Standards of Care and Treatment in Diabetes

Joy A. Dugan, MPH, MSPAS, PA-C

KEYWORDS

• Diabetes mellitus • Guidelines • ADA • AACE

KEY POINTS

- Glucose control is only one factor in diabetes care. Blood pressure regulation, lipid control, weight management, and vaccinations all contribute to diabetes management.
- Individualize diabetes targets for patients based on age, activity, and comorbidities. Intensive management of diabetes raises the risk of hypoglycemia. Patients should only meet hemoglobin A1c targets if there is no considerable hypoglycemia.
- Refer for behavioral support when comorbid depression or diabetes distress exists. The Problem Area in Diabetes or the Diabetes Distress Scale can be used to facilitate this discussion.
- Smoking cessation, regular exercise, nutrition, and weight control are essential components to the treatment of diabetes.

INTRODUCTION

This article discusses the American Association of Clinical Endocrinologist/American College of Endocrinologists (AACE/ACE)[1] and American Diabetes Association (ADA)[2] 2016 guidelines for managing diabetes mellitus types 1 (T1DM) and 2 (T2DM). Although these guidelines exist, recognize that patients must also have individualized targets based on age, activity level, and comorbidity status. Furthermore, glucose control does not equate to diabetes control, because there are multiple other process and outcome measures, including blood pressure (BP), lipid, and weight control that contribute to successful diabetes management.

For all patients with diabetes, lifestyle optimization is key.[1,2] The AACE/ACE and ADA guidelines recommend frequently evaluating patients until stable using glycosylated hemoglobin A1c and self-monitored fasting and postprandial blood glucose levels. Weight changes, hypoglycemic events, exercise, cholesterol, BP, diabetes complications, comorbidities, drug reactions, and psychosocial factors should also be considered during a follow-up visit. Less frequent office visits should only occur once target measures are achieved.[1,2]

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Joint MSPAS/MPH Program, Touro University California, 1310 Johnson Lane, Mare Island, CA 94592, USA
E-mail address: joy.dugan@tu.edu

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STANDARDS OF CARE

Glycemic Control Targets

Glycemic targets are based on landmark trials including the Diabetes Control and Complications Trial (DCCT)[3] and The Epidemiology of Diabetes Interventions and Complications[3] for type 1 diabetes (T1DM) and the United Kingdom Prospective Diabetes Study (UKPDS)[4] for type 2 diabetes. These trials demonstrated that a reduction in blood glucose reduces the risk of microvascular complications.[3,4] In DCCT, individuals in the intensive therapy arm had a median A1c of 7% resulting in 35% to 76% reduction in early microvascular disease compared with the control group with a median A1c of 9%.[3] Similarly, UKPDS determined an A1c <7% led to fewer microvascular complications.[4] The AACE/ACE and ADA guidelines discussed later are based on these landmark trials.

Glycemic control for self-monitoring includes targets for both fasting and postprandial glucose states.[1,2] Guidelines by both AACE/ACE and ADA suggest first considering the patient's risk factors and comorbidities when establishing a treatment goal.[1,2] **Table 1** demonstrates the glycemic recommendations for patients with T1DM and type 2 diabetes (T2DM) where the AACE/ACE guidelines recommend more intensive goals than the ADA. The AACE/ACE support an A1c goal of 6.5% or less for most nonpregnant patients, whereas the ADA recommends an A1c goal of less than 7.0%. The lower AACE/ACE A1c goal is based on the landmark clinical trials, including DCCT and UKPDS, where microvascular complications can be reduced or prevented with even lower glycemic targets.[3,4]

In 2009, 3 trials, including Action in Diabetes and Vascular Disease Preterax and Diamicron MR Controlled Evaluation (ADVANCE) trial,[5] Action to Control Cardiovascular Risk in Diabetes (ACCORD),[6] and Veterans Affairs Diabetes Trials (VADT),[7] studied the effects of glycemic control on cardiovascular events. Both ADVANCE and VADT showed neutral effect on macrovascular complications with tight glycemic control in older

Table 1
Summary of American Association of Clinical Endocrinologist/American College of Endocrinologists and American Diabetes Association guidelines for glucose control

	AACE/ACE	ADA
Nonpregnant adult A1c goal	<6.5%	A1c goal of <7% with more stringent A1c (eg, <6.5%) if possible[a]
A1c goal with history of severe hypoglycemia, limited life expectancy, or extensive complications	<7%–8%	<8%
Preprandial capillary plasma glucose	<110	80–130 mg/dL
Postprandial capillary plasma glucose	<140	<180 mg/dL
Preexisting T1DM or T2DM who become pregnant	• Fasting 60–99 • Postprandial 100–129 • A1c <6.0%[a]	• Fasting 60–99 • Postprandial 100–129 • A1c <6.0%[a]

[a] If can be achieved without significant hypoglycemia.

Data from Garber AJ, Barzilay JI, Blonde L, et al. Consensus statement by the American Association of Clinical Endocrinologists and American College of Endocrinology on the comprehensive type 2 diabetes management algorithm—2016 executive summary. Endocr Pract 2016;22(1):84–113. Available at: https://www.aace.com/ sites/all/files/diabetes-algorithm-executive-summary.pdf.