Total serum cholesterol (mg/dL)
Normal or desirable = less than 200
Borderline high = 200 to 239
High = 240 or above
LDL cholesterol (mg/dL)
Optimal = less than 100
Near or above optimal = 100–129
Borderline high = 130 to 159
High = 160 to 189
Very high = 190 or above
HDL cholesterol (mg/dL)
High = more than 60
Low = less than 40
Triglycerides (mg/dL)
Normal or desirable = less than 150
Borderline high = 150 to 199
High = 200 to 499
Very high = 500 or above

Overall, the most effective blood lipid profile for prevention or management of atherosclerosis and its sequelae is high HDL cholesterol, low LDL cholesterol, and low total cholesterol. A low triglyceride level is also desirable. For accurate interpretation of a client's lipid profile, blood samples for laboratory testing of triglycerides should be drawn after the client has fasted for 12 hours. Fasting is not required for cholesterol testing.

DYSLIPIDEMIA

Dyslipidemia (also called hyperlipidemia) is associated with atherosclerosis and its many pathophysiologic effects (eg, myocardial ischemia and infarction, stroke, peripheral arterial occlusive disease). Ischemic heart disease has a high rate of morbidity and mortality. Elevated total cholesterol and LDL cholesterol and reduced HDL cholesterol are the abnormalities that are major risk factors for coronary artery disease. Elevated triglycerides also play a role in cardiovascular disease. For example, high blood levels reflect excessive caloric intake (excessive dietary fats are stored in adipose tissue; excessive proteins and carbohydrates are converted to triglycerides and also stored in adipose tissue) and obesity. High caloric intake also increases the conversion of VLDL to LDL cholesterol, and high dietary intake of triglycerides and saturated fat decreases the activity of LDL receptors and increases synthesis of cholesterol. Very high triglyceride levels are associated with acute pancreatitis.

Dyslipidemia may be primary (ie, genetic or familial) or secondary to dietary habits, other diseases (eg, diabetes mellitus, alcoholism, hypothyroidism, obesity, obstructive liver disease), and medications (eg, beta blockers, cyclosporine, oral estrogens, glucocorticoids, sertraline, thiazide diuretics, anti–human immunodeficiency virus protease inhibitors). Types of dyslipidemias (also called hyperlipoproteinemias because increased blood levels of lipoproteins accompany increased blood lipid levels) are described in Box 58–2. Although hypercholesterolemia is usually emphasized, hypertriglyceridemia is also associated with most types of hyperlipoproteinemia.

INITIAL MANAGEMENT OF DYSLIPIDEMIA

The National Cholesterol Education Program recommends management of clients according to their blood levels of total and LDL cholesterol and their risk factors for cardiovascular disease (Table 58–1). Note that both dietary and drug therapy are recommended at lower serum cholesterol levels in clients who already have cardiovascular disease or diabetes mellitus. Also, the target LDL serum level is lower in these clients. Guidelines include the following:

- Assess for, and treat, if present, conditions known to increase blood lipids (eg, diabetes mellitus, hypothyroidism).
- Stop medications known to increase blood lipids, if possible.

BOX 58–2 TYPES OF DYSLIPIDEMIAS

Type I is characterized by elevated or normal serum cholesterol, elevated triglycerides, and chylomicronemia. This rare condition may occur in infancy and childhood.

Type IIa (familial hypercholesterolemia) is characterized by a high level of low-density lipoprotein (LDL) cholesterol, a normal level of very–low-density lipoprotein (VLDL), and a normal or slightly increased level of triglycerides. It occurs in children and is a definite risk factor for development of atherosclerosis and coronary artery disease.

Type IIb (combined familial hyperlipoproteinemia) is characterized by increased levels of LDL, VLDL, cholesterol, and triglycerides and lipid deposits (xanthomas) in the feet, knees, and elbows. It occurs in adults.

Type III is characterized by elevations of cholesterol and triglycerides plus abnormal levels of LDL and VLDL. This type usually occurs in middle-aged adults (40 to 60 years) and is associated with accelerated coronary and peripheral vascular disease.

Type IV is characterized by normal or elevated cholesterol levels, elevated triglycerides, and increased levels of VLDL. This type usually occurs in adults and may be the most common form of hyperlipoproteinemia. Type IV is often secondary to obesity, excessive intake of alcohol, or other diseases. Ischemic heart disease may occur at 40 to 50 years of age.

Type V is characterized by elevated cholesterol and triglyceride levels with an increased level of VLDL and chylomicronemia. This uncommon type usually occurs in adults. Type V is not associated with ischemic heart disease. Instead, it is associated with fat and carbohydrate intolerance, abdominal pain, and pancreatitis, which are relieved by lowering triglyceride levels.