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Clinical Medicine 2014 Vol 14, No 6: 669–72

CME DIABETES

Diabetes and mental health

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ABSTRACT

Diabetes is an increasingly common health problem, and accounts for one-tenth of NHS spending, chiefly managing avoidable complications. Approximately one-third of people with diabetes have psychological and/or social problems which impede their ability to self-manage their diabetes. Identifying certain indicators which suggest high risk of co-morbid mental health problems will allow these to be identified and treated early. Ensuring that any mental health problems are treated and social needs are met, will be valuable in improving the individuals health. Addressing the psychiatric and psychological barriers to good glucose control can help to reduce the burden of diabetes and its complications, on both the individual and the wider health service.

Introduction

Diabetes is an increasingly common health problem, especially in the West, where there is an emerging epidemic of type 2 diabetes. Diabetes accounts for one-tenth of NHS spending, and 80% of this is spent on managing potentially avoidable complications.

Many people who have diabetes struggle to optimise their diabetes control, often because of comorbid mental illness or psychological and social problems. Unfortunately, poor diabetes control has significant consequences for the individual, and if not addressed, will result in the development of complications that include blindness, kidney failure and even amputations. In addition to the consequences for the individual, these complications have an impact on health services in the form of

increased admissions, out-patient attendances and emergency department presentations with diabetes-related difficulties. In the long-term, the costs associated with complications resulting from uncontrolled diabetes, such as renal failure and amputation, are very high. Approximately one-third of people with diabetes have psychological and/or social problems that impede their ability to self-manage their diabetes.¹

Epidemiology

The evidence base for the interrelationship of diabetes with mental illness has increased over the past 13 years. In 2001, Anderson *et al*² conducted a meta-analysis which indicated that the presence of diabetes doubled the risk of comorbid depression. A systematic review of more recent literature, published in 2012 by Roy and Lloyd,³ found rates of depression in people with type 1 and type 2 diabetes three times and twice those in the general population, respectively. An understanding of the bi-directional pathophysiological relationship between diabetes and depression has been elucidated by Rustad *et al*,⁴ but key posited aetiologies are activation of the innate immune system and increased activity of the hypothalamic – pituitary – axis, in addition to the psychological burden of the illness. The significance of a double diagnosis of diabetes with depression is illustrated by the associations with non-adherence to treatment, poor glycaemic control and increased numbers of complications (including diabetic retinopathy, nephropathy, neuropathy, macrovascular problems and sexual dysfunction).^{5–7} In addition, Park *et al*⁸ found a hazard ratio of 1.5 (1.35–1.66) for all-cause mortality in depressed patients with diabetes.

Eating disorders are also associated with diabetes. In a meta-analysis published in 2005, Mannucci *et al*⁹ found that bulimia nervosa is more prevalent in females with type 1 diabetes in comparison to the normal (ie non type 1) female population (1.73 vs 0.69). Evidence for eating disorders in

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type 2 diabetes is less established, although this form of diabetes is associated with an increased prevalence of binge eating disorder.^{10,11} Although anorexia nervosa is not at increased prevalence in the diabetes population, patients with either anorexia or bulimia nervosa are significantly at risk of complications (retinopathy and nephropathy) and mortality if using insulin omission as a method of weight loss.^{12,13}

In a meta-analysis by Smith *et al* in 2012, the odds ratio (OR) for anxiety disorder was 1.20 (1.10–1.31) and for anxiety symptoms 1.48 (1.02–1.93), whereas the pooled OR was 1.25 (1.10–1.39).¹⁴ Anxiety disorders diagnosed by diagnostic interview have also been shown to be significantly associated with poor glycaemic control.¹⁵

Specific psychological problems in diabetes

In addition to these relationships with mental illness, diabetes is associated with specific psychological problems that may have a direct effect on glycaemic control, and thus on the development of complications, future physical disability and mortality. Box 1 shows a number of indications for psychiatric assessment in diabetes.

Acceptance of diagnosis, denial and uncertainty

Individuals who have received a recent diagnosis of diabetes frequently describe difficulties in adjusting to the diagnosis. In particular, they may report difficulties around acceptance of the diagnosis of a long-term condition that requires constant self-management if the long-term sequelae are to be avoided. This can involve a variety of responses from a depressive or grief-type reaction to denial and avoidance, all of which can result in poor glycaemic control.

Fear of hypoglycaemia

The subjectively unpleasant experience of hypoglycaemia might result in the individual being so anxious to avoid its recurrence that they run their blood glucose much higher than recommended (often particularly at night), and as a result glycaemic control deteriorates.

Fear of complications

Most patients take information regarding potential complications in their stride, but there are a small number of individuals who become fearful of developing these conditions. When some

individuals see a high glucose reading (despite his/her best efforts), she/he feels that no matter what steps she/he takes, she/he cannot fully control his/her diabetes and immediately infers that this means that complications are inevitable. This results in the person feeling discouraged about their diabetes control and perhaps avoiding of the necessary self-care behaviours (to avoid these feelings of failure), which may paradoxically increase the risk of developing diabetes complications.

Adherence

Many patients find it difficult to adhere to the full self-care regimen required for optimal diabetes control. This may be for any of a wide range of reasons, including mental illness or social problems that absorb the individual's attention. The demands of self-management are large and can be difficult to incorporate into a busy lifestyle. In order for these important activities to occur, they must be prioritised as important by the individual. Most people who have diabetes know what they need to do in order to manage their diabetes better, but the challenges of daily life get in the way. A 'motivational interviewing' approach can be useful in helping patients to overcome the barriers to good self-care behaviours, and to prioritise appropriately. These techniques can be usefully incorporated into any consultation (Box 2).

Management

The management of axis I mental disorders in diabetes is not dissimilar to the management of these conditions in the general population. Nevertheless, when the effect of diabetes on a patient's mental status is considered alongside their mental disorder, it is more likely that the individual's physical and mental health will improve. The effect of the mental disorder on the individual's physical health means that psychological interventions are indicated at a lower symptom threshold than would be used for people who do not have diabetes.^{16,17}

Antidepressants are frequently required in the treatment of depression in diabetes. Certain antidepressants, notably duloxetine, amitriptyline and nortriptyline, are licensed for the treatment of pain resulting from diabetic neuropathy, and are useful choices for patients who have comorbid depression and neuropathic pain. Likewise, pregabalin is licensed for the treatment of neuropathic pain, and could be considered for comorbid neuropathy and anxiety. It had been postulated that

Box 1. Red Flags – indications for psychiatric evaluation in diabetes.

- > Evidence of depressed mood
- > Low BMI: this may indicate an eating disorder
- > Reluctance to start insulin therapy: this may indicate needle phobia or a fear of insulin
- > Persistent suboptimal glycaemic control
- > Recurrent admissions (eg for diabetic ketoacidosis or recurrent severe hypoglycaemia)
- > Difficulties at transition to adult services

Box 2. Useful tips to improve self-management of diabetes.

- > Avoid overt criticism of a patient's efforts
- > Observe that the blood tests appear to indicate that they are struggling with the illness
- > Try to look for current positive behaviours to build upon
- > Avoid getting bogged down in reasons why the patient might be failing – unless there are solutions, such discussions might lead to a continued sense of failure
- > Where possible, maintain a small number of clinicians working with a particular patient – it is much easier to work with a patient's motivational problems if you have built up a trusting therapeutic relationship

antidepressants might have a direct action in reducing insulin resistance, although this has been refuted.¹⁸

There is robust evidence to support psychological interventions, such as motivational interviewing and cognitive behavioural therapy (CBT), for the management of psychological problems in diabetes. In addition to improving psychological well-being, psychological interventions have been shown to significantly improve glycaemic control in patients, with a mean reduction in glycated haemoglobin (HbA1c) of 0.5% associated with 12 sessions of a face-to-face programme involving motivational interviewing plus CBT.¹⁹ A recent randomised controlled trial of adherence-focused CBT has demonstrated similar improvements.²⁰

Models of care

Various innovative models of integrated care have evolved in recent years, demonstrating that the integration of psychiatry and diabetes care can result in improvements, not only in mental health, but also in physical health status. In the USA, the Team Care model, which entailed enhanced diabetes care for people with diabetes and depression, with psychological therapies delivered by diabetes nurses under the supervision of a psychiatrist, demonstrated improvements in glycaemic control.¹⁶ Likewise, the London-based 3 Dimensions of Care For Diabetes service, which addresses the social and psychological dimensions of living with diabetes by integrating medical, psychological and social care for patients with persistent poor glycaemic control, has produced outcomes that demonstrate improved glycaemic control, improved psychological well-being, improved patient satisfaction and reduced use of unscheduled care and related costs.¹⁷

Improving outcomes

Diabetes is a common problem that frequently overlaps with mental illness. Clinician awareness of the person's mental health and supporting them to improve their mental health and coping strategies may reduce their risk of developing the complications of diabetes. Identifying certain 'red flags' that suggest high risk of comorbid mental health problems will allow these patients to be identified and treated early (Box 1).

The two case vignettes described in Box 3 indicate the importance of including a psychiatric approach, or at least of

Box 3. Case vignettes.

Persistent hyperglycaemia

Helen is a 61-year-old woman with a 6-year history of type 2 diabetes on maximum oral therapy. She was seen by a community diabetes nurse in her GP practice. Helen had an elevated HbA1c (123 mmol/mol (13.4%)) but was unwilling to attend the diabetes clinic or to try insulin. The diabetes nurse referred her to 3 Dimensions of Care for Diabetes, where she was seen by the support worker and the psychiatrist.

Helen reported a long history of depression (partially treated on a subtherapeutic dose of antidepressant) and a life-long history of self-harm. In addition, she had high levels of anxiety, a life-long pattern of binge-eating, an alcoholic husband and financial problems. She was diagnosed with depression and an unspecified eating-disorder. The psychiatrist titrated her antidepressant to a therapeutic dose and she attended 12 sessions of diabetes-focused CBT that addressed diabetes-related behaviours and mood. The support worker provided advice around her husband's alcoholism. With this input, Helen was able to make lifestyle changes. She improved her diet, exercise and adherence to her diabetes medications. She eventually agreed to attend the diabetes clinic, and at her first appointment, her HbA1c had dropped to 74 mmol/mol (8.9%) with these life-style measures. At the clinic, Helen started a GLP-1 agonist in group. Three months later her HbA1c was at target: 50.8 mmol/mol (6.8%). Her depression is in remission and her binges are less frequent.

Recurrent diabetic ketoacidosis

James is a 28-year-old man who was diagnosed with type 1 diabetes 3 years ago. After the diagnosis was made, there was period of 18 months during which James had over 40 hospital presentations with hyperglycaemia and dehydration or diabetic ketoacidosis. He spent approximately 18 weeks in total in hospital. James works as an accountant in a city law firm and lived with a long-term partner at initial presentation. He was referred to the diabetes psychiatry department by a diabetes consultant at a local district general hospital with anxiety around hypoglycaemia. At the first assessment appointment, James' Hb1c was 143 mmol/mol (15.2%).

At presentation it transpired that James had never had a hypoglycaemic incident and deliberately ran his blood sugars above 20 g/dl in order to avoid having them. He described high levels of anger regarding the illness and resentment of his 'shitty pancreas'. He felt continuously low and wanted to be locked away where nobody could get at him, although conversely, he complained about his partner who seemed unconcerned about James' difficulties. Interestingly, James continued to function at work although he wasn't achieving his usual high standards. He was diagnosed with a moderate depressive disorder and started on antidepressants, which he did not take. He was also treated with a short course of CBT, which improved the anxiety symptoms but failed to improve the low mood. Given the intractable nature of the presentation, James went on to have 25 sessions of psychodynamic psychotherapy over 1 year. His anger gradually subsided and he became more able to adjust to the day-to-day rigmarole of the illness. His HbA1c gradually improved and there were no further admissions with diabetic ketoacidosis. Most recent HbA1c was 51 mmol/mol (6.8%).

Key points

Psychiatric and psychological comorbidities are common in diabetes

These comorbidities are associated with poorer outcomes

Psychological treatments improve outcomes

There is a growing evidence base for integrated care

KEYWORDS: Diabetes mellitus, psychiatry, behavioural medicine, anxiety, depression ■

considering the psychological process that might be at play, in a given clinical situation. Some patients will require specialized psychiatric or psychological input. For others, incorporating basic psychological techniques into your consultation may be useful in overcoming resistance to change and barriers to ideal adherence (Box 2).

Most crucially, treating the person's mental health problems and ensuring that, where present, any social needs are met, will be useful in improving the individuals health.

Addressing the psychiatric and psychological barriers to good glucose control can help to reduce the burden of diabetes and its complications, on both the individual and the wider health service. ■

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