

Diabetes in older people

Author: Katie Bennett^A

ABSTRACT

The management of diabetes in older people is often challenging and poorly researched. The prevalence of cognitive impairment, chronic kidney disease and other co-existing comorbidities increase with age and have a significant impact on glycaemic control targets and treatment options. This conference examined current clinical practice, highlighted differences in the management of diabetes in the older person and suggested potential areas of future research.

KEYWORDS: Diabetes, older people, elderly, conference

Introduction

This conference focused on the challenges faced in the treatment and management of diabetes in the older person. Held at the Royal College of Physicians on 19 November 2014, the conference brought together experts from the field of diabetes, nephrology and care of the elderly to discuss this vulnerable cohort of patients and some of the similarities and differences in management.

Impact of diabetes in an ageing multicultural society

The opening lecture was delivered by Prof Alan Sinclair and outlined the challenges faced in the diagnosis and management of diabetes in our ageing society. Professor Sinclair explained that diabetes should be considered an age-related phenomenon and he emphasised that with increasing age, rates of postprandial hyperglycaemia increase, whereas fasting blood glucose levels are often normal.

Studies have found that there is an age-related delay in the period of time between diagnosis of diabetes and commencing treatment and it is felt that this may be due to clinical inertia, reluctance to increase medication burden or failure to recognise symptoms of hyperglycaemia. Elderly patients often do not present with classical osmotic symptoms and new-onset diabetes can present with non-specific symptoms, including memory problems, increased falls or low mood. The

importance of considering the diagnosis of diabetes in any older patient with change in behaviour or unexplained symptoms was highlighted. Screening for diabetes should be considered in all older people presenting to the acute medical unit to reduce delays in diagnosis and management.

A diagnosis of diabetes is an independent risk factor for admission to a care home and 1 in 4 people in care homes have diabetes. This has huge implications financially, both in terms of health and social care, with £1.4 billion being spent annually on social care for older people with diabetes.

The challenges of delivering high-quality end of life care in people with diabetes were discussed at several points throughout the conference. Professor Sinclair focused on difficulties faced when managing palliative patients with variable glucose control eg with steroid use and the importance of avoiding osmotic symptoms. Robust treatment plans are needed for these patients, often with the input of a specialist, to avoid hyperglycaemic emergencies and unplanned hospital admissions.

Commissioning high-quality diabetes care for all

Prof Jonathan Valabhji, the national clinical director for obesity and diabetes for NHS England, focused on the current and future challenges of delivering high-quality diabetes care to all. In our ageing, multicultural society, we need to develop strategies to prevent the development of diabetes while simultaneously structuring our services to best meet the needs of the changing population. Type-2 diabetes is considered a health and public health crisis, with rates of type-2 diabetes and obesity increasing rapidly.

The impact of ethnicity should not be underestimated when planning local and national diabetes services. Currently, 1 in 8 patients with diabetes are of South-Asian origin in the UK and 50% of the South-Asian population over the age of 80 have diabetes. This can pose unique challenges in the management of these patients, including initiating lifestyle interventions and overcoming communication barriers.

The Health and Social Care Act was implemented in April 2013 and involves several overarching principals. The Act was introduced to deliver a proactive, rather than reactive, NHS with an emphasis on clinical outcomes. A multidisciplinary approach to complex disease management is crucial to providing high-quality healthcare and preventing complications. There should be increased accountability for diabetes-related complications which will be shared by all providers in the care pathway.

Author: ^Aspecialist registrar in diabetes and endocrinology, University Hospital Aintree, Liverpool, UK

Personal empowerment is key to effective diabetes management. Access to education programmes for patients and their carers is important to improve glycaemic control, reduce diabetes-related complications and avoid emergency hospital admissions eg for hypoglycaemia. The *Five year forward plan* includes focusing on the prevention of type-2 diabetes with the National Diabetes Prevention Programme.

Glucose controls: targets and treatments

Prof Andrew Krentz of Bedfordshire and Hertfordshire Postgraduate Medical School and Profil Institute for Clinical Research (San Diego, CA) focused on blood glucose targets in older people with type-2 diabetes. The aims of treatment should be to alleviate osmotic symptoms, prevent long-term complications and avoid unwanted side effects eg hypoglycaemia.

The UK Prospective Diabetes Study demonstrated a legacy effect of tight glycaemic control, with a 15% reduction in macrovascular complications and a 13% reduction in mortality in the tight control group at 10-year follow up. However, glycaemic control targets must be individualised and cardiovascular benefits of tight glycaemic control are most likely in shorter duration type-2 diabetes and in those without established atherosclerosis.

The potential benefits of tight glycaemic control may be outweighed by the risks, particularly in older patients with co-existing comorbidities, frailty, long disease duration or hypoglycaemia unawareness. Glycaemic control targets should be determined by functional status and it was suggested that in the presence of dementia, HbA1c target should be above/below 69 mmol/mol (8.5%). During end of life care, the aim should be to avoid symptomatic hyperglycaemia. However, in older patients who are independent, cognitively intact and have a reasonable life expectancy, healthcare professionals should aim for the glycaemic targets set for younger people. Functional status can change over time and therefore targets for glycaemic control need to be reassessed regularly.

Renal disease

An overview of renal disease in patients with diabetes was presented by Dr Andrew Frankel of Imperial College (London). Half a million people with diabetes now have chronic kidney disease (CKD) stage 3B, 4 or 5, and these rates are expected to rise. The presence of CKD significantly impacts glycaemic control and available treatment options. Moreover, renal disease is the most powerful predictor of increased mortality in patients with diabetes.

The diagnosis of CKD in older people is not straightforward, as accurate determination of abnormal kidney function in the elderly is poorly characterised and the validation of estimated glomerular filtration rate in the very elderly is poor.

For elderly people with CKD stage 3B or worse, it was suggested that HbA1c target should be between 58 and 68 mmol/mol. Symptomatic and asymptomatic hypoglycaemia is common in older people with poor glycaemic control and the risks increase with co-existing CKD. An improving HbA1c may be caused by deteriorating renal function and therefore thorough clinical review of

these patients is important to detect these potential clinical problems promptly.

Perioperative care

Dr Ketan Dhatriya of Norfolk and Norwich Hospital NHS Trust explained that hyperglycaemia is a predictor of poor outcome in the context of surgery, with patients being 13 times more likely to die if hyperglycaemic preoperatively and 45 times more likely to die if hyperglycaemic postoperatively. Moreover, hyperglycaemia is associated with increased incidence of all postoperative complications, the risk being greatest in those not previously known to have diabetes.

Patients with diabetes are less likely to be offered day case surgery and more likely to be readmitted after surgery and to undergo emergency surgeries. With increasing age, patients are less likely to be offered day case surgery. Close collaboration between the surgical and diabetes teams is required to identify at-risk patients both in the pre- and postoperative periods, to treat hyperglycaemia promptly and improve outcomes. In patients with known diabetes, glycaemic control should be optimised prior to any surgical intervention wherever possible.¹

Frailty and diabetes

Prof Leocadio Rodriguez Mañas of Hospital Universitario de Getafe (Madrid) introduced the under-recognised association between frailty and diabetes. The focus of treatment in older people with diabetes should be to avoid disability and dependence. Frailty is the interaction between ageing and multiple disease conditions and is characterised by a state of increased vulnerability to stressors and decreased psychological reserve. The level of frailty strongly predicts mortality in older patients with diabetes.

50% of people will cross the line of disability prior to death and therefore it is important to focus on quality of life and not just longevity. Diabetes does not significantly affect mortality in patients over the age of 80, whereas the functional impact of diabetes in the elderly is much higher. Diabetes is one of the main diseases affecting mobility and disability and this is largely due to sarcopenia, as advancing age is related to increased insulin resistance and this in turn affects muscle mass.

Diabetes in older patients differs to the disease in younger people and therefore should be treated differently. Management and treatment should be determined by level of frailty, physical function and cognition, and glycaemic control targets must be adjusted accordingly.

Dementia and diabetes

Prof Antony Bayer of Cardiff University explained that the association between hyperglycaemia and cognitive impairment is now well recognised but was first reported in 1922. A diagnosis of type-2 diabetes has a significant cognitive impact with studies showing cognitive underperformance in older people with diabetes and increased risk of all forms of dementia when compared with the non-diabetic population. Patients treated with insulin are at the highest risk of developing dementia and this is thought to be due to long disease duration and suboptimal glycaemic control.

The cause of cognitive impairment in diabetes is multifactorial, but is thought to be related largely to increased cerebrovascular ischaemia. For example, diabetes is associated with diffuse cerebral atrophy, the cause of which is unclear. Recurrent hypoglycaemia is also thought to be a risk factor for dementia, with the older brain being much more vulnerable to the effects of hypoglycaemia.

The presence of cognitive impairment causes specific challenges with regard to diabetes management. Memory loss may cause poor treatment compliance, and self-neglect and behavioural problems are common.

Metabolic challenges: diabetic ketoacidosis and hyperosmolar hyperglycaemic state

Dr Adrian Scott, from the Joint British Diabetes Societies, highlighted the release of revised guidelines for the management of diabetic ketoacidosis (DKA).² Older patients are more likely to have a precipitant for the development of DKA and therefore it is important to search for the cause and treat appropriately.

Hyperosmolar hyperglycaemic state (HHS) is more common in the elderly and is associated with a greater mortality than DKA. The goals of treatment are to gradually and safely normalise osmolality, replace fluid deficit and avoid electrolyte abnormalities.³

The development of severe hypertonicity plus ketosis and acidosis indicates mixed DKA and HHS. This is thought to be caused by a temporary insulin deficiency and should be treated as DKA. The evidence base for treatment of DKA and HHS is very limited and recommendations are largely based on expert opinion.

Hypoglycaemia: a major challenge to safe and effective glucose control

The final lecture was delivered by Dr Glen Matfin of Ealing Hospital (London). Hypoglycaemia is a major concern in the older population and is associated with increased mortality rates and cognitive dysfunction. Hypoglycaemia is common, with 19% of patients with type-1 diabetes over the age of 65 suffering a severe hypoglycaemic episode annually. Hospital admissions for severe hypoglycaemia are 40% higher than those for hyperglycaemia and older patients are particularly vulnerable, with significantly higher rates of hospitalisation.

Education of patients and their carers is hugely important to both recognise and avoid hypoglycaemia, and aid individualised glycaemic targets. Particularly in the elderly, caution must be taken in the interpretation of HbA1c results, as using this alone can mask the glucose profile and miss hypoglycaemic episodes. It was suggested that a 'zero tolerance' approach should be taken for hypoglycaemia in the older person.

Closing remarks

Dr Sue Benbow and Prof Alan Sinclair, the conference organisers, concluded with the observation that the last Diabetes in older people conference was held ten years ago and the recognition of the challenges faced in the management of diabetes in the older population has improved significantly during this period. We have a better understanding of the need to individualise glycaemic control targets, the detrimental effects of hypoglycaemia and the need to provide diabetes education to care givers. However, further work is needed. There is a lack of good-quality studies in the elderly and therefore the evidence base in this population is very limited. For the future, we must ensure that our diabetes services cater for the needs of our ageing population. ■

References

- 1 Dhatariya K, Flanagan D, Hilton L *et al.* *Management of adults undergoing surgery and elective procedures: improving standards.* London: NHS, 2011. Available online at www.diabetes.org.uk/Documents/Professionals/Reports%20and%20statistics/Management%20of%20adults%20with%20diabetes%20undergoing%20surgery%20and%20elective%20procedures%20-%20improving%20standards.pdf [Accessed 27 July 2015].
- 2 Joint British Diabetes Societies Inpatient Care Group. *The management of diabetic ketoacidosis in adults.* September 2013. Available online at www.diabetes.org.uk/Documents/About%20Us/What%20we%20say/Management-of-DKA-241013.pdf [Accessed 27 July 2015].
- 3 Joint British Diabetes Societies Inpatient Care Group. *The management of the hyperosmolar hyperglycaemic state (HHS) in adults with diabetes.* August 2012. Available online at www.diabetes.org.uk/Documents/Position%20statements/JBDS-IP-HHS-Adults.pdf [Accessed 27 July 2015].

Address for correspondence: Dr K Bennett, University Hospital Aintree, Longmoor Lane, Liverpool, L9 7AL, UK.
Email: katie.bennett@aintree.nhs.uk