Some women with type 1 diabetes deliberately omit or reduce insulin dosages to lose weight. This diabulimia may lead to serious heart and neuropathic complications.

Reflections on reducing insulin to lose weight

In this article...

- Why some women reduce insulin doses to lose weight
- Long-term consequences that women feel are the result of diabulimia
- What nurses should look for as signs of women reducing insulin doses

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Diabulimia is not a recognised medical condition, although it is thought to affect one-third of women with type 1 diabetes. Diabulimia involves deliberately omitting or reducing insulin dosages to lose weight.

This article reports the reflections of women with long-duration type 1 diabetes who said that they had manipulated their insulin in the past to lose weight. Many were now dealing with serious heart and neuropathic complications, which they felt were a result of their diabulimia.

Deliberately omitting or reducing insulin dosages to induce rapid weight loss constitutes an eating disorder termed “diabulimia” (Ruth-Sahd et al, 2010). Diabulimia is not recognised as a medical condition, although it has been reported in the media.

Ruth-Sahd et al (2010; 2009) stated that restricting insulin to lose weight was widespread among women with diabetes and that many, but not most, may do this at some point. Shaw and Favazza (2010) estimated the condition was present in 14% of adolescents with type 1 diabetes and that 50% of women with diabetes had an eating disorder.

This article focuses on the reflections of women with long-duration type 1 diabetes who have manipulated their insulin to lose weight. The majority now care for their diabetes well.

It should be borne in mind that insulin may be omitted because it is forgotten rather than deliberately not taken, and blood glucose levels may be erratic due to brittle type 1 diabetes, which is very difficult to control. People leading a busy lifestyle may also find it difficult to incorporate unplanned meals into their insulin regimen.

The causal link between prolonged high blood glucose levels and the development of chronic diabetic complications such as eye, heart and kidney disease was confirmed by the seminal Diabetes Control and Complications Trial in 1993 (DCCT Research Group, 1993). This was followed by guidance, including the Department of Health’s National Service Framework for Diabetes in 2001, the DAFNE guidance (dosage adjustment for normal eating) (DAFNE Study Group, 2002); National Institute for Health and Clinical Excellence guidance including that on the use of diabetes education models (NICE, 2003), and the Department of Health’s Quality and Outcomes Framework for general medical services.

Aim and methods

This study explored women diabetes patients’ reflections of past diabulimia.

A convenience sample of 10 women with type 1 diabetes, aged 31-48, took part in a focus group discussion. Participants had taken part in a survey in 2003-04 of 400 people by the Insulin Pump Therapy group (INPUT), and had attended a diabetes meeting in the south east of England in June 2011.

5 key points

1. Up to a third of women with type 1 diabetes may try to lose weight by reducing their insulin.
2. Weight loss may occur because, in the absence of insulin, the body metabolises fats instead of carbohydrates.
3. Reducing insulin below recommended levels results in poor glycaemic control and may lead to diabetic ketoacidosis.
4. Poor glycaemic control leads to long-term complications such as heart disease, neuropathy and retinopathy.
5. Women with type 1 diabetes should use insulin as recommended to maintain good glycaemic control.

Mismanaging insulin has serious effects


**Research**

During an informal discussion at this meeting about self-managing type 1 diabetes, it became apparent that many of the women (10 out of a group of 15) had reduced their insulin dosage to lose weight, some far more frequently than others.

Further statements revealed many of the group had developed chronic complications of diabetes such as autonomic neuropathy (damage to the autonomic nervous system predominantly manifesting as cardiomyopathy), coronary heart disease, dyslipidaemia and hypertension, in addition to retinopathy and peripheral neuropathy.

The 10 women who mentioned past manipulation of insulin took part in a focus group discussion in July 2011. A focus group was considered to be the most effective way of obtaining data from participants who were in one location at the same time (Frey and Oishi, 1995).

The term “diabulimia” was explained before data collection. The participants were then asked the following question to generate contextual data (Holliday, 2002): “You've each mentioned past diabulimia. How do you feel about that now?”

Interviews were tape-recorded with the interviewees’ permission and transcribed verbatim. The data was analysed thematically, both by the researcher and by using winMAX analysis software (Kuckartz, 1998) to reduce any researcher bias.

Formal ethical approval was not necessary for this study as it was not based within a hospital, did not involve accessing the individual’s medical records, or change their insulin treatment or diabetes medication. All the women approached made an informed choice as to whether to participate in line with ethical research principles (British Psychological Society, 2003).

**Results**

Thematic data analysis identified three main themes: the individuals’ regret at their actions by deliberately worsening their future health; dealing with the consequences of long-term hyperglycaemia; and reduced quality of life. Each of these themes is shown below with quotations best representing the topic.

### Regret over past actions

All of the 10 women regretted deliberately and frequently mismanaging their diabetes in the past to lose weight.

Each stated that they were unaware at the time of the dangers of ketoacidosis and what they were doing to their bodies:

- **Woman aged 48 years with hypertension, retinopathy and neuropathy:**
  - “When I was 18, I thought I was being clever. I’d been given diabetes, but the one good thing about it was that, without insulin for a few days, I could lose a stone in a week! If I was careful and didn’t let it get to the stage where I started being sick and dehydrated, I could stay out of hospital. Of course, the weight always came back when I started being sensible again.”

- **Woman aged 44 years with cardiomyopathy and retinopathy:**
  - “I feel so ashamed and guilty about the stupid things I used to do as a youngster. I would drink Lucozade and not have my insulin because I wanted to lose weight. God knows what my blood glucose levels were like! It wasn’t long before I started developing eye problems and I cried because they said I would lose my sight. Then, when I was in my 30s, I began fainting for no reason, and feeling dizzy when I got up. They diagnosed difficulties with blood pressure regulation and heart problems. I realised I’d brought it all on myself.”

- **Woman aged 44 years with dyslipidaemia:**
  - “I have been told that hypertension in diabetes is very serious and that I am at increased risk of death due to cardiovascular problems. This really frightens me and I now keep my blood glucose levels as normal as possible with multiple daily injections.”

- **Woman aged 38 years with dyslipidaemia and Charcot joint(s):**
  - “Life is hard with diabetes and complications. I am often depressed by what has happened and wish that life had an undo button! I often get a pounding in my head and ears when my blood pressure is too high, and have had several terrible nosebleeds. My feet prickle constantly and it is much worse at night [peripheral nerve damage], meaning I often can’t sleep. And all because of diabetes.”

**Consequences of poor glycaemic control**

All 10 participants stated they now realised their current diabetic health status with chronic complications was due to periods of poor glycaemic control in the past.

- **Woman aged 46 years with hypertension and retinopathy:**
  - “I have been told that hypertension in diabetes is very serious and that I am at increased risk of death due to cardiovascular problems. This really frightens me and I now keep my blood glucose levels as normal as possible with multiple daily injections.”

- **Woman aged 33 years with cardiomyopathy and retinopathy:**
  - “Because I’ve developed autonomic neuropathy through poor [blood glucose] control, I feel generally unwell all the time. This might have happened with long-term diabetes anyway, but I’ve been told it’s because I often had ketosis when I was younger. All my systems are affected – digestion, bladder but mostly heart.”

**Reduced quality of life**

All 10 women said their quality of life was affected to some degree by chronic complications of diabetes.

- **Woman aged 46 years with hypertension and peripheral neuropathy:**
  - “Life is hard with diabetes and complications. I am often depressed by what has happened and wish that life had an undo button! I often get a pounding in my head and ears when my blood pressure is too high, and have had several terrible nosebleeds. My feet prickle constantly and it is much worse at night [peripheral nerve damage], meaning I often can’t sleep. And all because of diabetes.”

**BOX 1. DEFINITION OF TERMS**

<table>
<thead>
<tr>
<th>Type 1 diabetes</th>
<th>Diabetic ketoacidosis (DKA)</th>
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<tr>
<td>Occurs when there is a severe lack of insulin. This results from the complete destruction of the insulin-producing cells in the pancreas by autoimmune attack. Daily insulin injections are required for survival.</td>
<td></td>
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<tr>
<td>Involves a shift in the body’s source of fuel, where fats are metabolised instead of carbohydrates in the absence of insulin. This is accompanied by hyperglycaemia – high blood glucose levels – and the appearance of ketones in the urine.</td>
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**Diabetic cardiomyopathy** may stem from autonomic neuropathy affecting the heart and circulatory system. Symptoms include resting tachycardia, postural hypertension, silent myocardial ischaemia and anaemia.

**Diabetes mellitus** may develop from a number of causes and be divided into the following types:

- **Type 1 diabetes:** Occurs when there is a severe lack of insulin. This results from the complete destruction of the insulin-producing cells in the pancreas by autoimmune attack. Daily insulin injections are required for survival.

- **Type 2 diabetes:** Occurs when the pancreas produces little or no insulin or when the body is resistant to the action of insulin and is usually managed with oral medication or insulin injections, with lifestyle changes to help maintain healthy blood glucose levels.

**Diabetic neuropathy** may be described as a consequence of poor glycaemic control and the fact that I am often told I have high blood glucose levels. I am often told I am at increased risk of death due to cardiovascular problems. This really frightens me and I now keep my blood glucose levels as normal as possible with multiple daily injections.

**Diabetic retinopathy** is a condition in which the blood vessels in the retina become blocked or damaged. This may lead to progressive vision loss and blindness.

**Charcot foot** occurs in people with poorly controlled diabetes, causing joint degeneration due to nerve damage. Bone damage leads to areas of increased fragility and fracture, resulting in malformation of areas of the foot.
BOX 2. IMPLICATIONS FOR NURSING PRACTICE

- Nurses should consider diabulimia as a potential condition when an admitted patient has an elevated blood glucose levels and a history of admissions for ketoacidosis or eating disorder
- In patients with diabulimia, psychological intervention/counselling should be considered to understand why they are restricting insulin and identify cognitive barriers to effective diabetes self-management. However, such intervention is rarely available on the NHS
- If appropriate, support for healthy weight loss should be available
- Patients should be able to access support from health professionals for managing chronic complications, and should be encouraged to attend regular preventive screening appointments
- General nurses could identify patients manipulating their insulin and refer them to a specialist diabetes service

Discussion

All 10 women in this study mentioned trying to lose weight in the past by deliberately reducing or omitting their insulin, which, on some occasions, resulted in diabetic ketoacidosis. All had developed some form of chronic complication of diabetes at a later date, which they attributed to periods of poor diabetes control.

It must be acknowledged that the link between glycaemic control and the development of chronic complications was not confirmed until the Diabetes Control and Complications Trial (DCCT, 1993) with a further emphasis on heart complications in the 1995 DCCT study. Thus health education for emphasis on heart complications in the prevention of chronic complications was not confirmed until the Diabetes Control and Complications Trial (DCCT, 1993) with a further emphasis on heart complications in the prevention of chronic complications. The remaining three participants indicated in their general comments that they felt complications of diabetes were inevitable over time.

There is no doubt, however, that diabetes complications can be delayed or prevented with improved glycaemic control, with the obvious benefits of a better quality of life for the individual, and reduced costs for health services. NT

References


Owen Mumford launches Unifine® Pentips Plus – a unique Pen Needle with Integrated Remover

Owen Mumford has launched a unique pen needle in direct response to healthcare professionals’ and patients’ needs – Unifine Pentips Plus. Research revealed that for both healthcare professionals working with diabetes and people living with the condition, changing a pen needle was inconvenient and an experience that could be improved upon.

Healthcare professionals said:
- They needed a device which would encourage good practice and optimal changing of pen needles to ensure better patient health
- That any device must be high quality, cost effective and simple to demonstrate to their patients

People with diabetes said they needed:
- A needle that was easier to change and dispose of when out and about
- A solution to make handling easier when attaching the needle to their injection pen

From this feedback Owen Mumford developed a product that has safety and convenience at the heart of its design providing three main benefits:

1. Easier to remove – Unifine Pentips Plus can be placed on a flat surface and the pen needle removed without a patient’s (or carer’s) hand ever approaching the used pen needle

2. Easy to handle – Unifine Pentips Plus incorporates an integrated disposal chamber making the device larger and easier to use when attaching or removing a needle, particularly for people with dexterity issues or visual impairment

3. Easier disposal – the integrated disposal chamber features Safety Click Technology™ indicating that the needle has been securely stored away and provides a safe place to dispose of a used needle when a sharps bin is not immediately to hand

Unifine Pentips Plus is compatible with all major injection pen devices, including Novo Nordisk, sanofi and Lilly products. In addition, to provide the healthcare professional with a range of lengths to meet all their patients’ needs the device is available in four sizes: 5mm, 6mm, 8mm and 12mm.

Unifine Pentips Plus will be available from March 2012 on FP10 Prescription and also directly from Owen Mumford.

Trade enquiries: Contact Owen Mumford on 0800 032 0439 or visit www.owenmumford.com