

Hypercholesterolemia Treatment

Because patients with hypercholesterolemia are at increased risk for coronary heart disease and vascular disease, doctors should recommend lifestyle modifications and utilize pharmacotherapy as needed to ensure adequate control of cholesterol levels. The most commonly used lipid-lowering agents include statins, fibrates, niacin, ezetimibe, and bile acid resins. Initial screening for men and women is recommended depending on risk level and routine follow-up should occur after treatment has begun.



PLAY PICMONIC

Lifestyle Modifications (Diet, Exercise, Smoking Cessation)

Throwing away Unhealthy food, Cigarette, and Exercising on stairs

The primary recommendation for patients with hypercholesterolemia consists of lifestyle changes. Patients should aim to eat a healthy diet rich in fruits, vegetables, lean meats, and whole grains. They should limit their fat and sodium intake. Weight loss is important for lowering cholesterol levels, and it is recommended that patients get 150 minutes of exercise each week or exercise 30 minutes a day five days a week. Additionally, patients should be counseled to quit smoking, as toxins in cigarettes can act synergistically with high cholesterol levels in the blood and accelerate atherosclerosis.

Statins

Statue

Statins are the most effective way of lowering LDL levels. They also mildly raise HDL and decrease TAGs. They work by inhibiting the enzyme HMG-CoA Reductase within the cholesterol formation pathway. Before putting patients on a statin, physicians should check liver enzymes, as statin use can cause hepatic damage as well as muscle injury. Statins should be discontinued if liver enzymes are elevated three times the normal values.

Niacin

Nice-sun

Niacin inhibits hormone-sensitive lipase, thereby increasing HDL levels and decreasing LDL levels. However, recent research has demonstrated no benefit in morbidity or mortality in patients taking niacin, even if it changes their cholesterol levels favorably. Common side effects include hyperglycemia, flushing, hyperuricemia, hepatotoxicity, and myopathy.

Ezetimibe

Ziti-mine

Ezetimibe functions at the intestinal brush border to prevent cholesterol absorption into systemic circulation. It is known to decrease LDL levels. Side effects include hepatotoxicity and GI distress.

Fibrates

Fly-brats

Fibrates are the most effective way to decrease TAGs, as they upregulate lipoprotein lipase, an enzyme that degrades triglycerides into free fatty acids. They also increase HDL levels by activating the PPAR-alpha transcription factor and driving reverse cholesterol transport. Common side effects include myopathy and cholesterol gallstones.

Bile Acid Resins

[Bile-Nile Acid-lemon Raisins](#)

Bile acid resins (cholestyramine, colestesvelam, colestipol) bind bile acids and prevent their re-absorption into systemic circulation. Therefore, the body's cholesterol stores are used to synthesize new bile acids. These drugs slightly increase HDL and TAG levels and lower LDL levels. Side effects include GI distress, cholesterol gallstones, and decreased absorption of the fat soluble vitamins A, D, E, and K.

PCSK9 Inhibitors

[PCS-K9 in Inhibiting-chains](#)

PCSK9 inhibitors, such as alirocumab and evolocumab, are sometimes added onto statin therapy as a means of further lowering lipid levels. This class of drugs has been shown to have some benefit in patients with atherosclerotic heart disease. This drug acts by inhibiting the degradation of LDL receptors, thus decreasing LDL by a large margin. This drug also moderately increases HDL and lowers triglycerides.

Omega 3 Fatty Acids

[Omega \(3\) Tree Bacon Acidic-lemon](#)

Omega 3 Fatty Acids are indicated for the treatment of severe and very severe hypertriglyceridemia. At high doses, this drug can lower triglycerides 20%-50% per day. However, no cardiovascular benefit has been proven in trials for this drug class.

Screening

Pooled Cohort Test

[Pool Co-hosts](#)

The Pooled Cohort Test, or Pooled Cohort Risk Assessment Tool, is an equation devised by the American Heart Association to estimate a patient's 10-year atherosclerotic cardiovascular disease event risk (ASCVD Risk). This equation is based on age, diabetic status, gender, race, smoking status, total cholesterol, LDL cholesterol, systolic blood pressure, and whether or not they are currently being treated for hypertension. The result of this equation is given as a percentage, which then correlates with potential treatment/prevention options.