EXPERIENCE EXCHANGE

Diabulimia among adolescents and young adults with Type 1 diabetes

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Abstract

Eating disorders are common in young people with diabetes, where manipulation of insulin is often used to manage body weight. Deteriorating metabolic control in adolescents with Type 1 diabetes has been closely linked with the emergence of eating disorders. The practice of reducing calories by omitting insulin is referred to as diabulimia. This practice is known to compromise metabolic control resulting in subsequent detrimental health outcomes. Diabulimics risk microvascular complications including renal failure and peripheral neuropathy of the extremities; as well as macrovascular complications, such as, heart attack and stroke. Studies have shown that diabulimic behaviours lead to a threefold increase in the risk of death compared to non-diabetic subjects. While this disorder is relatively well known to endocrinologists who treat a large numbers of patients with type 1 diabetes, it is not often recognized by primary health care providers or members of the individual's family. If diabulimia is detected early, interventions can be implemented to minimize the risk of early morbidity and mortality.

Key words

Diabulimia, Eating disorders, Diabetes, Adolescents, Young adults

1 Introduction

Eating disorders are common in young people with diabetes, where manipulation of insulin is often used to manage body weight. Although not medically recognized, left untreated, diabulimia will lead to a high incidence of morbidity and mortality.

Search strategies used for this literature review included, CINAHL, MEDLINE, PsychoInfo and Google Scholar, search of English-language articles, which focussed on eating disorders among adolescents and young adults. The keywords used were; diabulimia, eating disorders, diabetes, body image, bulimia, adolescents, and young adults. Research studies published between 1980 and 2013, were examined. The aim of this paper is to examine the issues surrounding diabulimia and highlights the importance of early recognition and treatment of the condition.

2 Background

Eating disorders are a major cause of physical and psychological morbidity in adolescent and young adult women in the western world, affecting up to 20% of females with diabetes [1]. The diagnostic criteria have been delineated for eating disorders Anorexia Nervosa (AN), Bulimia Nervosa (BN) and Eating Disorders Not Otherwise Specified (EDNOS) in the Diagnostic and Statistical Manual [2]. Although these disorders are different in symptomology, they have similar clinical features including psychopathological traits and the obsession with body shape and weight are prominent in addition to cognitive distortions, such as alterations in body image. Individuals diagnosed with an eating disorder can also present with depression or anxiety disorder, and are usually socially withdrawn [3, 4]. Diabulimia, is analogous to an eating disorder in which adolescents and young people, mostly women, with type 1 diabetes mellitus (DM), deliberately omit insulin to lose weight or to prevent weight gain. Adolescent girls with type 1 DM appear to experience a significantly increased risk of eating disorders compared to persons not diagnosed with diabetes. Diabulimia is an eating disorder in which adolescents and young people with type 1 diabetes deliberately manipulate their prescribed dosage of insulin to control their body weight [2, 5].

This manipulation of insulin compromises metabolic control and results in subsequent detrimental health outcomes.

Type 1 DM is characterised by the inability of the pancreas to produce insulin, thus, a prescribed dose of insulin is required to match the carbohydrate intake and endogenous glucose. Consequently, lipid catabolism results in the acute complication of diabetic ketoacidosis (DKA), which leads to the accumulation of glucose in the blood, known as hyperglycaemia. Restriction of insulin makes it impossible for the body to process glucose, so it is excreted in the urine instead. Because the loss of water results in weight loss, it may be misconstrued as fat loss, encouraging the person to repeat this process. High levels of ketones in the blood will eventually lead to DKA, a life threatening condition. The consequences of ketoacidosis include cerebral oedema, heart attack and kidney failure and can lead to early mortality [6, 7].

Although diabulimia is not recognized as a medical or psychiatric diagnosis, however, cases of people with type 1 DM, combined with EDs have been published since the 1970s and early 1980s and its prevalence has continued to rise significantly, among young people with type 1 DM, especially women.

Signs of diabulimia include; rapid weight loss, scattered food patterns, obsession with body size and shape, ketone smell on the breath and in the urine, lethargy, unexplained hyperglycaemia and frequent micturition. The role of insulin manipulation in weight management is of particular importance because of the subsequent long and short term consequences.

The acknowledgement of diabulimia by medical and healthcare professionals is paramount. Over the past two decades more research has gone into increasing knowledge about and hence awareness of diabulimia in the western world where this condition is more prevalent. The literature has shown a strong correlation between the restriction of insulin therapy and the development of chronic consequences associated with type 1 DM [8] in association with a persistent eating disorder. Diabulimics can risk microvascular complications such as renal failure and peripheral neuropathy of the extremities as well as macrovascular complications, including, heart attack and stroke [6, 8-15].

Studies have shown that diabulimics harbour a threefold increase in the risk of death compared to non-diabetic subjects [5, 12]. Most of the literature relating to adolescents and diabulimia, focuses on type 1 DM, with type 2 DM being less well documented. It has been recognised that adolescent girls with type 1 DM are more than likely to develop an eating disorder compared to their non-diabetic counterparts. The combination of sociocultural factors, psychological behaviours [8] and physiological changes that take place during puberty may all contribute to the development of disordered eating behaviours [16-18]. Sociocultural factors envelope the beliefs and behaviours of individuals with eating disorders [19]. Individuals with diabulimia, as well as others with eating disorder can present with body dysmorphic disorder (BDD) the persistent fixation with fictitious flaws in one's physical appearance. This psychiatric illness; is a

variant of obsessive compulsive disorder and anxiety disorder [20]. Studies in North America followed 91 women between the ages of 12-18 years, with type 1 DM. After 4 to 5 years, 71% of those who had normal eating behaviour developed disordered eating patterns and the number of women omitting insulin rose from 14% at baseline to 34%. These anarchic behaviours were teamed with microvascular complications, including a high risk of diabetic retinopathy and impaired metabolic control [21].

On the contrary, not all people who restrict insulin do so for the effect of weight loss. Some diabetics have psychological barriers to their condition, including cognitive issues, injection-related anxiety (needle phobia), mood disorder, social barriers and anxiety about becoming hypoglycaemic [8].

3 How is diabulimia recognized?

Some of the common warning signs include:

- Persistently high hemoglobin A1c (glycosylated haemoglobin).
- Frequent emergency hospital visits or admissions for DKA.
- A significant increase in the drive for thinness and body dissatisfaction.
- Eating behaviours similar those individuals with bulimia nervosa.
- Hyperglycaemia leading to frequent candida or bladder infections.
- High HbA1c levels which may cause irregular menstruation and amenorrhoea and delayed puberty due to interference with the function of the brain.
- Cancelled or infrequent attendance at follow-up diabetic out patients' appointments.
- Unreliable blood glucose monitoring indicating irregularities in the documentation of glucose measurements.

4 Treating diabulimia

The first strategy for the treatment of eating disorders is cognitive behavioural therapy (CBT) along with self-monitoring [22-24]. This course of treatment, developed by Fairburn and colleagues [3], has a 40%-50% success rate in making long-term changes to patients eating behaviour [24]. Antidepressant medication [25]; interpersonal psychotherapy (IPT) [24, 26] or an intensive CBT programme is secondary interventions when CBT alone fails [4, 22]. Dialectical behaviour therapy (DBT) has been shown to be effective in the treatment of binge eating disorder (BED) when other combinations of treatment fail. DBT developed by Linehan (1993) was first used to treat borderline personality disorders [27]. Evidence-based treatment options are available (CBT, DBT) and effective, however, the success rate is only 40%-50% [3] and there are still individuals with diabulimia who do not go into remission. The more intensive form of CBT is used to treat those individuals who still have symptoms after other treatment modalities conclude. Eating disorder prevention programmes have been aimed at young adolescents in schools [28-30]. This form of health promotion has shown a reduction in disordered eating patterns, eating attitudes, behaviours and an improvement in healthy eating among these populations [30].

Although the discussed treatment options are for AN, BN and EDNOS, they have been shown to be successful for diabulimia sufferers as the clinical features of these conditions are similar [6, 31].

5 Implications for practice

There is no consensus that explains why some individuals with type 1 DM are at a higher risk of eating disorders than their non-diabetic counter parts. The understanding of insulin manipulation as a health behaviour is also limited. The specific role of insulin manipulation in weight management is of particular concern, with potentially detrimental short and long-term complications for the individual with diabulimia, as stated previously. It is important therefore, that early detection of, and intervention for this behaviour is improved in clinical practice, and should be considered particularly in the pre-adolescent period. To be effective, a strong non-judgmental, trusting relationship between the individual and their Health Professionals (HP) is required. Early referral to a specialist in eating disorders should occur once the condition has been confirmed. If preventative measures can be employed, the use of insulin manipulation as a weight loss strategy, and consequently, detrimental health outcomes, may be reduced in adolescents. Consequently, HP are ideally placed to reduce the risk of eating disorders in young diabetics through education regarding DM, the consequences of eating disorders and the importance of adherence to treatment and self-care behaviours, such as, exercise and healthy eating. The importance of a positive body image should be highly stressed. Although the phenomenon of diabulimia has been documented in the research literature since the late 1980s, there is still little known about the condition and there is a dearth of literature on diabulimia generally. This would suggest that further research is needed to highlight the importance of this condition on a local, national and global level.

6 Conclusion

Eating disorders are increasingly being recognized as a major problem in developed countries and are a cause of physical and psychological morbidity in adolescent and young adult women in the western world.

Diabulimia is an eating disorder in which people with type 1 DM deliberately omit insulin in order to lose weight. Although diabulimia has been around since the 1980s, it is still not recognized as a medical diagnosis. Type 1 DM and eating disorder often affect adolescents and young adults, especially females. Diabulimic individuals also suffer from other anomalies related to their eating behaviours since they commonly diet or exercise to control weight and to overcome body dissatisfaction. Diabulimia is associated with microvascular and macrrovascular complications, therefore, early identification through routine screening for eating disturbances is important as prevention and early treatment are the cornerstones to prevent long term morbidity and mortality in young people with type 1 DM.

While this disorder is relatively well known to endocrinologists who treat a large number of patients with type 1 DM diabetes, it is not often recognized by primary health care providers or by family members and care givers. To most effectively mitigate adverse health outcomes and improve metabolic control of adolescents and young people with Type 1 DM, a greater understanding of these behaviours, as well as the predisposing factors is necessary. If diabulimia is detected early, interventions can be put in place to minimize the risk of future complications in young people diabetics with Type 1 DM diabetes.

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