Diabetes mellitus is extraordinarily important to the primary care physician. It is a disease that has a profound impact in daily practice, yet medical school courses and medical text books barely pay attention to this common disease. The intent of this issue is to provide the primary care physician with contemporary information that is clinically relevant and applicable to the sound practice of diabetes care near the end of the millennium.

Diabetes is an incurable, chronic disease that affects the body’s ability to convert food into energy. There are two major forms of the disease:

In type 1 diabetes, there is an immune-mediated destruction of the pancreas, so that the body does not produce insulin. Therefore, insulin injections are required for survival. Type 1 diabetes develops most often in children. Although type 1 diabetes accounts for only 10% of all cases of diabetes, it is the most common chronic disease in childhood. Yet, type 1 diabetes may be preventable through approaches that halt the immunologic destruction. Clinical trials are in place to explore this possibility.

The more common form is type 2 diabetes in which the body does not use insulin properly and does not produce enough insulin. Type 2 diabetes may be regulated by diet, exercise, oral drugs, and/or insulin (40% of those with type 2 diabetes use insulin). This form, which comprises 90% of cases of diabetes, develops in adults. Type 2 diabetes also may be preventable through approaches that involve lifestyle changes and medications that correct the underlying defects. Clinical trials are also in place to explore this possibility.

Both types of diabetes are characterized by high blood glucose levels. These high blood glucose levels cause changes in organs and tissues that eventually cause devastating complications. Yet, it has been demonstrated that meticulous glycemic control dramatically reduces the risk of complications. Unfortunately, most patients with diabetes do not follow treatment programs that are designed to achieve effective glucose control.

There are nearly 16 million people nationwide who have diabetes. Unfortu

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PREVENTION AND TREATMENT OF DIABETES
AND ITS COMPLICATIONS

JAY S. SKYLER, MD
Guest Editor
nately, nearly 6 million of these people are unaware they have diabetes. Each day, 1600 Americans develop diabetes. Diabetes and its complications result in the deaths of more than 160,000 Americans annually.

Diabetes is responsible for 1 in every 7 health care dollars spent in the United States. Although 19% of the Medicare population has diabetes, approximately 30% of the Medicare budget is used in treating diabetes and its resultant complications. Diabetes has the highest direct costs for health care of any disease category—estimated by the National Institutes of Health (NIH) to be $91.1 billion in 1995. In total (direct and indirect) costs to our health care system, diabetes ranks second only to all mental health diseases combined, with the total cost for diabetes estimated to be $137.7 billion in 1995. These costs surpass those of cancer, heart disease, HIV/AIDS, and alcoholism. Yet, the total spending for diabetes research by the NIH is the lowest percentage of health care costs of any disease category—0.21%.

The complications of diabetes are staggering:

- Diabetic retinopathy is the #1 cause of blindness in working age adults in the United States, accounting for 22,000 new cases of blindness every year—more than 60 people newly blind each day. Yet, the National Eye Institute estimates that 90% of lost vision is preventable.

- Diabetic nephropathy is the #1 cause of end stage renal disease (ESRD) in the United States, accounting for 13,000 to 14,000 new cases of ESRD every year—more than 35 cases each day and 70 more cases each day developing diabetic nephropathy. Yet, the National Institute of Diabetes, Digestive, and Kidney Diseases estimates that most future ESRD is probably preventable.

- Diabetes is the #1 cause of nontraumatic amputations in the United States, accounting for 54,000 to 55,000 limbs lost every year—more than 150 limbs amputated each day. The rate of limbs lost from diabetes is 28 times greater than in those without diabetes. Yet, the American Diabetes Association estimates that 85% of limb loss is preventable.

- People with diabetes are 2 to 6 times more likely to have heart disease and are 5 times more likely to suffer a stroke. Fully 60% of the deaths among people with diabetes are associated with cardiovascular disease.

A preventative approach to diabetic complications involves meticulous glycemic control, aggressive blood pressure control, routine screening of the eyes, kidneys (albumin excretion rate), nerves, and lipid determinations; and the use of preventative interventions, such as laser photocoagulation, angiotensin converting enzyme (ACE) inhibitors, low protein diets, and appropriate nutritional supplements. In the future, complications may be reduced by such drugs as aldose reductase inhibitors, glycation reaction inhibitors, and inhibitors of the β subunit of protein kinase C.

In this issue is assembled a collection of contributions by an elite group of authors who are known for their expertise and for being clinically relevant and practical in their approach. Hopefully, their reviews will prove useful in your clinical practice. As we embark on a new era of diabetes care, aimed at lessening the burden of this serious disease, we must be diligent in our efforts to provide for our patients the very best that contemporary medical science has to offer.

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