

Putting weight management on the nursing agenda

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ARTICLE POINTS

- 1 Levels of obesity continue to rise at alarming rates.
- 2 Obesity is the biggest risk factor for type 2 diabetes.
- 3 Nurses managing type 2 diabetes must consider developing weight management skills.
- 4 Patients respond best to an integrated, multidisciplinary approach.
- 5 Successful treatment strategies include nutritional management, increasing activity, pharmacotherapy and surgery.

KEY WORDS

- Obesity
- Type 2 diabetes
- Dietitian
- Diabetes specialist nurse
- Weight loss

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Introduction

As the obesity epidemic continues, the harmful effects of central adiposity will result in a large increase in cases of type 2 diabetes. The majority of these people will require weight management, placing yet greater demands on the dietetic profession. People with type 2 diabetes respond best to an integrated, multidisciplinary approach to weight management and nurses must consider how best to contribute to this process by collaborating with other disciplines to develop the appropriate skills. It is important to intervene early, when motivation levels are high, in order to reduce the need for diabetes treatments, most of which are obesogenic. Successful treatment strategies include nutritional management, increasing activity, pharmacotherapy and surgery.

One needs only to open a newspaper or switch on the TV to be confronted by yet more alarming statistics of the obesity epidemic: 20% of the adult population in the UK is now obese compared with only 6–8% in 1980 (DoH, 1999). With childhood obesity rates currently 5.5% for boys and 7.2% for girls, and rising fast (DoH, 2003), the expectation that 1/3 of all adults will be obese by 2010 is probably too conservative.

Obesity is usually defined as a body mass index (BMI) above 30 kg/m² (Table 1), but it is increasingly recognised that BMI in the overweight range can adversely affect health, particularly in some ethnic groups where there is a tendency to gain excess fat (adipose) tissue around the abdomen at lower BMI levels (WHO, 2000).

Indeed, Lean et al (1995) argue that the limitations of BMI make a waist circumference of 88 cm in females and 102 cm in males a more accurate global predictor of ill health (Table 2). But however we measure the obesity epidemic, the end result is still the same – an explosion in obesity-related

comorbidities, and type 2 diabetes in particular – the prevalence of which is set to increase from 2 million to 3 million in the UK within the next decade (Zimmet et al, 1997).

What links obesity and type 2 diabetes?

Obesity is the biggest risk factor for type 2 diabetes. Ninety per cent of people with type 2 diabetes are obese or overweight, and the average BMI at diagnosis is 29 kg/m², but it is abdominal adiposity in particular that sets off the harmful chain of events that results in type 2 diabetes (Figure 1).

As Wilding (2002) describes, abdominal fat is a marker for visceral fat, which, when broken down by lipolysis, results in raised levels of non-esterified fatty acids (NEFAs). This increases gluconeogenesis in the liver, inhibits insulin secretion from the pancreas and causes a reduction in glucose uptake by skeletal muscle as well as a reduction in insulin sensitivity. Other adipose tissue products, such as tumour necrosis factor alpha (TNF α), also inhibit insulin action.

Table 1. Categories of body mass index (weight [kg] / height [m]²)

| Normal weight | Overweight | Pre-obese | Obese Class 1 | Obese Class 2 | Morbidly obese Class 3 |
|---------------|------------|-----------|---------------|---------------|------------------------|
| 18.5–24.9 | ≥25 | 25.0–29.9 | 30.0–34.9 | 35.0–39.9 | ≥40 |

As resistance to the action of insulin builds up at hepatic and muscular sites, a compensating hyperinsulinaemia develops to counteract hyperglycaemia and glucose intolerance. Eventually, the pancreas is unable to maintain high rates of insulin secretion and type 2 diabetes develops (Figure 2).

In 50% of cases, an abnormal or dyslipidaemic lipid (cholesterol) profile also develops, comprising high triglyceride levels, low high-density lipoprotein (HDL) cholesterol levels and high low-density lipoprotein (LDL) cholesterol levels (Tuck, 2000). This increases the number of smaller LDL particles that contribute to the fatty atherogenic plaques seen in heart disease. Patients also develop hypertension because insulin resistance (IR) causes a rise in sodium reabsorption from the kidneys and increased sympathetic nervous system stimulation.

This clustering of central obesity, IR, glucose intolerance, dyslipidaemia and hypertension is known as the metabolic syndrome, and explains why cardiovascular disease is the most common cause of morbidity and mortality in people with the condition (English and Williams, 2001).

Where does the nurse fit in?

As the link between type 2 diabetes and cardiovascular risk becomes more firmly established, the nurse’s role has extended to include risk factor management alongside glycaemic control. Symptomatic management is often much harder if the patient is obese; yet, in the authors’ experience, the significance of obesity as the driving force behind the disease process is often underplayed by the nurse in clinical practice.

Traditionally, obesity has been viewed as a complex, time-consuming problem that is best managed by the dietitian, yet it could be argued that the obesity epidemic is now too vast to be dealt with by one discipline alone. Indeed it is acknowledged that patients respond best to an integrated multiskilled weight management approach (Kopelman, 2002).

At a time when dietitians are rethinking the way that information is exchanged during patient encounters, and developing

Table 2. Action levels associated with waist circumference (cm)

| | Action level 1 – Alert <i>(avoid further gain)</i> | Action level 2 – Action <i>(lose 10 kg and seek help)</i> |
|-------|--|---|
| Men | 94 | 102 |
| Women | 80 | 88 |

interpersonal skills to promote a less directive, more collaborative approach to treatment, it may be that nurses need to reappraise their approach to obesity management.

The case for early intervention

The metabolic consequences of the disease make it harder for people with type 2 diabetes to lose weight (Wing et al, 1987). It is important, therefore, to put obesity on the agenda along with glycaemic control at the time of diagnosis, when motivation is at its highest – especially as there is some evidence that early weight loss may contribute to increasing longevity (Lean et al, 1990).

People with type 2 diabetes should be encouraged to record weight as well as blood glucose levels. They need to understand the link between obesity and type 2 diabetes from the outset and receive the positive message that they are able to improve insulin sensitivity and decrease insulin resistance through weight loss; at the same time, they need to understand that the overriding importance of tight glycaemic control will eventually necessitate the use of medication that could be classed as ‘obesogenic’. Since the first treatment of choice if the patient is obese is likely to be a biguanide, which will have a neutral or weak anorectic effect, the weight gained from subsequent medications often catches patients unawares (UKPDS, 1998).

Assessment

The following factors should be considered when a patient is assessed:

Anthropometry

BMI, waist circumference and body fat (impedance) are simple measurements that are easily performed in the clinical setting. These form the initial step in the clinical assessment of obesity.

Figure 1. Abdominal adiposity in particular sets off the harmful chain of events that results in type 2 diabetes.



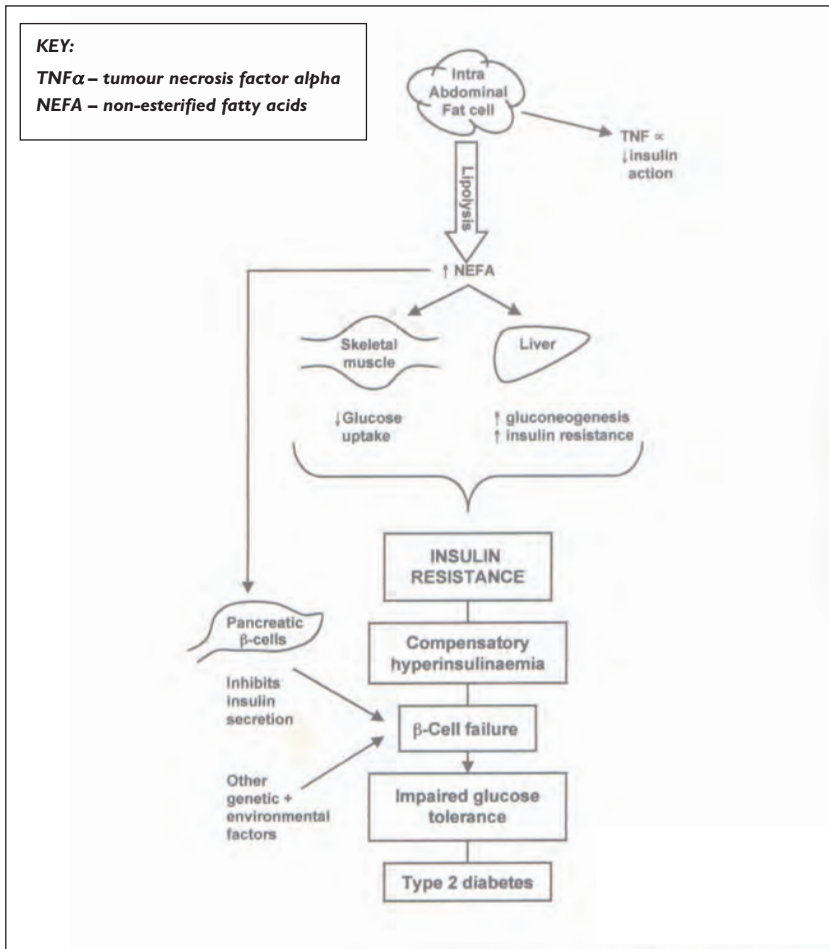


Figure 2. The progression to type 2 diabetes.

‘confidence’ scores, though more common, are easier to improve with support (Miller and Rollnick, 1991).

Ambivalence chart

Helping patients to list the pros and cons of weight loss on an ambivalence grid can identify the current barriers for that individual. Predicting the likely pros and cons over a 12-month period helps patients understand the consequences of putting off change (Rollnick et al, 1999).

Weight history

It is important to record the lifelong weight history of the patient and other family members. For patients who have been obese since childhood, or who are steadily gaining weight, it may be more appropriate to achieve weight ‘stability’ as opposed to weight loss. The presence of other obese family members often makes weight loss more problematic (Vogler et al, 1995).

Realistic goal setting

When asked to set a weight loss target, most obese individuals will express a desire to return to an ‘ideal’ normal weight (Brownwell and Wadden, 1991). Unfortunately, such an unrealistic target is difficult to attain and will only undermine confidence further. There is ample evidence that a more modest weight loss of 5–10% of body weight will produce clinical benefits in all modifiable risk factors, such as HbA_{1c}, hypertension and dyslipidaemia, as well as improving personal factors such as self-esteem and quality of life (Goldstein, 1992).

Time spent negotiating a step-by-step approach to this more realistic goal from the outset avoids the difficulty of having to remotivate the individual from a position of failure further down the line. Providing patients with a written copy of mutually agreed weight loss goals encourages them to take responsibility for the task.

Key points of treatment

Nutrition

The Nutritional Subcommittee of the Diabetes Care Advisory Committee of Diabetes UK has recently (2003) recommended: a greater flexibility in the

Comorbidities/genetic causes

As well as diabetes, it is important to identify other common obesity-related comorbidities, including hypertension, hyperlipidaemia, ischaemic heart disease, sleep apnoea, osteoarthritis and gastrointestinal disorders. Endocrine conditions associated with weight gain, including hypothyroidism, Cushing’s syndrome, hypogonadism, and polycystic ovarian syndrome, should also be considered. Rare genetic causes such as Prader-Willi syndrome and Bardet-Biedel syndrome are more likely to be investigated in a specialist setting.

Motivation

Asking patients to indicate on a scale of 0–10 how important weight loss is to them and, equally, how confident they feel of success can elicit useful information about the likelihood of success (Goldstein, 1992). Patients scoring low on the ‘importance’ scale are generally harder to motivate and may require more time to understand the consequences of type 2 diabetes. Low

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1 Asking a patient to list the pros and cons of weight loss can identify the particular barriers for that individual.

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3 When asked, most obese individuals will set unrealistic weight loss targets.

proportion of energy gained from carbohydrate and fat; the use of monounsaturated fat and low glycaemic index carbohydrates; and a relaxation of the 25 g/day sugar restriction.

People who are obese will also require a 500 kcal deficit diet to promote a weight loss of 1–2 lb a week (Melanson and Dwyer, 2002). In our experience, nurses often find it difficult to translate national guidelines into practical terms. For this reason, it is important that nurses and dietitians work together to ensure that dietary messages are delivered consistently within the context of a local policy, whether it be based on the exchange system or the plate model.

The staged approach

Step 1. Establish the current scenario

Before any dietary intervention it can be helpful to ask the patient to talk through how food fits in to a 'typical day' to gain an understanding of the link between the patient's lifestyle and food intake and to identify the vulnerable times (Frost, 2003). Patients can be encouraged to record food diaries; these may not always be filled in accurately, but will still, nonetheless, give valuable information about food choices and eating habits.

Step 2. Stabilise eating behaviour

It is imperative that people with type 2 diabetes follow a stable eating pattern. Patients with a lifelong history of yo-yo dieting and chaotic eating may need a lot of support to achieve this.

Step 3. Improve nutritional quality

Once eating patterns are stable, work can begin on improving the nutritional quality of the diet. Grace (2001) recommends that messages should be specific and translated into practical advice. Generally, patients respond better to positive messages about what food is beneficial to eat, rather than negative messages about 'bad' food. Creating lists of forbidden foods can result in cravings and promote relapses in the future.

Step 4. Promote a 500 kcal negative energy balance

Developing knowledge of the calorific content of food can be a daunting prospect

for nurses. As a general rule, promoting a diet low in fat will automatically result in a calorie reduction, as 1 g of fat contains more than twice the calories of 1 g of carbohydrate.

Caution must be exercised when recommending dietary literature that promotes blanket energy recommendations – typically 1200 kcal for women and 1500 kcal for men – as, for a very obese person, this may be several thousand calories less than they need, and difficult to follow (Frost et al, 1991).

Activity and exercise

Activity refers to any significant bodily movement, and can be increased simply by reducing sedentary time. Exercise is more specific and refers to a subgroup of structured physical activities, undertaken with the intention of improving aspects of weight or health (Fox and Page, 2001).

Increases in either can reverse the harmful effects of products secreted by intra-abdominal fat on lipid metabolism and insulin sensitivity. This message about the importance of 'metabolic' fitness has been imparted to individuals with type 2 diabetes for some time (Eriksson et al, 1997).

Recommendations for 'cardiac' fitness are currently 30 minutes of moderate-intensity exercise, equivalent to brisk walking, 5 days a week, or alternatively 10 000 steps a day (Pate et al, 1995). Most people with type 2 diabetes find these targets unattainable and, if dispensed inappropriately, counterproductive. We believe that a more helpful approach is to ask patients to record how many steps they take in a week, using a pedometer, and to agree incremental targets based on the baseline readings. In addition, exercise referral schemes allow more able patients to engage in moderate-intensity activity in a safe, controlled environment.

Medication

Guidelines for the use of pharmacological weight loss agents in type 2 diabetes can be found on the National Institute for Clinical Excellence (NICE) website (www.nice.org.uk). Orlistat, a pancreatic lipase inhibitor, acts enterically to prevent the absorption of 30% of dietary fat and has been shown to cause an average weight loss of 6.2 kg in

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4 Most people with type 2 diabetes find national exercise targets unattainable and, if dispensed inappropriately, counterproductive.

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patients with type 2 diabetes taking sulphonylureas, resulting in reductions in HbA_{1c} and diabetes medication and improved lipid and hypertension profiles (Hollander et al, 1998). Similar effects have been observed with other treatments.

Alternatively, sibutramine has been shown to promote weight loss in people with type 2 diabetes (McNulty et al, 2003). The medication enhances feelings of fullness by blocking serotonin uptake and promotes energy expenditure (thermogenesis) by inhibiting noradrenaline re-uptake, although it is currently not available for patients with heart disease and hypertension above 145/90 mmHg.

Surgery

Patients with type 2 diabetes who have obesity surgery can see drastic improvements in insulin sensitivity and occasionally see their diabetes disappear altogether (Sjostrom et al, 1999). These effects are still apparent several years later, although patients continue to require lifelong specialist support to adjust to new eating patterns.

Conclusion

Weight management in type 2 diabetes is an uphill challenge, requiring lifelong support. Nurses involved in diabetes management are ideally placed to offer this support through the unique relationship that develops between the patient and nurse over time. With appropriate training, nurses can work together with other disciplines to make effective contributions to weight management. ■

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