

Preventing CVD in Adults with Type 2 Diabetes Mellitus: An Update from the AHA and ADA

Key Points for Practice

- For most persons with diabetes, A1C should be at 7% or lower to decrease the occurrence of microvascular disease.
- An angiotensin-converting enzyme inhibitor or angiotensin receptor blocker should be used to treat hypertension.
- Patients should receive a high-intensity statin if they have at least a 7.5% risk of atherosclerotic CVD.
- A dosage of 75 to 162 mg per day of aspirin is an option in persons with a 10-year risk of CVD of 10%.

From the AFP Editors

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Cardiovascular disease (CVD) is the leading cause of death in persons with diabetes mellitus. In 1999 and again in 2007, the American Heart Association (AHA) and American Diabetes Association (ADA) joined together to release statements on preventing CVD in persons with diabetes. New data have emerged since the publication of these statements; therefore, an updated guideline has been released. The ADA now states that an A1C of $\geq 6.5\%$ or previous criteria for fasting glucose (≥ 126 mg per dL [7.0 mmol per L]) or two-hour glucose (≥ 200 mg per dL [11.1 mmol per L]) may be used for diagnosing diabetes.

Recommendations

OVERWEIGHT AND OBESITY

Persons who are overweight or obese should reduce their energy intake, and should receive counseling that certain changes in lifestyle can result in a maintainable weight loss (3% to 5%), which has a variety of health benefits. If weight loss cannot be achieved with these changes alone, pharmacologic therapy and surgery, which have been shown to typically result in more weight loss compared with lifestyle changes or placebo, may also be options.

Pharmacologic Therapy. Medications to assist with weight loss are appropriate for persons with a body mass index of 25 to 30

kg per m² and comorbidities, or persons with a body mass index greater than 30 kg per m², regardless of the presence of comorbidities. Multiple medications approved by the U.S. Food and Drug Administration for managing obesity in the long term (about one year; i.e., orlistat [Xenical], lorcaserin [Belviq], and extended-release topiramate/phentermine [Qsymia]) and short term (less than three months; i.e., phentermine [Adipex], diethylpropion [Radtue], benzphetamine [Didrex], and phendimetrazine [Bontril]).

Surgery. Persons with a body mass index of at least 40 kg per m², or at least 35 kg per m² with a related comorbidity, who are not able to lose weight via behavioral or pharmacologic therapy may benefit from bariatric surgery. It is the most effective option for significant and maintainable weight loss in persons with severe obesity.

BLOOD GLUCOSE

Some studies indicate that the possible risks of intensive glycemic control may outweigh the benefits in certain populations, including those with a history of severe hypoglycemia, and a shorter life expectancy because of older age, frailty, or comorbidities. Less strict A1C goals ($< 8\%$ or slightly higher) can be used in these persons. Additionally, less strict goals can be used for patients if the goal is hard to meet even with intensive self-management education, counseling, and treatment with medications aimed at lowering glucose levels. For most persons, A1C should be at 7% or lower to decrease the occurrence of microvascular disease. To lower A1C to this level, mean plasma glucose should be 150 to 160 mg per dL (8.3 to 8.9 mmol per L), fasting and premeal glucose should be less than 130 mg per dL (7.2 mmol per L), and postprandial glucose should be less than 180 mg per dL (10 mmol per L). Stricter goals

(6.5%) might be beneficial in certain patient populations such as those without significant heart disease, shorter disease duration, or longer life expectancy; however, these should be implemented only if they do not cause significant hypoglycemia or adverse effects.

BLOOD PRESSURE

Recent randomized controlled trials evaluating intensive blood pressure lowering to less than 130 mm Hg have determined that there is no benefit in reducing the risk of coronary events (fatal or nonfatal myocardial infarction). There is no evidence to indicate that intensive blood pressure lowering in persons with diabetes should be a universal recommendation, and more studies are needed to determine the proper goals in persons with risk factors. Most persons with diabetes should have a blood pressure less than 140/90 mm Hg; however, in some persons, lower goals may be suitable if they are possible to reach without problems. If a person's hypertension is treated with medications, an angiotensin-converting enzyme inhibitor or angiotensin receptor blocker should be used, including in persons with chronic kidney disease.

CHOLESTEROL

Lipid levels in persons with diabetes should be measured once or more per year, and lifestyle changes should be emphasized, including reducing consumption of saturated and trans fats, losing weight, increasing consumption of dietary fiber, and being more physically active. In persons with diabetes 40 to 75 years of age, if the low-density lipoprotein cholesterol level is 70 to 189 mg per dL (1.81 to 4.90 mmol per L), they should receive a moderate-intensity statin, and if they have at least a 7.5% risk of atherosclerotic CVD, they should receive a high-intensity statin. The benefits of statins in persons younger than 40 years, or older than 75 years, should be assessed. All persons with fasting triglyceride levels greater than 500 mg per dL (5.7 mmol per L) should be evaluated and provided with treatment.

NUTRITION

All persons with diabetes should receive nutrition therapy personalized to them. To control blood glucose levels, it is important to monitor how many carbohydrates are consumed, and it should be noted that fruits, legumes, vegetables, whole grains, and dairy products may be substituted for other sources of carbohydrates. A Mediterranean-type diet can also help with controlling blood glucose levels and

CVD risk factors. Sodium intake should be limited (to less than 2,300 mg per day per ADA recommendations and less than 1,500 mg per day per AHA recommendations).

ASPIRIN THERAPY

There is some debate about the use of aspirin for primary prevention of CVD in persons with diabetes. In the general population, it has been shown to prevent nonfatal myocardial infarction in men and appears to lower stroke risk in women. Data from studies in patients with diabetes seem to indicate that there is a modest reduced risk of CVD events with its use, with at least a twofold relative risk of bleeding, ultimately demonstrating that aspirin's effects depend on each person's initial bleeding and CVD risks. A dosage of 75 to 162 mg per day is an option in persons with a 10-year risk of CVD of 10%, but without a higher bleeding risk, and in all persons with a 10-year risk of 5% to 10%.

SCREENING TESTS FOR CAD

CAD screening in asymptomatic patients with diabetes remains controversial because of the lack of data suggesting benefits. Resting electrocardiography can be performed to determine the risk of coronary artery disease in persons with hypertension or diabetes and without symptoms. Ankle brachial index is an option for those with an intermediate risk of coronary artery disease who are without symptoms. Stress myocardial perfusion imaging can be used in asymptomatic persons at high risk with diabetes, a significant family history of coronary heart disease, or previous evaluation results indicating a high risk of coronary heart disease. Stress myocardial perfusion imaging is not appropriate for persons with a low or intermediate risk who are without symptoms. Coronary artery calcium can be considered for persons at least 40 years of age, with diabetes, and without symptoms of coronary artery disease.

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