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Diabetes in older persons

Type 2 diabetes mellitus (T2DM) is a common condition among older people. The prevalence of T2DM increases with age, to about 5% in those aged 45–54 years, 10% in those aged 55–64 years and almost 20% in those 65 years and older. T2DM prevalence peaks in the 80-84 age group, 22% and 17% for males and females respectively. Indigenous adults are 2.9 times as likely to be living with type 2 diabetes as non-Indigenous adults.

It is important that individualised care is provided to improve health outcomes and quality of life. Older people are at an increased risk of microvascular and macrovascular complications of diabetes, in particular chronic kidney disease (CKD) and cardiovascular disease (CVD). Advancing age, life expectancy and comorbidities will influence treatment and management.

Comorbidities

Comorbidities increase the burden of illness for people living with type 2 diabetes. Up to 95% of older people with T2DM have at least one comorbidity, while almost two-thirds have three or more comorbidities. The majority of the top five comorbidities are risk factors for CVD, with hypertension reported in almost two-thirds of patients within the general population, followed by arthritis-related comorbidities, hyperlipidaemia, ischemic heart disease and obesity.

CKD and heart, stroke and vascular disease are common comorbidities with diabetes. The prevalence of comorbidity of diabetes with CKD and/or cardiovascular disease increases to 9% among adults aged 65 and over. As cardiovascular-related conditions represent a large portion of comorbidity with diabetes, managing cardiovascular risk factors should be a focus for optimal management

Non-cardiovascular comorbidities such as depression, insomnia, anxiety, arthritis, chronic back pain and gastro-oesophageal reflux disease (GORD) also require attention to improve quality of life and health outcomes.

Depression and anxiety can be associated with lower energy, loss of appetite and sleep disturbances. Musculoskeletal conditions can contribute to chronic pain, sarcopenia, osteoporosis, limited mobility and functional impairment, which can significantly reduce quality of life. They may also increase the risk of falls and fractures.

People living with diabetes are also prone to gastrointestinal disorders. Diabetes is a significant risk factor for both GORD and oesophagitis. Many people with diabetes are obese, which increases GORD symptoms. Gastric emptying can be delayed by diabetic neuropathy, which may promote erosive oesophagitis. Medications such as metformin, sulfonylureas and GLP-1 receptor agonists (GLP-1 RAs) are associated with gastrointestinal side effects.

In addition, older adults with diabetes have an increased risk of frailty and malnutrition. Frailty is increasingly recognised as a major complication of type 2 diabetes and an important target for treatment. Frailty is associated with poorer prognosis, and some attenuation of benefit from intensive glucose-lowering and blood pressure-lowering treatments has been demonstrated in frail individuals.

Malnutrition may occur because of changes in taste and smell, dysphagia, inadequate dental health, gastrointestinal problems, anorexia, cognitive impairment, and/or depression.

Glycaemic targets

One of the key management goals for diabetes is optimising glycaemic levels. Having glycaemic levels within the target range has added benefits in managing cardiovascular risk factors and other non-cardiovascular-related comorbidities.

Australian guidelines for the management of type 2 diabetes recommend individualisation of target HbA1c according to patient circumstances. Generally, the target is 7% (53 mmol/mol) or less. Less stringent targets (e.g. <8.0% [64mmol/mol]) might be more appropriate for patients with reduced life expectancy or extensive comorbid conditions. *The McKellar guidelines for managing older people with diabetes in residential and other care settings* recommends a HbA1c target of 7-7.5% for independent and self-caring people with few complications, and a target of up to 8.5% for frail people with life expectancy <5 years. Ideally this should be a shared decision as HbA1c levels greater than 8–8.5% (64-69 mmol/mol) are associated with greater morbidity and mortality in older patients. HbA1c targets should be regularly reviewed.

Older people have a higher risk of hypoglycaemia and poor outcomes due to altered adaptive physiologic responses to low glucose levels. Older persons are sometimes less aware of hypoglycaemia. Dementia and cognitive impairment can further increase the risk of severe hypoglycaemia due to inability to identify or report symptoms to carers. Hypoglycaemia can also trigger or precipitate cardiovascular events, worsen cognitive function, and lead to poor outcomes. Hypoglycaemia can increase the risk of falls and fractures, fear of falling, confusion, delirium and symptoms of fatigue and dizziness.

Treatment in older people

Management of type 2 diabetes in older persons should aim to achieve a good quality of life and avoid diabetes-related complications as well as treatment side effects, mainly hypoglycaemia. Overtreatment of diabetes is common in older adults and should be avoided.

Management of type 2 diabetes in older persons has many challenges, including:

- Increased risk of microvascular and macrovascular complications
- Age-related changes in renal and hepatic function and glucose metabolism
- Geriatric syndromes
- Polypharmacy and drug interactions

Microvascular and macrovascular complications include cardiovascular disease, nephropathy, retinopathy and neuropathy. Age-related changes can lead to reduced efficacy of glucose-lowering medications and a higher risk of adverse effects such as hypoglycaemia. Geriatric syndromes include:

- Cognitive impairment
- Sarcopenia
- Frailty
- Urinary incontinence
- Falls
- Malnutrition

De-intensification (or simplification) of complex regimens is recommended to reduce the risk of hypoglycaemia in older adults, if achievable within the individualised HbA1c target.

Medications for type 2 diabetes

Medications for the treatment of type 2 diabetes include:

- Metformin (first-line therapy)
- sulfonylureas
- DPP-4 inhibitors
- Acarbose
- GLP-1 RAs
- Thiazolidinediones
- SGLT2 inhibitors
- Insulin

Summary

Optimal management of type 2 diabetes in older persons requires consideration of a person's goals, life expectancy, quality of life and comorbidities. Providing person-centered care that addresses multimorbidity and is respectful of and responsive to individual preferences and barriers is essential for effective diabetes management. There is now compelling evidence for SGLT2 inhibitors and GLP-1 RAs for high-risk individuals with CVD, heart failure or CKD, and shared decision-making is essential to contextualize the evidence on benefits, safety, and risks.

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