

Caring for older people with diabetes in primary care

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This paper considers some of the issues related to the management of older people with diabetes in the context of primary care. The majority of older people with diabetes will receive their care in primary care settings. This paper outlines some of the key considerations in delivering diabetes care in this population to prevent complications and promote quality of life, safely. It also considers special risk factors, such as falls, frailty, polypharmacy and common comorbidities.

Key words: Diabetes, Primary care, Older people

Introduction

Although individualisation of patient care has long been a hallmark of the primary care approach to the management of most people with chronic disease, this has not necessarily been reflected in the management of diabetes outside of primary care. However, the importance of individualised care has recently now also become the focus of international guidelines for the management of Type 2 diabetes.¹ Nowhere is the importance of individualisation of care more important than in the caring of older people with diabetes.

Older people with diabetes managed in primary care are a heterogeneous group ranging from those living independently in the community to those in aged care facilities requiring full-time care. Their general health status can also range from fit and active to frail with many disabilities and comorbidities. In people over 65 years, prevalence of multimorbidity has been reported as varying between 50 and 80% and in those above 80 years of age prevalence of more than 70% has been reported.^{2,3}

The broad goals of diabetes management in older people are not significantly different from those of younger people with diabetes. Safely controlling glycaemia and reducing other risk factors for macrovascular and microvascular disease remain paramount. In frail elderly people with diabetes, avoidance of hypoglycaemia, hypotension, medication interactions and worsening of other comorbidities is often more important than mitigating long-term cardiovascular risk.

Although older people with diabetes are at risk of the same microvascular complications of diabetes as those at younger age, absolute cardiovascular risk is much greater at more advanced age. Older individuals with diabetes experience greater morbidity and mortality and are more likely to have polypharmacy, cognitive impairment, depression, falls, urinary incontinence and impaired mobility than those without diabetes.

Balancing the benefits of achieving glycaemic, BP and lipid targets in elderly patients against the often increased risks of medication adverse reactions, hypotension and hypoglycaemia can be challenging. Appropriate targets must be determined on an individual basis at a particular point in time and reviewed often to consider additional factors that might change the appropriate target, such as increasing frailty, development of new comorbidities and changed home or social circumstances.

Glycaemic targets

There is little specific research to provide the basis of optimal glycaemic targets for older people with diabetes. Risks of hyperglycaemia and hypoglycaemia in this age group make it important to individualise glycaemic goals considering the need for cardiovascular risk reduction, overall health and projected life span.

Adverse effects of treatment, particularly hypoglycaemia, can increase the risk of falls and exacerbate comorbidities often affecting level of independence in community living. On the other hand, impaired vision⁴ and cognition⁵ and sometimes dehydration can accompany undertreated hyperglycaemia. This can increase the risk of falls and functional decline in older patients with diabetes.

For elderly people with diabetes who are fit and active with a life expectancy beyond 10 years, HbA1c targets of 7.0% are often still very appropriate. However, a goal of 8.0% may be more appropriate in those with long-standing diabetes, particularly if there is co-existing or high risk of cardiovascular disease, because lower targets in this group of patients may be associated with increased mortality as was seen in the ACCORD trial.^{6,7}

The potential benefits of diabetes medications that increase the likelihood of hypoglycaemia need to be carefully measured against the significantly increased risks associated with hypoglycaemia in older people with diabetes. Assessment of hypoglycaemic risk in this age

group is paramount, because hypoglycaemia may lead to impairment in cognitive function and increase the risk of adverse cardiovascular events and cardiac autonomic dysfunction.⁸ Recurrent severe hypoglycaemia has also been associated with increased rates of dementia.⁹ In frail elderly patients, even mild hypoglycaemia can have severe consequences if it contributes to falls, fractures and loss of independent living.

Lifestyle modification

Appropriate diet, loss of excess weight, regular aerobic and resistance exercise continue to be beneficial in the majority of older people with diabetes. Individualisation of advice in these areas is important with due consideration given to comorbidities, family and social supports. A randomised trial of specific dietary intervention in people with diabetes over the age of 65 years demonstrated significant improvements in both fasting blood sugar and HbA1c.¹⁰

Older patients with diabetes enjoy the same benefits from regular exercise as younger patients in terms of maintenance of physical function, reduced cardiovascular risk and improved insulin sensitivity. However, for older patients, there are extra benefits in terms of reduction in falls, depression and arthritic pain and in increased strength and balance, quality of life and survival.^{11–13} Patients at high risk for falls can benefit from falls prevention training focused on balance and muscle strengthening.

In obese older patients with diabetes, a modest weight loss target of 5% body weight through calorie reduction and increased exercise has been shown to be beneficial.^{6,14} Careful monitoring of weight loss in older people with diabetes is important, because there are also significant risks of increased morbidity and mortality associated with under-nutrition in older patients.¹⁵

Pharmacotherapy

A review¹⁶ of meta-analyses, randomised controlled trials and evidence-based reviews found there to be a relative lack of specific data looking at choice of diabetic pharmacotherapy options in older patient groups although most large diabetes drug studies have included some patients over the age of 65 years. The appropriate choice of therapy in older age groups requires careful individualisation taking into account frailty, renal function, weight status, risks of hypoglycaemia, cognitive function, home support systems and comorbidities, particularly, chronic kidney disease, cardiac failure, liver dysfunction and cardiovascular disease.¹⁶ Many guidelines for the treatment of diabetes in the elderly have as a central concept that doctors should base recommendations for treatment targets or interventions on life expectancy.^{7,17} Patients whose life expectancy is limited (usually less than 5–10 years) are not considered likely to benefit from intensive glucose control, whereas those with longer life expectancy are more likely to benefit from more aggressive glycaemic

control. This is supported by the observation that differences in macrovascular outcomes for intensive and conventional glycaemic groups in the UKPDS study took some time to show statistical significance where cumulative event curves for intensive and conventional glycaemic control arms only separated after 9 years.⁶

Eye disease

The prevalence of retinopathy increases progressively with duration of diabetes in both Type 1 and Type 2 diabetes, with poor glycaemic control and with younger age at original diagnosis.

Regular screening by optometrists or ophthalmologists from diagnosis and at least once or twice yearly according to the presence and severity of retinopathy and/or other eye disease is essential. These examinations also screen for and monitor cataracts and glaucoma, both are more common in older people with diabetes. Poor vision in older people with diabetes has many consequences, including increased risk of falls and accidents, social isolation and difficulties with monitoring blood glucose and administering oral and injectable therapies.

Diabetic foot disease

Foot pathology is the cause of significant morbidity in people with diabetes and prevalence is much greater in older patients. Both vascular and neurological disease can contribute to the development of foot disease in people with diabetes. Additionally, many older people with diabetes have difficulty seeing or reaching their feet making adequate self-inspection and foot care difficult or impossible.

Regular foot examination in primary care is essential and should also include assessment of patients' ability to see and reach their feet and enquiry as to other family members or carers who might be able to assist with regular foot examination in the home.

Cardiovascular risk reduction

Both diabetes and age are major risk factors for coronary heart disease (CHD), so it is not surprising that CHD is the greatest cause of death in older people with diabetes. As well as glycaemic control, risk reduction should address smoking cessation if relevant and good control of hypertension and dyslipidaemia. As with glycaemic goals for older patients, goals for hypertension and lipid management in elderly patients with diabetes should be individualised based on comorbidities, life expectancy, cognitive state and patient preference.

Cognitive impairment and dementia

Diabetes is associated with an increased risk of dementia and cognitive decline.^{18,19} However, many older patients with cognitive decline and dementia are undiagnosed, particularly in early stages. It is recommended that at diagnosis and then at regular intervals thereafter, patients

over 70 years old should be screened for cognitive impairment using a tool, such as the MiniMental State Examination score.¹⁷

Optimal glycaemic management and prevention of repeated hypoglycaemia in older patients with diabetes may reduce the risk of developing cognitive impairment or dementia.^{20,21}

Depression

Depression is more prevalent in older patients with diabetes compared to those without diabetes.^{22,23} Depression in diabetic patients has not only been associated with poorer glycaemic control, less home monitoring of blood glucose and higher weight but also accelerated rates of CHD.²⁴ Depression is often undiagnosed and untreated in older people with diabetes.²⁵ Early diagnosis and appropriate treatment may lead to better glycaemic control.^{24,26}

Polypharmacy

Older adults with diabetes are often prescribed multiple medications to control blood glucose, blood pressure and lipids as well as comorbidities, such as osteoarthritis, gastro-oesophageal reflux disease, cardiac failure, chronic obstructive pulmonary disease and constipation. One recent study found that middle aged and elderly patients with Type 2 diabetes were prescribed a mean of 8.4 different drug compounds per day.²⁷

Adverse reactions to these medications may exacerbate comorbidities and adversely affect quality of life and impair a patient's ability to self-manage their diabetes. Older patients are more prone to problems related to their medications because of the higher number they use, and because of a decline in cognitive and physical functioning.²⁸ Polypharmacy in elderly people with diabetes may be associated with adverse effects specific to diabetes, such as hypoglycaemia, as well as those associated with poor adherence, increased risk of drug interactions and other serious or common side effects.²⁹ Taken together, these effects of polypharmacy can significantly worsen quality of life and sometimes lead to disability or premature death.³⁰

It is important that medication lists are regularly reviewed and updated when necessary.⁶ Medication reviews can be helpful and can increase the proportion of treatment consistent with recommended guidelines.^{28,31}

Falls

Falls are common in elderly people and are a major contributor to loss of independence in many people. Falls are even more common in elderly patients with diabetes for many reasons, including muscle weakness, loss of vision, peripheral and/or autonomic neuropathy, declining renal function, comorbidities, such as osteoarthritis and hypoglycaemia.

Good glycaemic control in preventing or delaying progression of some diabetes complications may reduce the risk of falls, but intensive glycaemic control, with the

increased risk of hypoglycaemia that is often associated, can increase the risk of falls. Appropriate glycaemic and BP targets for elderly patients must be set to balance the risks associated with poor or too intensive control. The primary care team can also help identify other contributions to a patient's risk of falls, some of which may be reduced with appropriate strengthening, balance and exercise programmes.

Frailty

Frailty is more prevalent with increasing age and it is associated with a higher risk of falls, functional decline, reduced mobility, recurrent hospitalisation, increased likelihood of needing institutional care and death. Frailty also has a major impact on the risk benefit balance of many treatment options for diabetes and comorbidities.

In considering frailty in elderly people with diabetes, it can be useful to think of a spectrum of frailty from the following two extremes:

- Those who have Type 2 diabetes as their only significant disease and are otherwise fit, healthy and living independently. For people at or near this end of the spectrum recommended targets for primary prevention, if age-specific evidence is not available, would usually be to consider in consultation with the patient evidence-based targets set for younger patients.
- Those who are frail and elderly and have significant comorbidities, such as arthritis, high dependency levels or significant dementia. For those elderly patients at or near this end of the spectrum, it is often more appropriate to aim for symptomatic control, taking care to avoid hypoglycaemia, symptomatic hyperglycaemia and intensive monitoring, always in consultation with the individual and/or their carers.

Conclusions

Older individuals with diabetes experience greater morbidity and mortality than those without diabetes and have higher risks for polypharmacy, cognitive impairment, depression, falls, urinary incontinence, impaired mobility and persistent pain.

The broad goals of diabetes management in older people are not significantly different from those of younger people with diabetes. Safely controlling glycaemia and management aimed at reducing the other risk factors for macrovascular and microvascular disease remain paramount. However, particularly in frail elderly people with diabetes, the risk benefit analysis of various interventions is often far more complicated, requiring good communication between primary care team members and often also with those involved in secondary care. In frail elderly people with diabetes, avoidance of hypoglycaemia, hypotension, medication interactions and worsening of other comorbidities can often be more important than tight control of individual cardiovascular risk factors. Issues such as polypharmacy,

mental illness, risk of falls and frailty all need to be considered as part of the management plan.

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