Diabetes Guidelines

A Tool for Every GP

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Marilyn's case

Marilyn, 52, is new to your practice. While she has been healthy to date, her sister was diagnosed with Type 2 diabetes three years ago and her brother has hypertension and recently underwent coronary arterial bypass surgery. At the time of his surgery, he too was diagnosed with Type 2 diabetes.

- Marilyn wonders if she might be at risk for these conditions. She has no specific complaints, other than she would like to lose some weight.
- Marilyn's body mass index is 30. Most of her weight distribution is abdominal. Her resting blood pressure is 140/90 mmHg. The rest of her exam is unremarkable.

What are Marilyn's risk factors?

From the 2003 Canadian Diabetes Association criteria, Marilyn has the following risk factors:

- age older than 40 years,
- first-degree relative with diabetes,
- hypertension and
- overweight/abdominal obesity.

Actually, with Marilyn's currently identified risk factors of obesity and hypertension, and with her family history of Type 2 diabetes and coronary artery disease (CAD), she really should be considered at risk for the metabolic syndrome of insulin resistance.

For more on Marilyn, go to page 70.

The Canadian Diabetes Association published its revised evidence-based clinical practice guidelines in 2003.[1] Not only do these guidelines update areas of screening, diagnosis and management of diabetes, they also have expanded into areas not previously addressed, but which have become important in the management of diabetes.

The 2003 guidelines provide criteria for screening (Table 1).

The metabolic syndrome

The metabolic syndrome is quite common and characterized by some distinctive abnormalities, including abdominal obesity, hypertension, dyslipidemia, insulin resistance and/or Type 2 diabetes. People with the metabolic syndrome are at significant risk for developing Type 2 diabetes and coronary artery disease (CAD).

What tests should be done?

Screening for diabetes

The guidelines state that individuals may be screened simply with a fasting plasma glucose (FPG). In some situations, when the suspicion for diabetes or impaired glucose tolerance is high, such as in Marilyn's case, a two-hour oral glucose tolerance test (OGTT) would be indicated.

More on Marilyn

What tests should be done for Marilyn?

At this time, it would be prudent to screen Marilyn for the presence of either abnormal glucose tolerance or overt diabetes.

Considering her risk factor profile and following the guidelines, you could start with a fasting plasma glucose or, better yet, suggest a two-hour oral glucose tolerance test (OGTT) (Table 2).

What's the diagnosis?

Marilyn's results are as follows:
- FPG: 6.9 mmol/L
- Two-hour OGTT: 13.7 mmol/L

According to the guidelines, Marilyn has Type 2 diabetes.

She now has a lot of questions, including:
- What do I eat?
- Should I exercise?
- What should my blood sugar levels be?

How should Marilyn be treated?

The guidelines lay out the blueprint for Marilyn's diabetes. Using the health-care team concept, Marilyn will learn how to manage her diabetes within the context of the important lifestyle changes (*i.e.*, diet and exercise habits and regular self-blood glucose monitoring).

Knowing her team is providing her with evidence-based recommendations in terms of achieving and maintaining glycemic and complication risk factor targets will give Marilyn the confidence to self-manage her diabetes successfully.

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Table 1

Risk factors for Type 2 diabetes

- Age older than 40 years
- First-degree relative with diabetes
- Member of high-risk population (*e.g.*, people of Aboriginal, Hispanic, South Asian or African descent)
- History of IGT or IFG
- Presence of complications
- Vascular disease
- History of GDM
- History of delivery of a macrosomic infant
- Hypertension
- Dyslipidemia
- Overweight
- Abdominal obesity
- Polycystic ovary syndrome
- Acanthosis nigricans
- Schizophrenia
- Other

IGT: Impaired glucose tolerance GDM: Gestational diabetes mellitus
IFG: Impaired fasting glucose

What happens after diagnosis?

The guidelines clearly state all newly diagnosed Type 2 diabetes patients should undergo a full assessment that includes looking for any evidence of microvascular or macrovascular long-term complications. The main reason for performing a thorough assessment is because even short-term hyperglycemia may cause complications and the lag period from the true time of onset and diagnosis of Type 2 diabetes may be quite long; thus, "the complication clock has been ticking."

What is the diabetes care approach?

As the guidelines state, there are certain approaches to diabetes care that have been shown to be effective. Diabetes care is more effective if it is organized within a diabetes health-care team approach. Many patients' questions and needs can be best

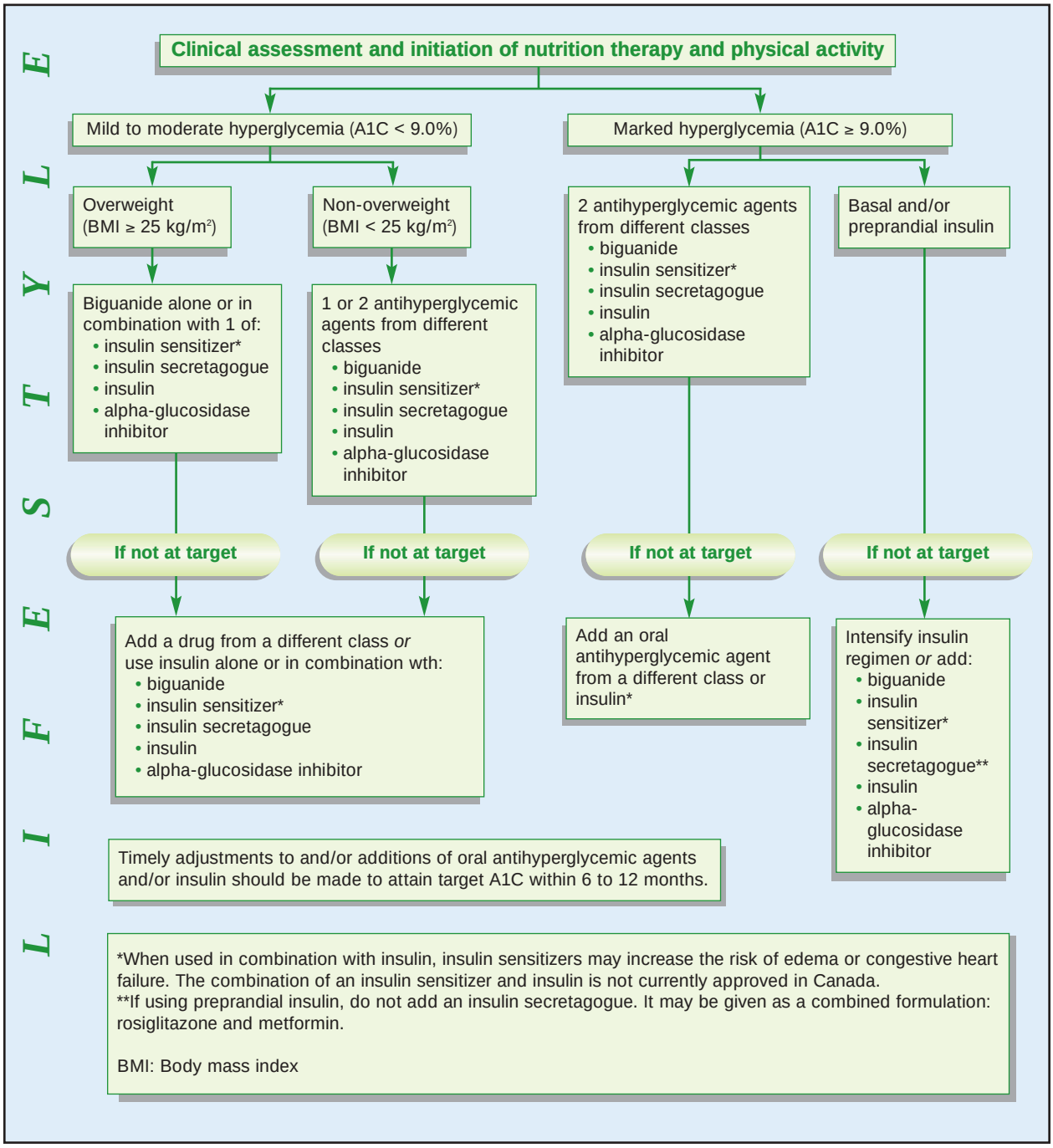

Figure 1. Management of hyperglycemia in Type 2 diabetes.

Table 2

PG levels for diagnosis of IFG, IGT and diabetes

	FPG (mmol/L)		2hPG in a 75 g OGTT (mmol/L)
IFG	6.1-6.9		NA
IFG (isolated)	6.1-6.9	and	< 7.8
IGT (isolated)	< 6.1	and	7.8-11.0
IFG and IGT	6.1-6.9	and	7.8-11.0
Diabetes	≥ 7.0	or	> 11.1

PG: Plasma glucose
IFG: Impaired fasting glucose
IGT: Impaired glucose tolerance
FPG: Fasting plasma glucose
2hPG: 2-hour plasma glucose
OGTT: Oral glucose tolerance test
NA: Not applicable

Table 3

Recommended targets for glycemic control

	A1C (%)	FPG/postprandial PG (mmol/L)	2-hour postprandial PG (mmol/L)
Target for normal patients	≤ 7.0	4.0-7.0	5.0-10.0
Normal range (consider for patients in whom it can be achieved safely)	≤ 6.0	4.0-6.0	5.0-8.0

A1C: Glycosylated hemoglobin
FPG: Fasting plasma glucose
PG: Plasma glucose

addressed by members of a multidisciplinary team, including a diabetes nurse educator and dietitian.

Glucose targets

The guidelines list glucose targets for all individuals with diabetes (Table 3). Evidence relates the ongoing risk of complications to the degree of glycemic control. Timely reassessment and aggressive pursuit of the glycemic targets are clearly set out as goals.

Emphasis is given to the individualized approach of the pharmacologic management of Type 2 diabetes. The guidelines also demystify the use of insulin in Type 2 diabetes. Insulin is considered "just another tool in the diabetes tool drawer" and should be recommended if glycemic targets are not being met (Figure 1).

Complication risk assessment

The long-term risk of diabetes is not isolated to glycemic control alone. Diabetes may be considered a vascular disease, where protection from CAD, stroke, amputation, retinopathy and blindness is required. The guidelines provide an organized approach to the complications.

Most individuals should consider general vascular protection with the use of low-dose acetylsalicylic acid. Specific targets for lipids and blood pressure (in the presence or absence of nephropathy) are identified along with specific pharmacologic strategies for both. D_x

Reference
1. Canadian Diabetes Association Clinical Practice Guidelines Expert Committee: Canadian Diabetes Association 2003 Clinical Practice Guidelines for the Prevention and Management of Diabetes in Canada. Can J Diabetes 2003; 27(suppl 2).