

DEMENTIA AND DIABETES

June James, Nurse Consultant in Diabetes at University of Leicester NHS Trust, and Associate Professor at the University of Leicester, explores the impact dementia can have on a person living with both type 1 and type 2 diabetes

Diabetes and dementia are both long-term conditions which affect individuals in different ways. Successful diabetes care requires a person to have a good understanding of diabetes, follow a healthy eating and physical activity plan, monitor blood glucose levels, attend clinic reviews and take prescribed medication. The presence of dementia – with increasing problems with memory and communication, can make these tasks difficult¹.

The UK population was estimated to be 66.8 million in 2019. Of these, one in five people were over 65 years old. This equates to 18% of the population². The prevalence of both type 2 diabetes and dementia increases in older people. It is not surprising therefore that these conditions are increasing in numbers in the UK. There are 4.1 million people diagnosed with diabetes in the UK³, and 850,000 living with undiagnosed type 2⁴. Over 850,000 people in 2019 were said to have been diagnosed with dementia^{5,6}. It is not known how many of these have diabetes. Dementia can be diagnosed in younger people, but the majority of individuals are over 65 years of age at diagnosis. By 2025, the number of people with dementia is predicted to rise to over 1 million and to 2 million by 2050⁷. The number of people with diabetes in the UK is predicted to rise to 5.5 million by 2030⁸.

1 Are diabetes and dementia linked?

There is a link between type 2 diabetes and dementia⁹. There are many different types of dementia, however diabetes is associated more with Alzheimer's disease and vascular dementia. Type 2 diabetes is a known risk factor for cardiovascular and cerebrovascular disease, so it is not surprising that vascular dementia is more common. The risk of developing dementia is higher in people who have a longer duration and earlier age of onset of diabetes. Women with type 2 diabetes have a 19% greater chance of developing vascular dementia than men¹⁰.

The risk of developing dementia in older people with type 1 diabetes is aligned to glycaemic control; it is more commonly associated with persistent HbA1c values of 64–75mmol/mol¹¹.

2 Should all people with diabetes be screened for dementia?

People with diabetes should be screened for dementia. This usually happens when a family member

notices that they are having some problems with memory loss. People living with diabetes are encouraged to self-manage their condition. Consequently, having dementia may lead eventually to difficulties with self-care and how individuals manage their medication. Depending on their usual treatment plan, this may include problems remembering how often to take diabetes medication, how to use insulin safely, and how to monitor blood glucose. Having both conditions may mean agreeing more relaxed blood glucose targets and blood pressure as strict control of these can lead to a fall resulting from either hypoglycaemia or postural hypotension.

If an individual is diagnosed as having the early signs of dementia it can help the person and their family to make sensible decisions about the future, such as whether they should appoint a Power of Attorney for health and financial planning¹.

3 Should people with dementia be screened for diabetes?

People with diabetes should be screened for dementia. Annual health checks are common practice now in older people and these include screening for diabetes. Conversely, diagnosing diabetes early in people who already have dementia will ensure they receive regular review and diabetes management.

4 What screening tools are available?

Several methods of screening are available. It should be recognised that memory loss is common in people with advancing age and is **not** always a sign of dementia. Screening methods include:

- A simple screening test, such as the Six Item Cognitive Impairment Test (6CIT), or the Mini-Cog¹². These assess attention span and concentration, orientation, short- and long-term memory, and language function.
- Magnetic Resonance Imaging (MRI) or Computed Tomography (CT) scans can be performed to examine brain structure and vascular changes, and exclude other health problems¹.

5 Are there different stages of dementia?

There are seven different stages of dementia. However, it may be easier to look at this in terms of early stage, and mid and late stages of dementia.

Each stage takes some years to develop and progress.

Early stage dementia. This includes problems with memory, planning, mood changes, forgetting people's names and getting lost.

Mid stage dementia. This is when the symptoms become more obvious and the person may need help with dressing and washing, as well as other daily tasks. The person may be more confused or depressed or keep asking the same question repeatedly. They may wander or constantly follow their spouse or carer.

Late stage dementia. This is when the individual will require full-time help with all daily living activities and may require care in a care home. Loss of appetite or refusal to eat is common¹³.

6 How does a diagnosis of dementia in a person with pre-existing diabetes impact on blood glucose management?

People who have had diabetes for many years may have been very skilled at managing their own injections and blood tests. Having dementia may mean that they become increasingly less competent at these skills. In people with diabetes, this can impact on the diabetes medications taken and increase hypoglycaemia risk. Other difficulties that can occur are:

- forgetting to take medications regularly
- no awareness that medication has already been taken, so a second dose is given
- forgetting how to do insulin injections
- forgetting how to carbohydrate count or use an insulin pump in type 1 diabetes
- problems making decisions when interpreting blood glucose results, such as adjusting insulin doses or treating hypoglycaemia
- missing meals and drinks, so increasing the risk of low blood glucose levels (hypoglycaemia) and dehydration
- forgetting they may have eaten and at risk of high blood glucose levels if they eat again
- they may be unable to recognise if they are hypoglycaemic¹.

7 How does a diagnosis of diabetes in a person with previously diagnosed dementia impact on their lifestyle?

People with dementia who develop diabetes may seem to have a worsening

of their dementia because of the diabetes symptoms. Other potential difficulties include the following:

- they may develop incontinence if they need to pass urine more often, but are not able to find the toilet
- the risk of falls is increased due to more frequent visits to the toilet
- there may be increased confusion if blood glucose levels are high and causing tiredness and dehydration
- if the usual diet is changed significantly the person may become more distressed and not understand why this has happened
- if they have pain, they may be unable to put this into words
- they may have a greater risk of infection
- healthcare professionals may think that worsening confusion is due to dementia and not hypoglycaemia
- impact on appetite and in later stages the ability to eat can lead to hypoglycaemia, depending on the diabetes medications used¹.

8 How does dementia and diabetes affect use of diabetes medications?

Type 1 diabetes

Insulin injections are essential for a person with type 1 diabetes so should never be missed or discontinued, although insulin dose may be reduced if appetite is poor or if there is significant weight loss. Regular review is important, so the diabetes specialist nurse should

be involved early, to advise on a suitable insulin plan. The main side effect of insulin is hypoglycaemia, so blood glucose targets may need to be reduced. This can be confusing and distressing for a person who has self-managed their diabetes for many years¹.

Type 2 diabetes

Type 2 diabetes may, in the longer term, become more difficult to manage. Eventually diabetes tablets may not control blood glucose levels sufficiently, so injectable therapy will be needed. For someone with dementia who needs help with giving their insulin therapy, a simple once-daily insulin injection, with or without diabetes tablets, should be considered. Sulphonylureas, such as gliclazide and glipizide, should be avoided as they carry an increased risk of hypoglycaemia, and particularly if appetite is poor or meals declined¹.

9 Should HbA1c targets be different in people with diabetes and dementia?

The important consideration in people with diabetes and dementia is to reduce the risk of hypoglycaemia, but avoid unpleasant symptoms. In a person in the mid to later stages of dementia needing help from others for personal care, or living in a care home, a more relaxed HbA1c target of 59–69mmol/mol is appropriate¹⁴.



10 What memory aids are available for people with dementia?

In the early and mid stages of dementia, there are memory aids to help. These include the use of simple tools such as calendars, diaries and Post-it notes. Technology can also help with alarm setting and reminders on mobile phones and tablets. Dossett boxes and automatic pill dispensers can help to remind a person about medication schedules¹⁵.

11 What support is available for carers?

Support for family and carers can be arranged following a carers assessment. Support offered can take many forms, including:

- someone to sit with the person to allow the carer time for themselves
- help with shopping and housework
- financial assessment and support
- access to local support groups and advice
- respice care¹⁶.

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- 16 NHS England (2021) Looking after someone with dementia. Dementia guide. www.nhs.uk/conditions/dementia/carers/

Additional resources

- 1 Alzheimer's Society: www.alzheimers.org.uk
- 2 Carers UK: www.carersuk.org
- 3 Dementia UK: www.dementiauk.org
- 4 Diabetes UK: www.diabetes.org.uk
- 5 Trend Diabetes: www.trenddiabetes.online