Research Article

Older People with Diabetes Mellitus and Considerations for Diabetes Nurse Educators in Brunei

Shyh Poh Teo[1]

1. Raja Isteri Pengiran Anak Saleha (RIPAS) Hospital, Bandar Seri Begawan, Brunei Darussalam

Brunei has a relatively high prevalence rate of diabetes and cardiovascular risk factors. It has also been shown that diabetic patients had poor knowledge and understanding of the condition and self-management skills. Older people are complex and have a higher absolute risk of diabetes related complications, thus should be a target group for DNE intervention. Management of older people with diabetes should be individualized. Comprehensive geriatric assessment takes into account medical, psychosocial and functional considerations. Many of the presenting complaints of older people are multifactorial. The reliability and objectivity of the history should also be considered. Other aspects of management include dentition, nutritional status, swallowing, medications, physical activity, fall prevention, palliative care and support services as well as pressure injuries in dependent older people. Finally, with the current COVID-19 pandemic, the approach for service delivery may also need adjustments to take into account infection prevention and control measures, such as use of virtual consultations.

Introduction

The prevalence of diabetes mellitus (hereafter stated as diabetes) increases with age. As people age, their ability to self-manage, learn new information and remain independent vary significantly. Older people with diabetes may have more disabilities from diabetes complications, and a decreased ability to manage their diabetes compared with younger people. Thus, there are specific considerations for diabetes. Older people are also a heterogenous group, thus should have individualised treatment to address their personal needs.

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It is hoped that the following information will provide the opportunity to consolidate the understanding of Diabetes Nurse Educators (DNE) regarding the special psychosocial, educational, nutritional, functional and physical requirements of older people with diabetes.

Diabetes and Older People in Brunei

Brunei has a diabetes prevalence rate of approximately 25%, with 33% of the younger people being categorised as overweight or obese in 2008.[1] This puts them at risk of Type 2 diabetes and the associated complications, which will cause problems in older age. In addition to diabetes, the population in Brunei also have a high prevalence of associated cardiovascular risk factors, such as hypertension, dyslipidaemia, smoking and an unhealthy diet with inadequate consumption of fruits and vegetables.[2] A study among diabetic patients attending Diabetes Outpatient Clinic in RIPAS Hospital showed that there was poor knowledge and understanding of diabetes and self-care skills. [3] Further effort is required from the public health perspective to raise public awareness regarding prevention of diabetes; while for those who have the disease, an emphasis on self-management and prevention of complications by DNE is essential.

In a study of older people admitted to RIPAS Hospital, there is a high burden of comorbidities, dementia and poor functional status. [4] As these patients are complex and older people have a higher absolute risk of complications related to the disease, they should be another target group for DNE intervention to optimise diabetes management.

Considerations for management of older people with diabetes

Comprehensive Geriatric Assessment (CGA)

The management of older people with diabetes should be individualised to each person. This requires an initial assessment, which should be multi-dimensional and multi-disciplinary, taking into account medical, psychosocial and functional considerations. A comprehensive geriatric assessment is recommended for older individuals with complex problems, with an emphasis on functional status and quality of life. This also usually needs involvement of a multidisciplinary team.[5]

The multiple areas of assessment for CGA include the following:

- Current symptoms and illnesses and functional impact

- Current medications, indications and effects
- Relevant past illnesses
- Recent and impending life changes
- Objective measures of overall personal and social function
- Current and future living environment and appropriateness to function
- Family situation and availability
- Current caregiver networks, deficiencies and potential supports
- Measures of cognitive status
- Assessments of mobility and balance
- Rehabilitative potential and prognosis
- Emotional health
- Nutritional status and needs
- Other diseases, risk factors and screening status
- Services received and / or required

In addition, there is a need to assess the reliability and objectivity of the history from collateral sources.

This long list is present because older people present with non-specific symptoms from multi-system disorders, which may be interpreted as ‘normal for old age’. It may also be challenging to decide which issues to prioritise. There may also be communication barriers, such as cognitive impairment, depression, hearing or visual impairment. For older people, everything may also be inter-related, while pathology in one organ may indicate pathology in another organ. For example, a patient may present with acute confusion or delirium due to an underlying chest infection.

Application of CGA

In an older person who presents with symptoms or poorly managed medical conditions, the cause is usually multifactorial. CGA is necessary to identify all these contributors to formulate a management plan.

For example, an older person who presents with weight loss can be due to several reasons. Limited dentition or poorly fitting dentures may affect oral intake. A person's appetite may be affected by loneliness and social isolation, depression or medications. Lack of financial resources or transportation may affect access to food. Non-compensated disabilities may also result in difficulties

to acquire food, prepare meals or self-feed. Medical conditions such as cardiac failure, cancer, dementia and even constipation may impact oral intake and weight. Generally, for patients with weight loss, we should consider caloric intake versus expenditure. For older people with weight loss, we should also apply CGA to consider the multifactorial processes affecting oral intake.

Similarly, for older people with diabetes, in addition to considering hepatic and renal function, as well as overall glycaemic control, it is also important to check a person's access to food and medications, as well as compliance to therapy. For those on insulin, they require adequate vision and an ability to read numbers, and have sufficient dexterity to administer subcutaneous insulin (if required). For activities that an older person is unable to perform, adequate supports or assistance should be put in place to ensure continued, ongoing treatment.

Specific Considerations for Older People with Diabetes

1. Dentition

An older person's oral health is at higher risk of deterioration with diabetes, and infections are difficult to manage in patients with poorly controlled diabetes. Oral hygiene practices, screening for oral health and at least looking into their mouth to look at the health of their teeth and gums is important. A study in older inpatients in Brunei found that oral care practices and the perception of the importance of dental hygiene was poor.[6] Thus, a life course approach in oral health should be adopted, particularly for those with diabetes.[7]

2. Nutritional status

Malnutrition is common in older people, with a study showing more than half of older people admitted under Geriatric Medicine being under-nourished. [8] This can be identified by gross inspection for cachexia and muscle wasting, particularly around the temporal areas, hands and limbs. For inpatients, the Malnutrition Universal Screening Tool (MUST) can be applied, which takes into account Body Mass Index, weight loss and whether there is an acute illness resulting in a likelihood of poor nutritional intake for days.

3. Swallowing

For older people with neurological deficits or dementia, it is important to consider screening for swallowing problems. Occasionally, this can be exacerbated by impulsivity in eating, which includes swallowing food whole, rapid eating, and eating or drinking large amounts at a time. They may have obvious symptoms of aspiration, such as coughing or choking with food or drinks, moist phonation, or present frequently with respiratory infections. For those with slow or difficulty chewing or swallowing, or storing of food in the mouth, it is imperative that the rate of feeding is congruent with the patient. The ability to swallow medications should be considered before oral hypoglycaemic agents are considered. For those who have difficulty swallowing capsules, tablets or liquid preparations may be considered.

4. Medications

For patients with renal impairment, metformin and long acting sulphonylureas may not be appropriate. For patients on nasogastric tubes, tablets may need to be crushed. However, long-acting or modified release agents should not be crushed, as this will alter the drug pharmacokinetic properties. Compliance should be monitored, which can be done through medication reconciliation and reviewing patient's medications during clinical consultations.[9] For patients with recurrent admissions, it is also important to check what medications are available at home before re-prescribing on discharge; frequent changes to medication prescriptions may also cause accumulation of drugs or incorrect dosing by the patient. [10]

5. Physical Activity

Physical activity and exercise is important for diabetes, as it increases insulin sensitivity and is associated with improvements in glycaemic control. For patients with comorbidities, this may need to be gradually increased to meet guideline recommendations. For patients with cardiac comorbidities, prescribed physical activity is an important component of management and associated with improved outcomes. [11]

6. Fall Prevention

Older people with diabetes are at higher risk of falls, particularly for those with complications such as visual impairment from diabetic retinopathy and proprioceptive deficits from diabetic neuropathy. All

patient encounters in clinics or admissions to hospital are an opportunity to screen older people for falls risk, with further evaluation as required. [12] In addition to potentially requiring input from other specialties, such as geriatric medicine, physiotherapy or podiatry, they should be considered for enrolment into fall prevention programmes, with an emphasis on lower limb strength and balance exercises. [13]

7. Palliative care and support services

Based on the trajectory of illness, progression of disease and development of complications from diabetes, a palliative care approach may need to be considered for some patients.[14] For those who are unable to come into clinic, Home Based Nursing input may be required to manage complications related to immobility, such as pressure injuries. [15] These patients would also require CGA in the community, of which there is a need for further strengthening of community services in Brunei. [16]

8. Pressure injuries in dependent older patients

The prevalence of pressure injuries among medical inpatients in Brunei was found to be as high as 20.4%. [17] The lack of sensation from polyneuropathy, glycosuria causing an increased risk of bacterial colonisation and polyuria leading to increased moisture and compromise of skin integrity places diabetic patients at risk of infected pressure injuries. Prevention through assessment of pressure injury risk factors, and proactive management of these complications from immobility should they occur is a necessary component of diabetes care of older people. [18]

Diabetes Treatment Targets

Treatment of diabetes generally uses HBA1c targets as a surrogate measure for the risk of macrovascular complications. The HBA1c target should be individualised to the patient, ranging from most intensive (6%), less intensive (7%) and least intensive (8%). The intensity of treatment should take into account psycho-socioeconomic considerations, risk of hypoglycaemia, age, disease duration, presence of other co-morbidities and whether there have been established vascular complications. [19]

In other words, the least intensive approach would be preferable for those who are less motivated, non-compliant, have limited support systems, high hypoglycaemic risk, older age, longer duration of

disease, have additional multiple severe comorbidities as well as advanced microvascular and cardiovascular disease. [19]

COVID-19 related considerations

Older people and those with comorbidities such as diabetes are at high risk of developing complications from COVID-19 infections. It is recommended that they are fully vaccinated with an additional booster dose to reduce the risk of complications such as hospitalisation and death. [20] During the pandemic, older people are also at risk of social isolation, limited access to supports and develop mental health sequalae.[21] These should be evaluated as part of CGA for patients seen in clinic or hospitals. To minimise physical face-to-face contact, virtual consultations may need to be offered to ensure ongoing follow-up care for these patients. This change in clinic set-up may pose logistical issues that people need to adjust to, but presents opportunities to strengthen self-management of diabetes by the patients.

Conclusion

The increased prevalence of older people with diabetes makes it imperative that DNE are familiar with geriatrics concepts and considerations in management of older people with diabetes. It is hoped that this overview provides some insight into CGA and its components so that DNE can apply these to clinical practice.

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