LABORATORY RESULTS

Mrs. Gordon's fasting lipid profile includes a total cholesterol level of 300 mg/dL; the low-density lipoprotein (LDL) level is 220 mg/dL, the high-density lipoprotein (HDL) level is 40 mg/dL, and the triglyceride level is 200 mg/dL. Fasting blood glucose level is 110 mg/dL. Liver enzyme assessment reveals an alanine aminotransferase value of 25 U/L and an aspartate aminotransferase value of 30 U/L.

INTERVENTION

Mrs. Gordon's LDL level is more than double the goal of 100 mg/dL recommended in the clinical guidelines issued in May 2001 by the National Cholesterol Education Program (NCEP) Adult Treatment Panel (ATP III). The HDL level is low, and below the cutpoint of 40 mg/dL. Moreover, her family history of heart disease further increases her own risk for coronary heart disease. Clearly, treatment for her hypercholesterolemia is warranted. However, because Mrs. Gordon is considering another pregnancy, the use of statins is contraindi-
cated. In an effort to achieve NCEP goals, Mrs. Gordon is advised to begin a regular exercise program, to adopt a low-fat diet, and to substitute a plant sterol enriched margarine (Benecol or Take Control) for butter. In addition, she is to start therapy with colesevelam at a dose of three 625-mg tablets twice daily. At the 6-week checkup, the patient's LDL has decreased to 170 mg/dL but the HDL and triglyceride levels remain unchanged.

FOLLOW-UP

After 2 months of the prescribed interventions, Mrs. Gordon comes in for a follow-up examination. At this visit, the LDL level is further decreased to 130 mg/dL, and the HDL level is increased from 40 mg/dL to 50 mg/dL. Triglycerides are decreased from 200 mg/dL to 160 mg/dL. Total cholesterol is now 216 mg/dL, a considerably improved lipid profile. She is maintained on the current drug regimen and advised to increase exercise to brisk walking 4 times a week and to make additional dietary changes.

DISCUSSION

Mrs. Gordon presents with hypercholesterolemia. Lipid altering systemic drugs are not advisable because she is considering another pregnancy. With a family history of heart disease, optimization of the lipid profile is highly desirable.

Numerous clinical studies have demonstrated the efficacy of bile acids in reducing LDL, particularly in individuals who have heterozygous familial hypercholesterolemia. Although the combination of a statin and a bile acid resin have been shown to slow the progression of coronary disease in clinical trials such as the Familial Atherosclerosis Treatment Study and the
CASE STUDY

Cholesterol Lowering Atherosclerosis Study, such combination therapy was not feasible for this patient because she was planning a pregnancy. Therefore, a bile acid resin was prescribed to achieve an improved cholesterol profile. The conventional bile acid resins, cholestyramine and colestipol, are frequently accompanied by gastrointestinal side effects, which would be particularly undesirable during pregnancy; therefore, a newer formulation was prescribed for this patient. Colesevelam, a bile acid-binding polymer, has better gastrointestinal tolerance at full dose (3.8 g daily) and is expected to achieve a 15% to 20% reduction in the LDL level. For Mrs. Gordon, colesevelam reduced total cholesterol levels to 216 mg/dL, with the LDL 130 mg/dL, the HDL 50 mg/dL, and the triglyceride level 160 mg/dL.

Following her pregnancy and lactation period, she will be further evaluated. At that point, a low-dose of a statin may be added in combination with her current colesevelam therapy. She will likely need lifelong lipid-lowering therapy to achieve her target values.