



# Diabulimia, a Type I diabetes mellitus-specific eating disorder

Mehmet Fatih Kınık, Ferda Volkan Gönüllü, Zeynep Vatansever, Işık Karakaya

Department of Child and Adolescent Psychiatry, Kocaeli University School of Medicine, Kocaeli, Turkey

## Abstract

Type I diabetes mellitus is the most common endocrinologic disorder affecting pediatric patients. Diet regimen adaptations in patients with diabetes may result in focusing on only diet and weight control, which causes eating disorders more often in these patients. Diabulimia is an eating disorder specific to patients with diabetes characterized by limiting and/or skipping insulin dosing. It is well observed that diet management and insulin treatment are withheld for body appearance and social acceptance issues, especially in patients whose disease is diagnosed during adolescence. We hereby present a patient who was diagnosed as having diabetes at the age of 12 years and skipped insulin doses in order to control weight and was subsequently diagnosed as having diabulimia. (Turk Pediatri Ars 2017; 52: 46-9)

**Keywords:** Adolescent, diabulimia, eating disorder, Type 1 DM, weight loss

## Introduction

It is known that patients with type 1 diabetes mellitus (DM) carry a high risk in terms of eating disorders (1). Patients with diabetes have to regulate their eating habits and life styles in order to keep their blood glucose levels under control for a life time (2). Factors including diet lists and banned foods due to diabetes mellitus and having a chronic disease lead to anxiety in these patients, and their minds may be focused on foods and weight control (2). In a four-year observational study in which eating attitudes of 91 female patients with DM aged between 12 and 18 years were evaluated, binge eating disorder was found in 45% of the patients and vomiting behavior was found in 8% (1). Providing weight control by skipping insulin doses in the treatment of diabetes mellitus has been reported with a rate of 2% in preadolescent girls, 11-15% in adolescence, and 30-39% in adulthood (1, 3, 4).

In this article, a girl aged 15 years patient was referred to Child Psychiatry who had poor dietary compliance and an inability to adapt to treatment and was diagnosed as having diabulimia, which is a type of eating disorder. After a psychiatric assessment, the patient was

brought to the attention of physicians after verbal informed consent was obtained from her parents.

## Case

It was learned that the patient was diagnosed as having DM at the age of 12 years, her body weight reduced from 60 kg to 50 kg before this diagnosis was made, but she started to regain weight after insulin treatment was initiated. Her father started to warn her not to eat too much by stating "You will become obese. You eat too much" and criticized her continuously. As a result, she started to regard herself more obese than she really was.

She stated that she had occupied herself with her weight for the last one year, losing weight made her happy, and she avoided insulin further to lose weight because of the negative criticisms of her father about her weight and the mocking of her high school friends about overweight individuals. She reported that she had a scale in her room for checking her weight, she weighed herself every day and she felt bad when she realized that she gained weight. It was learned that she avoided using insulin instead of doing exercise or dieting for weight control and occasionally spent a week without using insulin at all.

**Address for Correspondence:** Işık Karakaya E-mail: karakaya73@yahoo.com

**Received:** 23.10.2014

**Accepted:** 07.05.2015

©Copyright 2017 by Turkish Pediatric Association - Available online at [www.turkpediatriarsivi.com](http://www.turkpediatriarsivi.com)

DOI: 10.5152/TurkPediatriArs.2017.2366

In the interview with the patient's family, it was learned that the family was too interested in the patient's diet and treatment, continuously fought with the patient about compliance with glucose measurement and insulin treatment, the patient tried to lose weight by keeping her blood glucose level high, hid the measurement tools when her blood glucose level was high, became exhausted, cried from time to time saying "I am gaining weight", and did not pay attention to her diet, especially in the last one year. Her HbA1C value increased after she started high school, her final HbA1C value was found as 13.1 mmol/mol, and she was hospitalized because of diabetic ketoacidosis twice in the last one year.

According to the information obtained from the patient, she learned that skipping insulin doses would lead to weight reduction by causing increased ketones in the blood to breakdown fats in the body both through the weight reduction she experienced when her disease emerged and the diabetes education she received. She found this method very easy and fast for weight control.

In the patient's medical and developmental history, it was reported that she was born at term from the fourth pregnancy of her mother following three abortions as a result of a planned pregnancy by cesarean section with a birth weight of 2800 g; no problems occurred after delivery and she was an overweight child from the time of her infancy. It was described that she completed all stages of development normally and in time. When she was seven years old, she was diagnosed as having asthma and received treatment up to the fourth grade. Her academic success was good and she had not experienced any problem with her friends. She was described as a friendly and sociable individual who could easily get along with people.

In the patient's familial history, it was learned that her mother was a 45-year-old illiterate housewife and her father was a 54-year-old high-school graduate who was working as a driver in a private company. The patient was the family's only child. The mother was being followed up with a diagnosis of  $\beta$  thalassemia major. She was afraid that she would also lose the patient and behaved protectively while raising her because she had recurrent abortus because of her condition. The mother's unhappy, cheerless, depressive and anxious appearance drew attention. When she was asked about the reason for this state, she reported that she had concerns about her daughter's health, was afraid of the negative outcomes of diabetes and felt herself helpless. She report-

ed that she had no information about the issue when the diagnosis of diabetes mellitus was made, she felt herself noncompetent because she was illiterate, she could not help her daughter during measurement of blood sugar, she turned her head away, she could not endure even looking and she thought that she betrayed her daughter when she consumed food with carbohydrate content. The father also reported that he was anxious and thus he frequently intervened in the patient's treatment, body weight, meals in her diet list, and friend relations, but could not set limits for his daughter because she was little and she did whatever she wanted.

The physical examination findings were as follows: body weight: 53 kg (3-10 p), height: 152 cm (25-50 p), body mass index: 22.9 (87 p); other system findings were found normal. Laboratory findings revealed that the complete blood count, complete urinalysis, hepatic and renal functions were normal and the HbA1C value was 13.1 mmol/mol.

On psychiatric examination, the patient's physical development was found normal for her age, her self care was good and her clothing was compatible with her socioeconomic level. Her behaviors appeared normal. She was eager for communication. Her attention and concentration were normal. Her way of getting in contact with the interviewer was adequate and she cooperated well. Her memory and orientation were normal. Her affect and mood were found balanced. Her illness and themes related with losing and gaining weight predominated her thought content. Her abstract thought and other cognitive abilities were normal. Her intellect appeared normal clinically.

The Beck Depression Inventory, State-Trait Anxiety Inventory and Self-respect Scale were applied for psychometric assessment. As a result of these assessments, it was found that the patient had reduced self-respect and her depression symptom level was slightly increased.

## Discussion

Diabulimia is characterized by the limitation or skipping of insulin use by patients with type 1 DM, especially during adolescence, with the objective of weight control (5). This condition is accompanied by binge eating episodes and body dysmorphic disorder (2). Symptoms including excessive thirst, polydipsia, pollakiuria, and weakness are observed in the early period, irreversible findings including neuropathy, retinopathy, nephropa-

thy and osteoporosis, which occur in poorly controlled diabetics, are observed in the long term (1, 6, 7). Blood glucose levels increases with limitation or skipping insulin use and calorie loss occurs rapidly with glucosuria (8). However, insulin deficiency leads to occurrence of a picture of ketoacidosis by enabling free fatty acids in the body to be transferred into the plasma. Noncompliance with the diet list and dissatisfaction with body weight lead to limitation or skipping insulin use (6). In addition, body weight is reduced as a result of insulin deficiency in the body before the diagnosis of diabetes is made and the patients regain weight with initiation of insulin treatment (2).

In this case, it was learned that the patient realized the relationship between insulin and weight control both from her experience in the beginning of her illness and from the diabetes education she received and reduced weight gain easily in this way.

Eating disorders are related with difficulty in regulating emotions and with body image. The majority of the individuals with eating disorders have excessive concerns related with body weight and body shape, and a disturbed body image emerges (regarding oneself overweight despite a normal or reduced body weight). These patients attribute too much importance to body weight and body shape and fear gaining weight (2). In this case, it was learned that the patient was too focused on her weight, monitored her weight regularly, and regarded herself overweight, though she had an ideal body weight.

Many factors including female sex, family and friend relation, cultural factors, environmental factors including media, and cognitive and physical properties affect behavioral characteristics involved in the occurrence of eating disorders (9). It has been proposed that a family pathology affecting the child's autonomous development and encouraging the child to stay childish is present. In our case, the interpretations of the family and friends about the patient's weight and body and the mother's excessively anxious and interfering character were thought to have led to the occurrence of diabulimia.

Follow-up and treatment of the patient was planned, and it was aimed to change the parent's controlling attitudes related with the patient's eating behavior by cooperating with the family. In addition, psychoeducation related with eating disorders was given, which aimed

to correct the patient's body image and increase her self-respect. When the literature was reviewed, it was reported that psychoeducation in eating disorders in patients with type 1 DM, referral of patients who show symptoms of depression to psychiatry, and application of cognitive behavioral therapy directed to eating disorder might be beneficial, though no specific treatment for diabulimia was recommended (7, 10). However, there is an insufficient number of studies related with the efficiency and adequacy of these approaches in individuals with diabetes (2).

In conclusion, this case suggests that diabulimia should be kept in mind by physicians, as well as the common problems observed in diabetes, and adolescent patients in particular should be assessed in terms of eating disorders and the potential misuse of information related with weight loss and insulin use given during diabetes education. Therefore, physicians should be more careful about this issue especially when working with adolescents. Especially female adolescent patients who have increased HbA1C levels, a history of ketoacidosis or frequent hospitalizations because of treatment irregularity, and those who lose weight or cannot gain weight regardless of how much they eat should be carefully assessed and monitored in terms of diabulimia and eating disorders.

---

**Informed Consent:** Verbal informed consent was obtained from the patient's who participated in this study.

**Peer-review:** Externally peer-reviewed.

**Author Contributions:** Concept - M.F.K., I.K.; Design - M.F.K., F.V.G., Z.V.; Supervision - I.K.; Funding - M.F.K., F.V.G., Z.V.; Materials - M.F.K., F.V.G.; Data Collection and/or Processing - M.F.K., F.V.G.; Analysis and/or Interpretation - M.F.K., I.K.; Literature Review - M.F.K., F.V.G., Z.V.; Writing - M.F.K., F.V.G., Z.V., I.K.; Critical Review - I.K.

**Conflict of Interest:** No conflict of interest was declared by the authors.

**Financial Disclosure:** The authors declared that this study has received no financial support.

## References

1. Rydall AC, Rodin GM, Olmsted MP, Devenyi RG, Daneman D. Disordered eating behavior and microvascular complications in young women with insulin-dependent diabetes mellitus. *N Engl J Med* 1997; 336: 1849-54. [\[CrossRef\]](#)

2. Colton P, Rodin G, Bergenstal R, Parkin C. Eating Disorders and Diabetes : Introduction and Overview. *Diabetes Spectr* 2009; 22: 138-42. [\[CrossRef\]](#)
3. Jones JM, Lawson ML, Daneman D, Olmsted MP, Rodin G. Eating disorders in adolescent females with and without type 1 diabetes: cross sectional study. *BMJ* 2000; 320: 1563-6. [\[CrossRef\]](#)
4. Colton P, Olmsted M, Daneman D, Rydall A, Rodin G. Disturbed eating behavior and eating disorders in preteen and early teenage girls with type 1 diabetes. *Diabetes Care* 2004; 27: 1654-9. [\[CrossRef\]](#)
5. Hasken J, Kresl L, Nydegger T, Temme M. Diabulimia and the role of school health personnel. *J Sch Health* 2010; 80: 465-9. [\[CrossRef\]](#)
6. Takii M, Uchigata Y, Tokunaga S, et al. The duration of severe insulin omission is the factor most closely associated with the microvascular complications of Type 1 diabetic females with clinical eating disorders. *Int J Eat Disord* 2008; 41: 259-64. [\[CrossRef\]](#)
7. Ruth-sahd LA, Schneider M, Haagen B. Diabulimia: What it is and how to recognize it in critical care. *Diemens Crit Care Nurs* 2009; 48: 147-53. [\[CrossRef\]](#)
8. Kelly SD, Howe CJ, Hendler JP, Lipman TH. Disordered eating behaviors in youth with type 1 diabetes. *Diabetes Educ* 2005; 31: 572-83. [\[CrossRef\]](#)
9. Rikani A, Choudhry Z, Choudhry AM, et al. A critique of the literature on etiology of eating disorders. *Ann Neurosci* 2013; 20: 157-61. [\[CrossRef\]](#)
10. Olmsted MP, Daneman D, Rydall AC, Lawson ML, Rodin G. The effects of psychoeducation on disturbed eating attitudes and behavior in young women with type 1 diabetes mellitus. *Int J Eat Disord* 2002; 32: 230-9. [\[CrossRef\]](#)