Counseling on implementation of lifestyle changes

Patients with dyslipidemia, metabolic syndrome, overweight or obesity should be referred for lifestyle modification counseling whenever possible. A registered dietitian nutritionist plays an important role in counseling the patient to develop and implement an individualized cardioprotective eating plan (i.e., medical nutrition therapy [MNT] for dyslipidemia). Other health professionals, such as an exercise specialist, behavioral health specialist, social worker and/or psychologist, also are important in achieving physical activity/exercise goals, stress management, identification and management of triggers for unhealthy eating patterns, and tobacco cessation.

General principles for a healthy lifestyle

The 2010 Dietary Guidelines for Americans (DGA) present general principles for a healthy lifestyle.[19] They emphasize a balance between energy intake and expenditure to maintain a healthy body weight. This includes controlling energy intake to avoid weight gain and assist with weight loss in overweight/obese persons, maintaining adequate physical activity, and minimizing time spent in sedentary behaviors as also recommended by the American College of Sports Medicine[20] and the American Council on Exercise.[21] The DGA also emphasize avoiding excessive sodium intake, limiting consumption of energy from saturated fats, *trans* fats, added sugars, refined grains, and for adults who choose to consume alcohol, to do so in moderation. The DGA emphasize consuming fruits and vegetables; nuts, peas and legumes; whole grains; lean sources of protein; low-fat or fat-free dairy products; seafood; and liquid vegetable oils. Recommended macronutrient ranges for adults are 45–65% of energy from carbohydrate, 10–35% from protein, and 20–35% of energy from fat. As of this writing, the 2015 DGA had not yet been released, but the 2015 Dietary Guidelines Advisory Committee's (DGAC) Scientific Report recommended removal of the upper limit for dietary fat to allow greater flexibility, particularly with regard to reducing intakes of cholesterol-raising (12–16 carbon saturated and *trans* unsaturated) fatty acids and refined grains and sugars.[22] In place of these dietary components, greater emphasis is placed on increasing consumption of foods containing unsaturated fatty acids, such as nuts and liquid vegetable oils.[22]

Lifestyle therapies for dyslipidemia management

The NLA Expert Panel recommends lifestyle therapies as an integral component of treatment plans for management of dyslipidemia and ASCVD event risk reduction at all levels of risk. For lowering levels of atherogenic cholesterol, the main features include a cardioprotective dietary pattern low in cholesterol-raising fatty acids (<7% of energy from saturated fatty acids and minimal intake of *trans* unsaturated fatty acids) and dietary cholesterol (<200 mg/day), as well as regular physical activity (at least 150 min per week of moderate or higher intensity activity). Dietary adjuncts, including plant sterols/stanols and viscous fibers, may be used to enhance the reductions in atherogenic cholesterol. Energy restriction and further increases in physical activity are recommended for overweight or obese patients for whom weight loss and additional reductions in atherogenic cholesterol levels are desired. These lifestyle interventions should be implemented within the general principles outlined above from the 2010 DGA. Reviews of the evidence in support of specific recommendations and additional details about their implementation are outlined below.

Nutrition

Dietary patterns to reduce risk of ASCVD

The focus of much contemporary nutrition research is on dietary patterns because they represent the totality of the diet, including the myriad of combinations and quantities of foods and nutrients that are consumed.[23] There is evidence that particular dietary patterns, as well as specific nutrients (and also physical activity), play significant roles in the prevention and treatment of ASCVD by beneficially modifying major ASCVD risk factors, particularly lipoprotein lipids and blood pressure.[24]

Recommended dietary patterns share many characteristics. For example, the 2013 AHA/ACC Guideline on Lifestyle Management to Reduce Cardiovascular Risk[24] made the following recommendation, which is similar to other recommended diets (described below):

> Advise adults who would benefit from LDL-C lowering to consume a dietary pattern that emphasizes intake of vegetables, fruits and whole grains; includes low-fat dairy products, poultry, fish, legumes, non-tropical vegetable oils and nuts; and limits intakes of sweets, sugar-sweetened beverages and red meats. The dietary patterns that are recommended and representative of these foods/food groups are the DASH dietary pattern, the USDA Food Pattern, or the AHA diet. These recommended dietary patterns provide 5–6% of calories from saturated fat and are low in trans fats.

Dietary Approaches to Stop Hypertension (DASH) dietary patterns

The DASH dietary pattern emphasizes consumption of vegetables, fruits, and low-fat milk and dairy products; includes whole grains, poultry, seafood, and nuts; and is lower in sodium, red and processed meats, sweets, and sugar-containing beverages (e.g., soda, juice drinks). The DASH dietary pattern assessed in the initial DASH RCTs provides approximately 27% of calories from total fat (6% saturated fatty acids, 13% monounsaturated fatty acids [MUFA], 8% polyunsaturated fatty acids [PUFA]), 58% of calories from carbohydrate, and 15% of calories from