INTRODUCTION

Type 2 diabetes mellitus already a substantial public health problem in most industrialized nations, is increasing in prevalence worldwide. According to the International Diabetes Federation, the global prevalence of diabetes is expected to increase from 194 million cases in 2003 to an estimated 333 million cases in 2025. Particularly hard hit will be developing countries, where type 2 diabetes is still an emerging disease. During the same period, prevalence is predicted to increase by 105% in the eastern Mediterranean region and the Middle East, by 108% in Southeast Asia, and by 111% in Africa.1

RISK FACTORS AND COMORBIDITY

Type 2 diabetes is strongly correlated with overweight and obesity. In the United States, the prevalence of obesity increased by 61% between 1991 and 2000, and more than 60% of US adults are overweight.2–4 A substantial ethnic disparity exists in diabetes in the United States. Approximately 11% of Black adults (age ≥18 years) have diagnosed diabetes, compared to ~9% of Hispanic adults and ~7% of White adults.5–7

Diabetes is responsible for substantial morbidity and mortality in the United States. Since 1979, the age-adjusted rates for mortality from major cardiovascular disease (CVD), cancer mortality, and all-cause mortality have generally decreased. Mortality rates for diabetes, however, increased steadily over the same period.8 Diabetes is also one of the four “traditional” risk factors for coronary heart disease events (the other three are hyperlipidemia [total cholesterol ≥240 mg/dL], hypertension [blood pressure ≥140/90 mm Hg], and cigarette smoking).9 In the third National Health and Nutrition Examination Survey (NHANES III), comorbidities were prevalent among patients with type 2 diabetes: 7.6% had proteinuria, 28.2% had microalbuminuria, 45.3% were obese, 67.0% had dyslipidemia, and 63.0% had hypertension.10

MANAGEMENT

One treatment algorithm is shown in Figure 1. A primary care provider does not necessarily have to understand all the complexities of diabetes in order to treat it well, but he or she must understand that type 2 diabetes is a progressive disease that involves regulatory influences of multiple hormones, each of which has its own treatment requirements. In patients with normal glucose tolerance, insulin levels rise sharply in response to a carbohydrate meal; at the same time, glucagon levels drop sharply. Over the course of several hours, as blood glucose slowly returns to normal, insulin gradually falls to preprandial levels and glucagon gradually rises to preprandial levels. In patients with type 2 diabetes, the insulin response is blunted and glucagon is not adequately suppressed; in fact, glucagon levels may increase postprandially.

Therapeutic Goals

Diabetes management is often presented as an ABC approach—“A” for hemoglobin (Hgb) A1C, “B” for blood pressure, and “C” for cholesterol. More specifically, the American Diabetes Association (ADA) recommends that all diabetes patients should maintain tight glycemic control (HbA1C <7.0%), preprandial plasma glucose 90–130 mg/dL, postprandial plasma glucose <180 mg/dL, healthy blood pressure (<130/80 mm Hg), and beneficial lipid levels (low-density lipoprotein [LDL]...