

Diabulimia in a 23-Year-Old Woman With Multiple Comorbid Conditions

Stephen Poos, B.A., and Kaitlin McGowan, B.A.

Diabulimia is the behavior of withholding insulin injections in the presence of type 1 diabetes for the purpose of weight loss (1). Review of the literature suggests that diabulimia is a significant yet under-reported problem among female patients with diabetes. In a U.S. study of females ages 13–60 with type 1 diabetes, 31% reported intentionally omitting insulin over their disease course, with nearly 9% reporting frequent occurrences of this behavior. Among those omitting insulin, half stated that weight control was the primary motivation (2). Consequent suboptimal glycemic control was associated with increased rates of complications, including neuropathy, retinopathy, and hospitalization (2). However, many individuals with diabulimia often persist with the behavior despite full awareness of the potential detrimental consequences (3).

There is a need for both greater awareness of the condition among physicians and recognition of the condition as a legitimate diagnosis. These patients require greater access to specialized care and more options for treatment. Diabulimia remains underrecognized in the patient population and can be adequately addressed only with a multidisciplinary response from health care professionals educated about this condition.

A case of diabulimia in a 23-year-old woman with multiple psychiatric comorbid conditions is presented here. This case is unique because of both its severity and its multifactorial etiology. The goal of this case report is to add to the growing body of literature surrounding this topic, raise awareness of the condition, and provide clinicians with an overview of screening and treatment.

CASE PRESENTATION

A 23-year-old Caucasian female was hospitalized for diabetic ketoacidosis (DKA). Medical history included diagnosed as having type 1 diabetes at age 6 with multiple admissions for DKA and complex regional pain syndrome type 1. Psychiatric history included anorexia nervosa, posttraumatic stress disorder (PTSD), and major depressive disorder, with one prior medication overdose and three lifetime psychiatric hospitalizations.

In the 6 months prior to the present hospitalization, she had six hospitalizations for recurrent DKA. During one prior hospitalization, she was prescribed sertraline, propranolol, and prazosin upon discharge but subsequently had issues with medication compliance. The patient admitted that she had been skipping insulin with the intention of losing weight, which was a behavior she had learned in childhood from other girls with diabetes. She also reported that she usually ate only one meal a day. The longest she had ever gone was 4 days without food and 1 week without insulin. During this time, the patient had been seeing a therapist, who discontinued therapy after the patient was given a diagnosis of anorexia, because the therapist felt that more specialized care was needed.

The patient had experienced 4 days of DKA symptoms, including subjective fevers, chills, nausea, and vomiting, which led to the present hospitalization. In the hospital, she received intravenous insulin, thiamine, magnesium, phosphorus, and fluids. Her psychiatric medication regimen was restarted.

The patient was then enrolled in a partial inpatient eating disorder program and was discharged after a month.

Two weeks after her discharge, she was admitted to a different hospital for DKA. During this admission, she stated that while the program helped her improve, she felt unprepared for discharge. After stabilization, the psychiatry team recommended discharge to home with outpatient follow-up with primary care, endocrinology, and psychiatry for medication management and psychotherapy. The day after discharge she was readmitted for DKA; the patient stated that she felt she was sent home too soon. Following this second readmission, she was enrolled in an intensive outpatient program, which she preferred over inpatient placement, as well as a home care program and a virtual eating disorder support group.

DISCUSSION

Exogenous insulin is a mainstay of treatment for patients with type 1 diabetes; however, weight gain is a known side effect. In one study, patients with type 1 diabetes treated over the course of 1 year with an intensive intervention for blood glucose control increased their weight on average to 9% above ideal healthy weight. The weight gain occurred despite no reported changes in caloric intake or physical activity (4). Such weight gain can be a significant barrier to compliance with insulin. The term “diabulimia” was thus coined to describe patients who deliberately administer inadequate insulin for the purpose of weight loss (1).

Our case is remarkable for the number of comorbid conditions and the failure to provide adequate treatment. First, the patient had a diagnosis of PTSD, which is known to be associated with the

development of eating disorders later in life (5). Past trauma has also been identified as a common theme among patients with diabulimia (3). Second, the patient initially learned purposeful insulin restriction for weight loss from other female patients with diabetes. Third, her psychologist was unable to manage her eating disorder and discharged her from care with instruction to find a provider who could better manage her condition. The patient's inability to do so led to a lapse in her mental health care and likely contributed to the string of hospitalizations and life-threatening DKA episodes. Compounding these factors was dysfunction in the patient's family, another known contributor to eating disorders (6). Finally, the patient's low level of baseline function played a role in dictating the treatment setting. Typically, a patient with chronic intentional insulin omission would be enrolled in an inpatient treatment program (7). However, the patient's preference for intensive outpatient therapy was honored, given her prior negative experience with inpatient therapy. The patient's physical deconditioning from poor caloric intake and comorbid physical conditions necessitated reacclimating to functioning within her home environment and thus enrolling in a home health care program.

A few other cases of patients with diabulimia have been reported in the literature. Patients given a diagnosis of type 1 diabetes during adolescence or young adulthood may be especially at risk because of body appearance and social acceptance issues (8). In a somewhat similar case involving a 15-year-old girl with diabulimia, the patient initially learned of the relationship between insulin and weight control in the diabetes education she had received when she was initially diagnosed as having type 1 diabetes (8). In addition to being associated with diabulimia, type 1 diabetes has been associated with a variety of other disordered eating behaviors. In contrast to diabulimia, in which patients intentionally induce hyperglycemia, some patients with type 1 diabetes intentionally induce hypoglycemia to control binging (9). In one such case describing a 28-year-old woman with a diagnosis of type 1 diabetes and bulimia, the patient reported a

subjective sensation of needing to binge when her blood glucose levels were elevated to 10–14 mmol/L. The patient subsequently overdosed her insulin, resulting in a state of hypoglycemia, as a strategy to defeat the cravings that led to her binges (9). Additional disordered eating behaviors associated with type 1 diabetes include binge eating, self-induced vomiting, and dieting (10). Highly disordered eating habits among patients with type 1 diabetes are of utmost concern because of the association between these behaviors and worsening glycemic control that can lead to permanent microvascular complications (10).

Over the course of this disease, our patient encountered emergency room staff, intensivists, and primary care and mental health care providers, each of whom were unable to recognize the signs of diabulimia and worked separately from each other. This is why we advocate for wider screening and a multidisciplinary approach to treatment. For uninsured patients, primary care providers, clinic workers, and emergency department providers can all play important roles in providing life-saving diagnoses for this condition. Providers should be familiar with diabulimia risk factors, including female gender, high body mass index prior to type 1 diabetes diagnosis, being given a type 1 diabetes diagnosis between ages 7 and 18, dissatisfaction with bodily appearance, low self-esteem, history of depression, and a family history of eating disorders (11). Given the underdiagnosed nature of the condition, it may be appropriate to screen for diabulimia in all patients with eating disorders and type 1 diabetes—especially patients presenting with DKA, given the potential lethal consequences of this condition. Screening is recommended among adolescent female patients with type 1 diabetes and either

increased HbA1c levels, history of recurrent ketoacidosis or frequent hospitalizations, or significant weight loss (8).

The modified Eating Disorder Inventory, Diabetes Eating Problem Survey, or the modified SCOFF questionnaire can be used for such screening (11). Treatment should be promptly initiated by a multidisciplinary group consisting of a diabetes management team, dietician team, and mental health team. A diabetes care team member (either a primary care provider or an endocrinologist) may alter the insulin regimen for patients restricting their food intake (11) and gradually increase the amount of insulin in conjunction with changes in calorie intake. Providers may consider prescribing an insulin pump instead of insulin injections, because this has been associated with better HbA1c control (11). Overall, providers should encourage “good” glycemic control over “optimal” (7). Although diabetes care providers may be reluctant to relax their treatment regimens, having patients spend less time on their diabetes management is a key part of the recovery process (7, 11). For the dietician team, goals should include reestablishing a regular meal pattern, establishing intuitive approaches to meal planning, and relaxing carbohydrate counting (11). Providers should avoid providing positive reinforcement for any weight loss achieved during recovery, because this can sabotage recovery (7). The mental health team should conduct cognitive-behavioral therapy and assess and address the effects of type 1 diabetes and eating disorders on aspects of daily living (11). The mental health team should also screen for depression and consider whether family therapy is needed, because poor family dynamics can exacerbate a patient's condition (7). Providers should be vigilant for patients

KEY POINTS/CLINICAL PEARLS

- Diabulimia risk factors include female gender, body dissatisfaction, low self-esteem, depression, and family history of eating disorders.
- Screening for diabulimia is recommended for young patients with type 1 diabetes who are noncompliant with their diabetes care regimen.
- Multidisciplinary diabulimia management includes a diabetes management team, dietician team, and mental health team.

intentionally misusing their insulin, which may signal a need for more family involvement in their care (7).

Diabulimia patients also report overwhelming negative experiences with the health care system (3), and much work is needed to rectify this issue. First, diabulimia must be recognized as a legitimate medical and psychological diagnosis. It does not appear in the DSM-5, and thus it is usually recorded in the patient record as either anorexia nervosa or bulimia nervosa (<https://www.nationaleating-disorders.org/diabulimia-5>). The lack of a specific diagnosis in medical records creates difficulty in studying key epidemiological factors, such as prevalence, risk factors, or comorbid conditions, thus contributing to the paucity of literature on this condition. Alternatively, diabulimia could be viewed as a compensatory behavior within the already established DSM-5 eating disorder diagnoses. However, we advocate for diabulimia as a distinct diagnostic code, because it appears to be a unique psychological disorder in its own right. Because of the interspecialty overlap inherent in diabulimia, health care professionals in all disciplines must become comfortable screening for, diagnosing, and treating diabulimia, as well as other eating disorders. Providers would benefit from increased outreach programs from patient advo-

cacy groups, potentially through social media campaigns promoted by empowered and recovered patients. As more health care professionals become familiar with the condition and as visibility spreads, diabulimia patients will have more avenues for recovery.

CONCLUSIONS

Diabulimia is gaining recognition within the medical community. As awareness of the condition spreads, more work must be done to improve patient outcomes. There is a clear need for provider education, recognition of diabulimia as a legitimate diagnosis, a multidisciplinary response to this condition, and a push for increased access to mental health care for eating disorders.

Stephen Poos and Kaitlin McGowan are fourth-year medical students at Rowan University School of Osteopathic Medicine, Stratford, N.J.

The authors confirm that the details of this case have been disguised to protect patient privacy. Written consent was obtained from the patient.

REFERENCES

1. Winston AP: Eating disorders and diabetes. *Curr Diab Rep* 2020; 20:32

2. Polonsky WH, Anderson BJ, Lohrer PA, et al: Insulin omission in women with IDDM. *Diabetes Care* 1994; 17:1178–1185
3. Coleman SE, Caswell N: Diabetes and eating disorders: an exploration of “diabulimia.” *BMC Psychol* 2020; 8:101
4. Weight gain associated with intensive therapy in the Diabetes Control and Complications Trial: the DCCT Research Group. *Diabetes Care* 1988; 11:567–573
5. Rijkers C, Schoorl M, van Hoeken D, et al: Eating disorders and posttraumatic stress disorder. *Curr Opin Psychiatry* 2019; 32:510–517
6. Rodríguez MA, Novalbos RJP, Martínez NJ, et al: Epidemiological study of the influence of family and socioeconomic status in disorders of eating behaviour. *Eur J Clin Nutr* 2004; 58:846–852
7. Kelly SD, Howe CJ, Hendler JP, et al: Disordered eating behaviors in youth with type 1 diabetes. *Diabetes Educ* 2005; 31:572–583
8. Kınık MF, Gönüllü FV, Vatansever Z, et al: Diabulimia, a type I diabetes mellitus-specific eating disorder. *Turk Pediatri Ars* 2017; 52:46–49
9. Moosavi M, Kreisman S, Hall L: Intentional hypoglycemia to control bingeing in a patient with type 1 diabetes and bulimia nervosa. *Can J Diabetes* 2015; 39:16–17
10. Rydall AC, Rodin GM, Olmsted MP, et al: Disordered eating behavior and microvascular complications in young women with insulin-dependent diabetes mellitus. *N Engl J Med* 1997; 336:1849–1854
11. Candler T, Murphy R, Pigott A, et al: Fifteen-minute consultation: diabulimia and disordered eating in childhood diabetes. *Arch Dis Child Educ Pract Ed* 2018; 103:118–123