The importance of the multidisciplinary team for the management of complex obesity in patients with diabetes

This article focuses on the issue of patients with complex obesity. Dr Michelle O’Keeffe explores the importance of multidisciplinary teams in Tier 3 weight management services when working to support patients with diabetes and examines the different roles and responsibilities of the team members.

Complex obesity occurs when someone who is obese has additional and obesity-related diseases, such as type 2 diabetes. It can occur regardless of weight, although it is more likely as body mass index (BMI) increases. A BMI of 30kg/m² or above is considered obese. Complex obesity is a challenging area to address because of the many factors (biological, psychological, behavioural) which contribute to its development and maintenance. As such, multi-component interventions are required to address these myriad of factors.

Systematic reviews have shown that multi-component interventions are effective in the treatment of obesity and are more effective than single component interventions. In a study conducted in the UK, Birnie et al. found that patients who engaged in a two component intervention lost more weight on average (6% of their starting weight) than patients who engaged in a single component intervention (2.3% of their starting weight).

Multi-component interventions require multidisciplinary teams (MDTs) to deliver them. MDTs have been shown to be effective at providing holistic health care and improving treatment outcomes for patients with complex health conditions as well as obesity. NICE has recommended that MDTs are used in the treatment of complex obesity.

Obesity and diabetes

In the UK, the prevalence of both obesity and diabetes is on the rise. The prevalence of obesity has increased from 15% in 1993 to 26% in 2014 such that, in 2014, 58% of women and 65% of men were overweight or obese. Similarly, according to Diabetes UK, since 1996 the number of people diagnosed with diabetes in the UK has more than doubled from 1.4 million to almost 3.5 million in 2014. Of those diagnosed with diabetes, 90% are diagnosed with type 2 diabetes and 56% are male.

Obesity is now thought to be the greatest predictor of type 2 diabetes onset. Ninety percent of adults with type 2 diabetes are overweight/obese, and people who are obese are five times more likely to have type 2 diabetes than people of a healthy weight. Obesity may lead to type 2 diabetes onset due to a build-up of abdominal fat cells which release ‘pro-inflammatory’ chemicals that can disrupt the functioning of insulin-responsive cells and make the body less sensitive to insulin. Weight management services therefore need to be capable of treating/managing diabetes as well as obesity.

Weight management services and funding

In 2013, the NHS Commissioning Board and NHS England and Public Health England Working Group recommended and defined a four-tiered system of weight management services in the NHS (see Figure 1). As part of this system, Tier 3 services are intended to provide a link between the Tier 2 lifestyle interventions and Tier 4 surgical interventions. Tier 3 services provide specialist support to assist with weight loss as well as prepare patients for bariatric surgery – if this is what the patient wants and if they are thought to be ready for surgery from a medical and psychological perspective. This tiered system has been implemented in part due to the health care costs associated with obesity – estimated to be £5.1 billion per year. It means that patients move through a stepped-care process ensuring they are offered the most appropriate intervention for their individual needs; with their clinical need and the complexity of their situation being taken into consideration. It also reduces the cost of unnecessary interventions. Health care cost-effectiveness analyses have shown that while non-surgical interventions are relatively cost-effective they tend to result in modest weight loss.

Bariatric surgery costs more than non-surgical management of obesity but results in greater weight loss and has been shown to be more cost-effective in the long term as a result of reversing and/or improving obesity-related diseases such as type 2 diabetes and the need for medical management of these conditions. Bariatric surgery is an effective weight loss intervention but like any surgery carries risks. As such, it will not necessarily be suitable for everyone nor an intervention that every patient will want.

In terms of funding, although some patients – approximately 25% – are willing and able to pay to have surgery privately, the majority of bariatric surgeries are funded by the NHS. Initially, Tier 3 services were commissioned by clinical commissioning groups (CCGs; a key component of the government’s reforms to the health and social care system which were implemented in 2013 to replace primary care trusts as the commissioners of most services funded by the NHS in England); and Tier 4 services were commissioned nationally by NHS England. As of April 2016, Tier 3 and Tier 4 services have both been commissioned by CCGs. It is hoped that this will allow for the streamlined referral process that was originally intended when the four-tiered weight management service pathway was conceived and which was challenging when there were two different funding bodies in place.

One limitation of Tier 3 services being commissioned by CCGs has been that they are not available across all of the NHS, but have instead been commissioned as
required. As such, the make-up of the Tier 3 teams and interventions offered by them vary depending on the service and, in some cases, have not been commissioned at all. This is significant because in areas without Tier 3 services it falls to Tier 4 services to complete the pre-surgical workup which is not funded for and/or patients do not get the support and interventions they require.

**Tier 3 services**

There are two main aims of Tier 3 services. The first is to provide multi-component interventions delivered by MDTs to help patients lose weight and better manage their weight-related comorbidities. The second is to assess patients’ readiness for surgery and prepare patients for bariatric surgery (if they desire this intervention and are considered ready for surgery).

The Commissioning Guide for Tier 3 services states that GPs should consider referring patients to these services if they have a BMI of ≥ 40, or a BMI of ≥ 35 kg/m² and an obesity-related comorbidity, such as type 2 diabetes. A key component of these services is the role of the MDT.

**Multidisciplinary teams**

It is recommended that the MDT consist of a bariatric physician with a specialist interest in obesity, a dietitian, a clinical/counselling psychologist, and a specialist nurse; and there should be access to a physical therapist if required. In the NHS, weight management assessments and interventions at all levels are informed by ‘Action on Obesity: comprehensive care for all’, a report of the Royal College of Physicians, and ‘Measuring up’, a report of the Academy of Medical Royal Colleges.

**Bariatric physician**

Most MDT weight management services have been delivered in secondary care by bariatric physicians with a specialist interest in weight management, such as endocrinologists or specialists who are often attached to bariatric surgery units. Given the prevalence and complications associated with managing type 2 diabetes, it is logical that diabetic specialists, such as endocrinologists, are the lead clinicians in these services. The role of the physician is to determine the reasons for obesity and establish and manage comorbidities related to the person’s weight. Primary causes (for example, hypothyroidism and Cushing’s syndrome), and secondary causes (such as antipsychotic, diabetic [for example, insulin] and immunosuppressant medications and gene mutations) need to be considered.

Due to the significant risk that obesity poses to a person’s health, the physician also needs to assess for and manage other co-occurring conditions – such as idiopathic intracranial hypertension, sleep apnoea, gastroesophageal reflux disease, and osteoarthritis, cancer, type 2 diabetes, and hypertension.

Cardiovascular function is particularly important to assess if the patient is being considered for bariatric surgery. Following the medical history and physical examination, the physician will then be in an informed position to prescribe appropriate anti-obesity drugs, such as orlistat or liraglutide, and GLP-1 agonists (GLP-1 agonists are not currently licensed for non-diabetic patients in the UK). Referral of patients to related medical specialists for further investigations can also be made as required.
**Dietitian**

The role of the dietitian in the MDT is to assess the dietary habits of the individual and to formulate a tailored management plan that will aid sustainable weight loss. Diabetes UK recommends weight loss as the primary nutritional strategy in managing glucose control in obese people with type 2 diabetes.34

Specific to diabetes, during assessment dietitians determine carbohydrate intake, as the total amount of carbohydrate consumed is a strong predictor of glycaemic response.35 They ascertain the patient’s compliance with diabetes medications and frequency of blood glucose monitoring as well as the impact of prescribed medications on appetite and weight (as sulphonylureas and insulin are known to contribute to weight gain).36

Dietitians work closely with the MDT to help identify and support individuals who may benefit from specific interventions, including very low calorie diets known to induce remission in those with type 2 diabetes.37 Blood glucose results will be reviewed with the individual to support behavioural change. Frequent treatment of hypoglycaemia will increase calorie intake (e.g. Lucozade) therefore this will be taken into consideration when developing eating plans.

In conjunction with the MDT, dietitians support the patient to make behavioural changes to achieve satisfactory glycaemic control before and after weight loss surgery.

**Clinical/counselling psychologist**

The role of the psychologist is firstly to identify the psychosocial factors that contributed to the patient’s weight problem as well as the factors maintaining the problem and preventing the patient from making meaningful lifestyle changes. The psychologist can then recommend a plan for how these factors can be addressed; either by providing them with psychological support within the service or by referring them to an appropriate mental health service.

Assessing the mental health of patients with complex obesity is important because of the high prevalence of psychiatric disorders observed in this population.38 In particular it has been found that there is a significant relationship between obesity and depression39 and between type 2 diabetes and depression.40

Specifically, for diabetes, if the psychologist identifies psychological issues that are impacting upon the patient’s presentation or management (e.g. adherence to treatment regimen) of their diabetes then they can be supported in Tier 3 to address these issues or referred on to another agency for support if appropriate.

For patients with complex obesity it is essential that psychosocial factors related to their weight difficulties are assessed and addressed so that they can lose weight and maintain weight loss in the long term.

The role of the psychologist is also to examine the patient’s readiness for bariatric surgery. As yet there is no clear consensus in the literature regarding psychological factors which definitively predict poor post-surgical outcomes. It is noteworthy, though, that patients with two or more psychiatric diagnoses have been found to be more likely to experience plateauling weight or weight gain one year after surgery compared to patients with less than two diagnoses.41 In addition, given the obese population are psychologically vulnerable, it is possible these issues may re-emerge or be re-activated after weight loss.

As yet, there is no uniform approach to pre-surgical assessment but the American Society for Metabolic and Bariatric Surgery has published guidelines for assessment which outline the domains that should be considered.42 Self-report questionnaires are considered a valuable assessment tool which should be used to supplement the information obtained during the interview, such as the HADS,43 EDE-Q44 and IWQOL-lite.45

Using the information obtained from the assessment the psychologist can then determine, with the aid of a traffic light system,46 a patient’s readiness for surgery. If it is found that they are not ready for surgery at the time of assessment, depending on their individual needs, they may be offered psychological support to assist them in managing their weight difficulties with a view that at a later stage they may be ready for surgery.

**Physical therapist**

Physical exercise has been shown to be an important component of weight loss interventions.37 However, patients with complex obesity will vary in their ability to engage in physical exercise due to pain issues and joint limitations. It is the role of the physical therapist to assess the patient’s physical ability and recommend appropriate physical activity in which they can safely engage, taking into consideration musculoskeletal status, activity tolerance, and personal preferences for activity.

Numerous health benefits are associated with exercise, and exercise has also been shown to assist with weight maintenance.48 Therefore, patients, irrespective of size and weight loss goals, should be encouraged to engage in some form of regular physical activity.

**Specialist nurse**

The role of the specialist nurse in the MDT is to assist with medical assessments, provide advice regarding comorbidity management, assist in the administration and scoring of questionnaires, and assist in the coordination of research studies.23 The specialist nurse also plays a key role in assisting patients with diabetes to effectively manage their condition pre- and postoperatively.

**Outcome**

The outcome of the MDT assessment will be to refer the patient to a Tier 4 service for bariatric surgery, or discharge them back to the GP, or, if the patient has a weight-related comorbidity, share care management with the GP and offer support depending on their individual needs.

Studies have shown that there are significant health benefits (e.g. prevention or management of coronary heart disease, hypertension, type 2 diabetes) achieved from even a modest weight loss of 5% of initial body weight.49 Therefore, irrespective of whether the patient is referred to Tier 4 for bariatric surgery, the Tier 3 MDT can support the patient to make lifestyle changes in order to lose and maintain weight.

The CCG Commissioning Guide states that a patient should be referred from Tier 3 to Tier 4 if the following apply.
Management of complex obesity in patients with diabetes

**Short report**

The patient is adequately engaged with the team, fully understands the surgery, is well-informed and motivated to have surgery, and has realistic expectations.

All management options have been put to the patient including the characteristics of the various surgical procedures available and the risks and side effects.

He/She is medically optimised.

There is no medical, surgical, nutritional, psychological, psychiatric or social contraindication. He/She understands the importance of complying with nutritional requirements before and after surgery and recognises the need for life-long follow-up.

**Conclusion**

Complex obesity is multifactorial in origin and therefore requires a multifactorial treatment approach. MDT members have clearly defined roles within the team but the overall goal is to work as a team to develop a multi-component treatment plan which addresses the specific factors that are preventing the patient from losing weight and effectively managing their diabetes. MDT meetings ensure that regular and effective communication occurs between team members, treatment plans are reviewed and updated regularly, and any miscommunication or discrepancies between team members are addressed quickly and openly.

In summary, the MDT allows for an effective and comprehensive approach to the assessment and management of complex obesity.

**Declarations of interest**

There are no conflicts of interest declared.

**References**