Student at University of Kentucky, Lexington.

Alba Morales Pozzo, MD, is a pediatric endocrinologist at the Barnstable Brown Pediatric Diabetes Center at University of Kentucky, Lexington.

The authors have reported no funding for this work.

Disclosure: Dr. Meadows has received research grant funding from the Children's Miracle Network-Kentucky Children's Hospital Research Fund, University of Kentucky Department of Psychiatry Young Investigator Award, and the University of Kentucky Scholar Career Development Program. She has also received a travel award from the American Psychiatric Association Foundation. Drs. Jayaratna, Morales Pozzo, and Ms. Vorholt have reported no biomedical or other potential conflicts of interest.

Correspondence to Amy Meadows, MD, MHS; e-mail: amy.lynn.meadows@uky.edu

This article was edited by Justin Schreiber, DO, MPH.