

Diabetes and the older adult: What care do they need and what do they receive?

Joy Williams

Article points

1. The incidence of type 2 diabetes increases rapidly with age.
2. The diagnosis and management of diabetes in older adults requires special consideration of a range of factors, including comorbidities, polypharmacy and compromised memory.
3. There is a need to reduce inequalities in healthcare for older adults, and for a national standard of diabetes care for older adults against which commissioners could commission services.

Key words

- Age
- Comorbidity
- Diabetes care
- Older adults

Joy Williams is Senior Diabetes Specialist Nurse, Western Sussex Hospitals Trust (based in Worthing Hospital), Worthing.

Diabetes in the older adult is a topic worthy of a specific review, given its prevalence, complexity and the need to ensure equity of access and care for this group. Here, the author gives an overview of the presentation of diabetes in older adults, and examines the challenges of management with consideration of the comorbidities, polypharmacy and compromised memory that are common among older adults. The need for coordinated multidisciplinary care to optimise outcomes in this group is highlighted, and the challenges facing diabetes services, specifically DSNs, is discussed. The author also looks at the influence of healthcare policy on the provision of care for the older adult with diabetes.

Gradual demographic changes over the past two centuries have resulted in an ageing global population. This phenomenon has been attributed to a simultaneous decline in fertility and an increase in life-expectancy (Bond et al, 2007). It is anticipated that this trend will continue, although these demographic changes will be experienced at varying rates in different regions. In Europe alone, it is predicted that by 2050 one-third of the population will be over 60 years of age (Bond et al, 2007).

Specific issues of management in this aging population relate to the higher prevalence of type 2 diabetes and age-related morbidity and disability (Krentz and Bailey, 2001). The incidence of type 2 diabetes increases rapidly with age; in the UK Caucasian population the rate increases from approximately 5% in those aged over 65 years to over 20% in those

aged over 85 years, and the rate is higher still in other ethnic groups (Meneilly and Tessier, 1995). The increasing numbers of people with diabetes may be due to better detection rates, but is in some measure due to the increasing life-expectancy of the population. Older adults with diabetes are the largest group by age in this population, and many cases remain undetected in this, as in all, age groups (Audit Commission, 2000).

Presentation of diabetes in the older adult

There is a broad spectrum of symptoms and presentation of diabetes in older adults. Some may be asymptomatic, others may have vague symptoms such as depression or low mood, apathy, confusion, fatigue, blurred vision or thrush. There may be a history of unexplained weight loss or falls. Symptoms of polyuria may be confounded by incontinence. Thirst

Page points

1. Lifestyle plays a major role in the progression to type 2 diabetes, but it is not known whether this is the sole cause or whether changes to glucose metabolism due to the ageing process have a part to play.
2. To achieve and maintain good glycaemic control, and to reduce the risk of associated microvascular and macrovascular complications, it is necessary to intensify treatment regimens over time.
3. Most therapies and tools available for the treatment of diabetes in younger people are useful in older adults with the condition. However, additional considerations and strategies specific to the management of diabetes in older adults are needed.

may be blunted in older adults. Changes in appetite may be affected by other prescribed medications (Williams and Pickup, 2004).

Presentation may be in the form of a nonketotic hyperosmolar coma. Type 1 diabetes in older adults presenting with diabetic ketoacidosis is unusual, but should not be overlooked. Mortality for both these conditions increases with age (Williams and Pickup, 2004).

Physiology

Insulin resistance and beta-cell dysfunction characterise type 2 diabetes, and result in the body being unable to regulate its glycaemia (Beck-Nielsen and Groop, 1994). Alterations to glucose-induced insulin release may be due to a decrease in beta-cell response to the incretin hormones glucose-dependent insulinotropic peptide and glucagon-like peptide-1 (Sinclair, 2009).

Lifestyle plays a major role in the progression to type 2 diabetes (i.e. decreasing physical activity and poor diet resulting in overweight and obesity), but it is not known whether this is the sole cause or whether changes to glucose metabolism due to the ageing process have a part to play (Sinclair, 2009).

Management of diabetes in the older adult

Research

Results from the UK Prospective Diabetes Study (UKPDS) show that people newly diagnosed with type 2 diabetes experienced a gradual loss of glycaemic control (as measured by HbA_{1c} and fasting plasma glucose) during the following 10 years. To achieve and maintain good glycaemic control, and to reduce the risk of associated microvascular and macrovascular complications, it was necessary to intensify treatment regimens over time (UKPDS Group, 1998a; UKPDS Group, 1998b).

Most people with type 2 diabetes will require combination therapy with oral antidiabetes drugs, and ultimately insulin therapy is often necessary to maintain glycaemic control. The UKPDS demonstrated that within 3 years of diagnosis, half of all people with type 2 diabetes needed more

than one pharmacological agent to achieve fasting blood glucose levels of 4–7 mmol/L. By 9 years, three-quarters of the study population needed multiple therapies to achieve a fasting plasma glucose <7.8 mmol/L and an HbA_{1c} <7% (<53 mmol/mol) (Turner et al, 1999). The UKPDS also revealed a legacy effect, whereby good glycaemic control in the early years of the disease process provides vascular benefits in later years (Turner et al, 1999).

Effective therapies, be they lifestyle or pharmacological interventions, are central to management of diabetes-related complications. For every 1% (10.9 mmol/mol) increase in HbA_{1c} there is a 21% increased risk for any diabetes-related outcome (Stratton et al, 2000). As such, any improvement in glycaemic control will confer a risk reduction and is worthwhile.

Analysis of care

Most therapies and tools available for the treatment of diabetes in younger people are useful in older adults with the condition. However, additional considerations and strategies specific to the management of diabetes in older adults are needed.

DSNs need to undertake full assessments to understand the older person's health beliefs, and their physical and cognitive capability to self-care. Family and carers should be included when care planning is discussed. Exercise and calorie restriction may be considered as alternatives to drug therapy (NICE, 2008). However, diet may be difficult to manage due to reduced economic circumstances and a limited ability to shop and cook. Furthermore, a range of physical limitations may reduce the ability of this population to undertake physical exercise.

The choice of pharmacological agents to treat diabetes in older adults requires special consideration. Pharmacokinetics and pharmacodynamics need to be considered in this age group as decreased renal or liver function can delay the excretion of some agents, thus it remains active in the body for longer periods of time. Decisions about which agents and dosage to use should be made with the GP taking the lead on prescribing.

Polypharmacy complicates the management of diabetes in the older adult. Computerised records of medications are recommended. Colour-coded pillboxes or blister-packed drugs may reduce drug error and increase compliance. Independence can be promoted through the careful selection of the most appropriate insulin-delivery device and self-monitoring equipment.

Shulman (2000) uses the clock drawing skills tool as a cognitive screening test. The person is given a circle of paper to represent a clock face and asked to draw the numbers and set the hands to 10 minutes past 11. Trimble et al (2005) have adapted this tool to predict insulin self-administration skills. An inability to draw this correctly or symmetrically demonstrates poor ability to self-inject.

For older adults with short-term memory loss, giving written information on medicines management may not be helpful. While they may not have difficulty in reading the information, they may be unable to retain the information long enough to follow the instructions.

Compliance

Barnett (2007) finds that older people with normal cognitive function are generally more compliant with their medication than other age groups. However, diabetes care and medicines management is more complex when associated with comorbidities, polypharmacy or compromised memory, dexterity, mobility, vision or hearing – all of which are common in older adults and can result in non-compliance (Barnett, 2007).

Management care plan

Specific factors need to be considered when caring for older adults with diabetes. Reduced autonomic symptoms and reduced release of counter-regulatory hormones in this population makes them more susceptible to the effects of hypoglycaemia (Meneilly and Tessier, 1995). It is important to reduce the risk of hypoglycaemia to ensure that iatrogenic falls do not occur. Safety, symptom control and low hypoglycaemic risk may, therefore, be as important in older adults as achieving good glycaemic control.

The multidisciplinary care team

The multidisciplinary care team needs to be well coordinated to reduce inequalities in care and age discrimination.

In the author's Trust, the diabetes nursing team have developed twice-yearly study days for nursing and residential care home staff. This improves their diabetes knowledge and confidence in caring for older people with diabetes. It is also an opportunity for improving working relationships, and these factors improve patient care by making appropriate and timely referrals to specialist care.

Impact of health policy

There is a need for a national standard of diabetes care for older adults, against which commissioners can commission services. This has the potential to ensure equity of access and care, thus improving diabetes care for all. The *National Service Framework for Older People* (Department of Health, 2001) states that health and social care services should treat older people as individuals and enable them to make their own choices about their care.

Adult protection is an area of increasing concern as its boundaries are continually being recognised and highlighted. An example of failure to protect members of this population could be the denial of care for older adults with diabetes because they are physically unable to attend the surgery to access that care. This group would therefore be excluded from the Quality and Outcome Framework data collection. This could be classed as institutional abuse through neglect.

Conclusion

Collaborative working between members of multidisciplinary teams in primary and secondary care has the potential to develop the skills of healthcare professionals and to identify new ways of working to benefit people with diabetes of all ages.

While some progress is being made, the journey towards best practice for all is in its infancy. For older adults with diabetes especially, the pressing question remains: What care do they need and what do they receive? ■

- Audit Commission (2000) *Testing Times: A Review of Diabetes Services in England and Wales*. Audit Commission, London
- Barnett A (2007) *Patient Compliance in Diabetes*. Current Medical Group, London
- Beck-Nielsen H, Groop LC (1994) Metabolic and genetic characterization of prediabetic states. Sequence of events leading to non-insulin-dependent diabetes mellitus. *J Clin Invest* **94**: 1714–21
- Bond J, Peace S, Dittmann-Kohli F, Westerhof G (2007) *Aging in Society*, 3rd edn. Sage, London
- Department of Health (2001) *National Service Framework for Older People*. HMSO, London
- Krentz A, Bailey C (2001) *Type 2 Diabetes*. Royal Society of Medicine Press, London
- Meneilly GS, Tessier D (1995) Diabetes in the elderly. *Diab Med* **12**: 949–60
- NICE (2008) *Type 2 Diabetes: The Management of Type 2 Diabetes (Update)*. National Collaborating Centre for Chronic Conditions, London
- Shulman KI (2000) Clock drawing: is it the ideal cognitive screening test? *Int J Geriatr Psychiatry* **15**: 548–61
- Sinclair AJ (2009) *Diabetes in Old Age*, 3rd edn. John Wiley & Sons, Chichester
- Stratton IM, Adler AI, Neil HA, Matthews DR et al (2000) Association of glycaemia with macrovascular and microvascular complications of type 2 diabetes (UKPDS 35): prospective observational study. *BMJ* **321**: 405–12
- Trimble LA, Sundberg S, Markham L et al (2005) Value of the clock drawing test to predict problems with insulin skills in older adults. *Can J Diab* **29**: 102–4
- Turner RC, Cull CA, Frighi V, Holman RR (1999) Glycemic control with diet, sulfonylurea, metformin, or insulin in patients with type 2 diabetes mellitus: progressive requirement for multiple therapies (UKPDS 49). *JAMA* **281**: 2005–12
- UK Prospective Diabetes Study (UKPDS) Group (1998a) Intensive blood-glucose control with sulphonylureas or insulin compared with conventional treatment and risk of complications in patients with type 2 diabetes (UKPDS 33). *Lancet* **352**: 837–53
- UK Prospective Diabetes Study (UKPDS) Group (1998b) Effect of intensive blood-glucose control with metformin on complications in overweight patients with type 2 diabetes (UKPDS 34). *Lancet* **352**: 854–65
- Williams G, Pickup J (2004) *Handbook of Diabetes*, 3rd edn. Blackwell Publishing, Oxford