THE EFFECTIVE PHYSICIAN

Diabetes Mellitus

BY WILLIAM E. GOLDEN, M.D., AND ROBERT H. HOPKINS, M.D.

Background

With the increase in obesity in our society, diabetes—always a common issue in adult medical care—will only grow in prominence in our practices. The American Diabetes Association updated its standards for medical care of diabetics in 2006.

Conclusions

Type 1 diabetes results from β-cell destruction, whereas type 2 diabetes stems from progressive insulin secretory defects in combination with insulin resistance in peripheral tissues.

Although patients with type 1 diabetes present with acute symptoms and markedly elevated glucose levels, patients with type 2 diabetes are frequently not diagnosed until complications develop.

At least 20% of patients over age 65 have diabetes. Unfortunately, there are no long-term studies that demonstrate benefits from tight glycemic control in this population.

Patients who are at high risk of developing diabetes can be identified and the disease can be delayed, if not prevented, with several strategies. Modest weight loss and physical activity are the recommended approaches for preventing diabetes, but there are also promising data on medications for arresting the disease.

The target goals for metabolic control include hemoglobin A_{1c} below 7.0%, blood pressure under 130/80 mm Hg, and LDL levels less than 100 mg/dL. It is estimated that fewer than 40% of adult diabetics have A_{1c} readings under 7% and blood pressure below 130/80. Fewer than 10% of diabetics achieve all targets for A_{1c}, blood pressure control, and lipid management.

Most patients with type 1 diabetes benefit from blood glucose self-monitoring three times a day. The optimal frequency of self-monitoring for type 2 patients on oral agents has not been established, but monitoring should be used to promote attainment of blood sugar control.

ACE inhibitors have been shown to delay the progression of nephropathy in type 1 diabetes. Type 2 diabetics with hypertension, microalbuminuria, and renal insufficiency have delays in progression of nephropathy with angiotensin II receptor blockers.

Implementation

Fasting plasma glucose is the preferred test for diagnosing diabetes, while the A_{1c} test is not recommended at this juncture. The oral glucose tolerance test is not recommended for routine clinical use but may be necessary for patients with impaired fasting glucose (100-125 mg/dL).

Screening to detect prediabetes should be done at 3-year intervals in patients age 45 and older. Patients under age 45 who are overweight and have other risk factors for diabetes also should be screened.

The A_{1c} test should be performed at least twice a year in patients meeting treatment goals, or quarterly in those not reaching optimal control. The A_{1c} goal for diabetics in general is less than 7%, but is under 6% for some patients.

Low-carbohydrate diets (less than 130 g/day) are not recommended in the management of diabetes. Instead, patients should receive individualized dietary counseling, with monitoring of the total grams of carbohydrates. Saturated fat should be less than 7% of total calories, and protein intake should be reduced to 0.8 g/kg in diabetics with chronic kidney disease.

Routine supplementation with vitamins E and C and β-carotene is not advised because of unproven efficacy and potential toxicity. In addition, all diabetic patients should be advised not to smoke.

With regard to exercise, patients with diabetes should engage in 150 min/week of moderate-intensity aerobic physical activity (50%-70% of maximum heart rate) and/or 90 min/week of vigorous aerobic exercise (greater than 70% maximum heart rate). Patients with type 2 diabetes should be encouraged to perform resistance exercise three times per week.

A graded exercise stress test should be considered in previously sedentary diabetic patients whose 10-year risk of a coronary event is greater than 10%.

All patients with diabetes and hypertension should receive an ACE inhibitor or an angiotensin II receptor blocker as one component of their therapy.

Aspirin therapy (75-162 mg/day) should be used for primary and secondary prevention in patients who have established cardiac disease or risk factors for heart disease. However, aspirin therapy does not prevent the development of retinopathy or increase the risk of hemorrhage.

Patients with congestive heart failure should not be treated with metformin. Thioglitazones are associated with fluid retention in patients with heart failure.

Serum creatinine should be measured annually to estimate glomerular filtration rate in all diabetics. Annual screening for microalbuminuria should begin in type 2 diabetics at diagnosis and in type 1 diabetics after 5 years of having the condition.

All patients should be screened for distal symmetric polyneuropathy at diagnosis and on an annual basis. Comprehensive foot examinations and instruction on self-care should be provided annually for patients with diabetes.

Reference

American Diabetes Association, Standards of Medical Care in Diabetes—2006, Diabetes Care 2006;29(S1):S4-42.

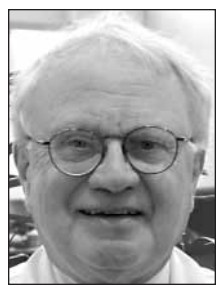
DR. GOLDEN *(right) is professor of medicine and public health and* DR. HOPKINS *is associate director of the medicine/pediatrics residency program at the University of Arkansas, Little Rock.*

Slowing Nephropathy in Hypertensive Diabetes

BY BRUCE JANCIN
Denver Bureau

SNOWMASS, COLO. — Quick: What's the preferred first-line antihypertensive agent in type 2 diabetic patients with hypertension and macroalbuminuria? Most nondiabetologists will probably be surprised to learn that it's an angiotensin II receptor blocker (ARB), according to American Diabetes Association's treatment guidelines.

"I suspect most cardiologists would guess it would be an ACE inhibitor," Dr. John S. Schroeder observed at a conference sponsored by the Society for Cardiovascular Angiography and Interventions. For hypertensive type 2 diabetic patients with microalbuminuria—as defined by a 24-hour urinary albumin excretion rate of 30-299 mg—the guidelines list both ACE inhibitors and ARBs as the preferred initial treatment choices, based on level A data showing that they delay progression to macroalbuminuria (Diabetes Care 2003;26:S33-50).



'I think you should really consider ARBs in all patients who have diabetes and hypertension.'

DR. SCHROEDER

But ARBs were singled out as the first-line antihypertensive drug class in patients with macroalbuminuria. The guidelines urge that an ARB "should be strongly considered" in such patients on the basis of compelling level A evidence that this drug class reduces the rate of progression to diabetic nephropathy.

The supporting data come from several clinical trials, including the Reduction of Endpoints in NIDDM with the Angiotensin II Antagonist Losartan (RENAAL) study, as well as the Irbesartan Diabetic Nephropathy Trial (IDNT).

But for Dr. Schroeder, the most impressive evidence of the renoprotective benefits of ARB therapy comes from the Irbesartan Microalbuminuria Type 2 Diabetes Mellitus in Hypertensive Patients (IRMA II) trial.

In IRMA II, 590 microalbuminuric type 2 diabetic patients with hypertension were randomized to 150 or 300 mg/day of irbesartan or placebo in addition to other antihypertensive agents as needed to achieve good blood pressure control. The 5.2% rate of progression to nephropathy at 2 years in patients on 300 mg/day of irbesartan represented a 70% reduction in the relative risk of the primary study end point, compared with placebo (N. Engl. J. Med. 2001;345:870-8).

Most diabetics who are hypertensive "already have some degree of nephropathy and microalbuminuria, and therefore I think you should really consider ARBs in all patients who have diabetes and hypertension," said Dr. Schroeder, professor of cardiovascular medicine at Stanford (Calif.) University.

Combined ARB and ACE inhibitor therapy is being put to the test in the randomized, double-blind Ongoing Telmisartan Alone or in Combination with Ramipril Global Endpoint Trial (ONTARGET).

Dr. Schroeder is on the speakers' bureau for Boehringer Ingelheim Pharmaceuticals Inc., which markets telmisartan (Micardis) and sponsors ONTARGET. ■

FDA Warns of Illegal Steroids Sold as Dietary Supplements

The Food and Drug Administration is warning consumers about manufacturers and distributors that still sell illegal steroid products as dietary supplements without the agency's approval.

Consumers who have purchased Anabolic Xtreme Supredrol (manufactured for Anabolic Resources LLC in Gilbert, Ariz., and distributed by Supplements to Go in Cincinnati) and Methyl 1-P (manufactured for Legal Gear in Brighton, Mich., and distributed by Affordable Supplements in Wichita, Kan.) should discontinue use and return the unused portion to the place of purchase.

The supplements are promoted for building muscle and increasing strength, but actually may cause serious long-term adverse health consequences. The products are described as anabolic, and problems associated with anabolic steroids include: liver toxicity, testicular atrophy and male infertility, masculinization of women, breast enlargement in males, short stature in children, adverse effects on blood lipid levels, and a potential to increase the risk of heart attack and stroke.

For more information, contact the FDA by calling 888-463-6332.

—Kerri Wachter