Don’t Stop at Premeal Control

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omended a 2-hour postmeal glucose value of 140 mg/dL or less for all dia-
abetic patients, while the American Dia-
betes Association advocates a target of below 180 mg/dL at any time. The IDF document, developed by an 18-member international committee, rec-
ommends the following:

- Postmeal hyperglycemia is harmful and should be addressed. The highest-
level evidence for this comprises four epi-
odemographic studies that indicate postmeal and postchallenge hyperglycemia are in-
dependent risk factors for macrovascular disease. Other supporting evidence sug-
gests that postmeal hyperglycemia is also associated with increased risks for retinopathy and cancer, and for impaired cognitive function in elderly patients with type 2 diabetes. Postmeal hyperglycemia has also been linked to greater carotid intima me-
dia thickness and decreased myocardial blood volume and flow, and has been shown to cause oxidative stress, inflammation, and endothe-

dial dysfunction.

- Implement treatment strategies to lower levels of blood glucose in people with postmeal hyperglycemia. Although no completed studies have specifically ex-


amined the effect of controlling post-
meal glycemia on macrovascular disease, there are data to support the use of both dietary and pharmacologic treatment. Among those are the findings that treat-
ment with medications that target post-
meal plasma glucose reduces vascular events, and that targeting both postmeal and fasting plasma glucose is an import-
ant strategy for achieving optimal gly-
cemic control.

Data suggest that the relative contri-
bution of postprandial glucose to overall glycemic control increases with hemo-
globin A1c. At levels below 7.3%, post-
meal glucose values contribute about 70%, compared with just 40% when HbA1c is above 9.3% (Diabetes Care 2003;26:881-9). In practical terms, “to achieve A1c levels below 7.3%, you need to target the postmeal glucose. Other-
wise, you’ll be ‘stuck’ at 7.2%-7.3%,” re-
marked Dr. Jellinger, professor of medi-
cine and a voluntary faculty member at the University of Miami.

- A variety of both nonpharmacolog-
ic and pharmacologic therapies should be considered to target postmeal plas-
ma glucose. Diets with a low glycemic load have been shown beneficial in con-
trolling postmeal plasma glucose, while several pharmacologic agents are avail-
able that preferentially lower postmeal plasma glucose.

These agents include the α-glucosidase inhibitors acarbose and miglitol, the amy-
lase inhibitor alginatide, the dipeptidyl peptidase-4 inhibitor sitagliptin phos-
phate, the glinides nateglinide and repaglinide, the glucagon-like peptide-1

dervative exenatide, and rapid-acting, biphasic, and inhaled insulins.

- Two-hour postmeal plasma glucose should not exceed 7.8 mmol/L (140 mg/dL) as long as hypoglycemia is avoided. Postmeal plasma glucose levels rarely rise above 7.8 mmol/L or 140 mg/dL in people with normal glucose toler-
tance, and typicall y are controlled at near basal levels within 2-3 hours after eating.

- Self-monitoring of blood glucose ( SMBG) should be considered. It is cur-
rently the most practical method for mon-
itoring postmeal glucose. While there is controver-
sy and conflicting data about the benefits of SMBG in people with type 2 diabetes who do not use insulin, most dia-
betes organizations and other medical as-


sociations do advocate its use. For pa-
tients with type 1 and type 2 diabetes who do use insulin, the IDF advises SMBG at three times a day. The IDF does not call for patients to measure glu-
cose levels after every meal.

Dr. Jellinger typ-
ically asks patients to perform one 2-
hour postmeal glucose test a day—after different meals—in the 2 weeks prior to an office visit, in addition to daily testing.

He also checks patients’ nonfasting glu-
cose levels when they’re in the office. “Never miss an opportunity to check a random blood sugar when they’re in the office, because you can learn a lot,” he advised.

- Efficacy of treatment regimens should be monitored as frequently as needed to guide therapy toward achiev-
ing postmeal plasma glucose targets. But that doesn’t mean fasting levels should be ignored. Indeed, despite all the emerging data on postprandial glucose toxicity, Dr. Jellinger has found that it’s just more practical to start out treatment by targeting fasting and premeal glucose levels.

“My first target is the fasting pla-


ma glucose. I don’t try to bring down postmeal excursions until my patient has achieved waning euglycemia and then premeal euglycemia. I find that it’s very difficult to achieve effective 2-hour post-
meal control when the patient enters the meal with a high blood glucose. You may have to give such high doses of medica-
tion for the meal that you begin to risk hypoglycemia.”

It is clear that a major determinant of postmeal glucose is premeal glucose, he noted. “The point now is that you don’t stop when the premeal glucose are un-
der control, which is the old thinking. Now you start looking at postmeal glucose (values) and start targeting therapy to that parameter.”

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