The patient is a 54-year-old woman with no history of cardiovascular disease who presented for a routine physical examination. She appeared to have gained a significant amount of weight since her prior visit 2 years ago, distributed primarily around the abdominal area. When asked about the weight gain, she suggested that her waist size had increased from 34” to 38” in the past couple of years, which she attributed to menopause. Her medical records showed that she had been a light smoker (approximately one-half pack of cigarettes per day) for most of her adult life. Blood pressure (BP) taken at the beginning of the examination was 145/92 mm Hg; a second reading was taken later in the visit at 138/85 mm Hg. Upon physical examination, the patient showed no evidence of carotid bruits and had excellent femoral and peripheral pulses. Sensation in lower extremities was intact to vibration, proprioception, and monofilament. The patient had no physical complaints (other than some mild distress about weight gain). She was not taking any medications or supplements other than a daily multiple vitamin. Although the patient had no overt signs of comprised health, her mildly elevated BP gave some cause for concern; she was therefore advised to return in 3 weeks to discuss laboratory results.

The patient’s fasting lipid profile showed a moderately elevated triglyceride (TG) level of 320 mg/dL and a high-density lipoprotein cholesterol (HDL-C) level of 45 mg/dL. Low-density lipoprotein cholesterol (LDL-C) was 140 mg/dL. Blood glucose level was mildly increased at 120 mg/dL; C-reactive protein (CRP) level was elevated at 5. Liver enzymes, kidney function, and urinalysis were normal.

Clearly, the primary concerns for this patient were her smoking habit and the metabolic syndrome. All 5 criteria for the metabolic syndrome are present: BP >130/85, glucose 110-125, waist circumference >35”, HDL <50, TG >150. Only 3 criteria are required for the diagnosis. She also had a high CRP level, which is another component of the metabolic syndrome that increases risk associated with the other components.

Despite strong counseling, the patient declined to commit to any smoking cessation programs. She stated that after repeated attempts she was unable to stop smoking and indeed feared that doing so would contribute to additional weight gain. When questioned about her dietary habits, her replies suggested that she maintained a high-carbohydrate diet, with the fat content mainly consisting of saturated and trans fat. She was advised that by beginning a diet and exercise program, she would be able to offset the potential for weight gain while improving her overall health. She was referred to a dietitian with the recommendation that she follow a Mediterranean type of diet, with appreciable amounts of natural vegetable oil as opposed to a low-fat diet, which have been shown to lower HDL levels further and raise TGs. She was also advised to walk for a half hour, or a mile and a half, following dinner every day.

At 90-day follow-up, the patient had lost 5 pounds.
CASE STUDY

She had been walking 3 to 4 days a week for 15 to 20 minutes and had modified her diet moderately. LDL-C levels were reduced by 10% to 126 mg/dL; HDL remained unchanged. Her TGs were improved somewhat from 320 mg/dL to 250 mg/dL.

DISCUSSION OF ADDITIONAL INTERVENTIONS

A clinical determination needed to be made as to whether to prescribe drug therapy for this patient. Although the National Cholesterol Education Program Adult Treatment Panel III (NCEP ATP III) provides detailed guidelines surrounding the diagnosis and treatment of dyslipidemia, LDL-C goals are based on the degree of patient risk. Patients whose 10-year risk of coronary heart disease is <10% have an LDL-C goal of 160 mg/dL. This patient had acceptable LDL-C levels, had no history of coronary heart disease (CHD), and therefore did not meet the NCEP ATP III criteria for LDL-lowering therapy. Nonetheless, her smoking as well as the metabolic syndrome with high CRP certainly gave rise to additional concerns. Her postmenopausal status further contributed to her risk for CHD.

The metabolic syndrome is a cluster of risk factors that have been shown to enhance the risk for CHD. The NCEP ATP III bases the diagnosis of the metabolic syndrome on the presence of 3 or more of the following risk factors: abdominal obesity (in women, waist >35"), TG ≥ 150 mg/dL, low HDL-C level (<50 mg/dL in women), increased BP (>130/≥85 mm Hg), and fasting glucose ≥110 mg/dL. Of note is the fact that ATP III raises the HDL-C cutpoint to ≤50 mg/dL in women, as compared with ≤40 mg/dL in men, as a result of the general tendency for women to have higher HDL-C levels than men. Although this patient was not a candidate for ATP III's primary intervention of LDL-C reduction, as those levels were acceptable, a secondary focus on treating moderate elevations in TG levels (defined by ATP III as ≥200 mg/dL) is warranted, as well as interventions for raising HDL-C.

Based upon these considerations and only modest improvements from diet and exercise interventions, fibrate therapy was prescribed. Fibrates activate receptors that affect HDL and triglycerides. Findings from the Helsinki Heart Study showed that patients with high TGs and low HDL had the most risk reduction with fibrate therapy. Also, overweight patients in the Helsinki study received more reduction in CHD than those at normal weight. Moreover, the subgroup analysis from the Department of Veterans Affairs High-Density Lipoprotein Intervention Trial discussed in this publication offers additional evidence that fibrate therapy can significantly reduce CHD risks in insulin-resistant patients with elevated triglycerides.

FOLLOW-UP FOLLOWING DRUG THERAPY

Eight weeks following drug therapy, the patient was re-examined and additional laboratory tests were ordered. The patient demonstrated a 40% reduction in TG levels to 150 mg/dL, and an increase in HDL-C to 53 mg/dL; LDL-C decreased slightly to 115 mg/dL and BP was reduced to 130/78 mm Hg. The patient was strongly advised to enhance efforts to improve diet and exercise levels, then scheduled for a follow-up visit in 6 months. Discontinuation of fibrate therapy is a possibility if she continues to lose weight and shows the expected metabolic improvements.

REFERENCES