

RATIONALE

The goals of managing diabetes in elderly residents admitted to a LTC facility are different than for people in younger age groups. There is no evidence of benefit from tight glycemic control (i.e., fasting plasma glucose 4 to 7 mmol/L) for the LTC population.

- Hypoglycemia can lead to poor balance and risk of falls.
- Severe hypoglycemia can lead to seizures and death.
- Sustained hyperglycemia (over several days and not just a periodic spike) can lead to polyuria and nocturia. Trips to the bathroom late at night increase the risk of falls.
- Sustained hyperglycemia may also contribute to dehydration that can lead to coma or death.

The goal for elderly residents with diabetes is to avoid the acute complications of poor glycemic control including hypoglycemia and prolonged, severe hyperglycemia.

REFERENCES

1. Canadian Diabetes Association Clinical Practice Guidelines Expert Committee. Canadian Diabetes Association 2008 clinical practice guidelines for the prevention and management of diabetes in Canada. *Can J Diabetes*. 2008;32(suppl 1):S1-S201.
2. McAulay V, Frier BM. *Hypoglycaemia*. In: Sinclair AJ, Finucane P, ed. *Diabetes in Old Age*. 2nd ed. John Wiley & Sons Ltd.; 2001:133-152.

RECOMMENDATIONS

If Random Blood Glucose (BG):

Glucose Level	Treatment
Less than 7 mmol/L	• Notify physician to decrease diabetes treatment.
7.0 - 9.9 mmol/L	• This range may be acceptable. There is risk for hypoglycemia with Glyburide, Gliclazide, and Glimepiride or insulin therapy. If the resident has hypoglycemia (more than once a month), notify the physician to decrease treatment.
10.0 - 20.0 mmol/L	<ul style="list-style-type: none"> • This range is acceptable if the resident has no reversible symptoms such as polyuria or nocturia. • If the resident has reversible symptoms, notify the dietitian to assess food intake. Notify physician to assess the diabetes treatment. Increased treatment may not improve symptoms if due to other causes.
Greater than 20.0 mmol/L	• Notify physician to increase diabetes treatment.
Greater than 33.0 mmol/L with stupor or coma	• Notify the physician.

When the health care team discusses an individual's overall health status and prognosis with either the patient or the family, a review of glycemic targets and the importance of avoiding hypoglycemia would be beneficial. If glycemic targets are different from the diabetes guidelines, this should be clearly documented and include the rationale.

DIABETES GUIDELINES for Elderly Residents in Long-Term Care (LTC) Facilities

POCKET REFERENCE

Diabetes Care Program of Nova Scotia
1276 South Park Street
Bethune Building, Suite 548
Halifax, NS B3H 2Y9
Tel: (902) 473-3219 Fax: (902) 473-3911
E-mail: dcpns@diabetescareprogram.ns.ca
Website: www.diabetescareprogram.ns.ca

HYPOGLYCEMIA (Low Blood Glucose)

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Hypoglycemia is defined as:¹

A blood glucose (BG) level less than 4.0 mmol/L with symptoms (trembling, sweating, palpitations, nausea, hunger, confusion, drowsiness, weakness, difficulty speaking, and headache).

RATIONALE

Hypoglycemia in the elderly person with diabetes can be a serious and underestimated clinical problem that has significant morbidity and mortality.

- Older persons with diabetes may have fewer symptoms of hypoglycemia or decreased awareness of hypoglycemia.²
- Hypoglycemia in the elderly can be more severe and prolonged, and it can precipitate a cardiovascular event.
- Hypoglycemia is caused by inadequate carbohydrate (CHO) intake at meals, increased physical activity, or excess oral antihyperglycemic agents/insulin.
- Glucose or dextrose tablets or sugar dissolved in water (see Table 2) are the preferred choice for treatment because these are absorbed more quickly than orange juice or glucose gels. Although glucose and dextrose tablets are the preferred treatment choice, these tablets may be difficult to chew or swallow.
- Glucose gels are generally not recommended because they must be swallowed to be effective and are slowly absorbed.

The elderly are frequently on multiple medications and may have kidney or liver impairment, which may lead to changes in breakdown of medications. Therefore, it is important to prevent, recognize, and treat hypoglycemic episodes secondary to the use of diabetes medications.

PRACTICE TIPS

It is important to have a hypoglycemia treatment kit readily available. It should include sources of CHO for treatment (see Table 2).

Do not use any examples in Table 2 if the person is unable to ingest or is unconscious.

RECOMMENDATIONS*

Prevent, recognize, and treat a low blood glucose level promptly to raise the blood glucose to a safe level (greater than or equal to 4 mmol/L).

*Recommendations for treatment of hypoglycemia in elderly residents in LTC facilities are adapted from the Canadian Diabetes Association 2008 Clinical Practice Guidelines.¹

HYPOGLYCEMIA - Assessment

Table 1

BG less than or equal to 3.9 mmol/L

- Resident is able to ingest



- Resident is unable to ingest



- Resident is unconscious



HYPOGLYCEMIA - Treatment

Give:

- Oral ingestion of 15 g CHO. See Table 2 for examples.
- Wait 15 minutes and retest. If BG is less than or equal to 3.9 mmol/L, re-treat with 15 g CHO, wait 15 minutes and retest.
- Continue to treat/test until BG is greater than or equal to 4.0 mmol/L.
- If a meal is more than 30 minutes away, a snack containing CHO and protein should be provided (e.g., 1 slice bread and 1 oz. [30 g] cheese or meat).

Give:

- 1 mg glucagon (intramuscularly) if ordered by a physician. (There should be a prn order for glucagon on the chart.)
- Notify the physician.

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After treatment (BG greater than or equal to 4.0 mmol/L) and symptoms remain, look for other causes of symptoms.

FOLLOWING A HYPOGLYCEMIC EVENT:

- Assess factors that may have contributed to the hypoglycemia, such as inadequate CHO intake at meals, increased physical activity, or too much oral antihyperglycemic agent/insulin, and adjust treatment accordingly.
- Reduce diabetes intervention accordingly if pattern of repeated hypoglycemia (greater than once a month).

Table 2

Examples of 15 g CHO for treatment of hypoglycemia

- 3 teaspoons (15 ml) or 3 packets of table sugar dissolved in water
- 3/4 cup (175 ml) juice or regular soft drink
- 1 packet (15 ml) honey or jam
- 6 Life Savers (1 = 2.5 g CHO)
- 15 g glucose in the form of glucose tablets
- 15 g glucose in the form of glucose gel