

Nutraceutical tablets for hyperlipidemic treatment

G. Manolatha, K Sri Varsha, K Sathya Mani*

Department of Pharmaceutics, Marri Laxman Reddy Institute of Pharmacy, Jawaharlal Nehru Technological University, Hyderabad, India

OPINION

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Corresponding Author:

K Sathya Mani

Department of Pharmaceutics,

Marri Laxman Reddy Institute of Pharmacy,

Jawaharlal Nehru Technological University,

Hyderabad, India

sathyamani.k@yahoo.com

Hyperlipidemia

Hyperlipidemia is a medical term for abnormally high levels of fat in the blood. The two main types of lipids in the blood are triglycerides and cholesterol. Triglycerides are made when your body stores extra calories that don't require energy. They are also obtained directly from the diet of foods such as lean meats and whole dairy products. A diet high in refined sugar, fructose, and alcohol increases triglycerides. Cholesterol is made naturally in the liver because it is used by all cells in the body. Like triglycerides, cholesterol is also found in fatty foods such as eggs, lean meats and cheese. Hyperlipidemia is commonly known as high cholesterol. High cholesterol can be inherited, but it is often the result of an unhealthy lifestyle¹.

Cholesterol

Cholesterol is a fatty substance that travels through the bloodstream of proteins called lipoproteins. Too much cholesterol in the blood can build up on the walls of blood vessels and form plaques. Over time, plaque deposits can grow and clog arteries, causing heart disease, heart attacks, and strokes.

Diagnosis

Since hyperlipidemia is asymptomatic, the only way to detect hyperlipidemia is to use a blood test called a lipid profile. This test determines cholesterol levels. Blood samples are sent to the laboratory for testing and reports

show levels of total cholesterol, Low-Density Lipoprotein (LDL) cholesterol, High-Density Lipoprotein (HDL) cholesterol, and triglycerides. Generally, total cholesterol levels above 200 milligrams per deciliter are considered high. However, safe cholesterol levels can vary from person to person based on medical history and current health problems and is best determined by your doctor.

Risk for Hyperlipidemia

There are two types of cholesterol, LDL and HDL. They are also called "bad" and "good" cholesterol. LDL ("bad") cholesterol accumulates in the arterial wall, making it hard and narrow. HDL ("good") cholesterol removes excess "bad" cholesterol and returns it from the arteries to the liver. Hyperlipidemia is caused by too much LDL cholesterol in the blood and a deficiency of HDL cholesterol. An unhealthy lifestyle can raise "bad" cholesterol and lower "good" cholesterol. Obesity, high-fat foods, smoking or lack of exercise can also increase bad cholesterol²⁻³.

Lifestyle choices that put at risk for high cholesterol include:

- Eating foods with saturated and trans fats
- Eating animal protein, like meat and dairy
- Not getting enough exercise
- Not eating enough healthy fats
- Obesity
- Large waist circumference
- Smoking
- Drinking alcohol excessively

Abnormal cholesterol levels are also found in some people with certain health conditions, including:

- Kidney disease
- Diabetes
- Polycystic ovary syndrome
- Pregnancy
- Underactive thyroid
- Inherited conditions

As well as cholesterol levels may be affected by certain medications like:

- Birth control pills
- Diuretics
- Some depression medications

Familial Combined Hyperlipidemia

There is a type of hyperlipidemia inherited from parents and grandparents.

It is called familial complex hyperlipidemia. Familial complex hyperlipidemia causes high cholesterol and high triglycerides. People with this condition often develop high cholesterol or triglycerides in their teens and are diagnosed in their 20s or 30s⁴.

- Chest pain (at a young age)
- Heart attack (at a young age)
- cramping in the calves while walking
- Sores on the toes that don't heal properly
- Stroke symptoms, including trouble speaking, drooping on one side of the face, or weakness in the extremities

Treatment of Hyperlipidemia at Home

Lifestyle changes are the key to treating hyperlipidemia at home. Even if hyperlipidemia is inherited (familial complex hyperlipidemia), lifestyle changes remain an important part of treatment. These changes alone may be sufficient to reduce the risk of complications such as heart disease and stroke.

Eat a heart-healthy diet

Changing your diet can lower "bad" cholesterol and increase "good" cholesterol. There are several ways to reduce bad cholesterol:

1. **Choose healthy fats:** Avoid saturated fats, mainly found in lean meats, bacon, sausages and whole dairy products. Whenever possible, choose lean proteins such as chicken, turkey, and fish. Switch to low-fat or non-fat dairy products and use single unsaturated fats such as olive oil and canola oil for cooking.
2. **Cut out the Trans fats:** Trans fats are found in processed foods such as fried foods, cookies, crackers and other snack foods. Check the ingredients on the product label. Skip products labelled as "partially hydrogenated oil".
3. **Eat more omega-3s:** Omega 3 fatty acids have many heart benefits. They are found in several fish species such as salmon, mackerel and herring. They are also found in some nuts and seeds such as walnuts and flaxseed.
4. **Increase your fibre intake:** While all fibre is healthy for the heart, water-soluble fibres found in oats, beans, fruits, beans and vegetables can lower LDL cholesterol levels.
5. **Learn heart-healthy recipes:** Check out the recipe for tips on delicious meals, light meals, and desserts that don't raise cholesterol.
6. **Eat more fruits and veggies:** Rich in fibre and vitamins, it helps lower bad cholesterol.

Lose weight

Losing weight helps lower total cholesterol levels. Even 5 to 10 pounds can make a difference. Weight loss begins with measuring your calorie intake. You have to save 3,500 calories from your diet to lose pounds. To lose weight, eat a low-calorie diet and increase physical activity.

Get active

Physical activity is important for overall health, weight loss and cholesterol levels. With less physical activity, LDL is high and HDL is low. This means that you don't have enough "good" cholesterol to move "bad" cholesterol out of the arteries. You can lower your total cholesterol level by doing moderate to intense physical activity 3-4 times a week for 40 minutes. Aim for a total of 150 minutes of exercise each week. Any of the following exercise can be added to daily routine:

- Try biking to work
- Take brisk walks with your dog
- Swim laps at the local pool
- Join a gym
- Take the stairs instead of the elevator
- If you use public transportation, get off a stop or two sooner

Quit smoking

Smoking "good" cholesterol levels and increasing triglycerides. It may even increase the risk of heart disease. You can also lower bad cholesterol by stopping or trying nicotine patches. Nicotine patches are available from pharmacies without a prescription.

Hyperlipidemia medications

If lifestyle changes are not enough to treat hyperlipidemia, the doctor may prescribe medication. Drugs that lower common cholesterol and triglycerides are:

1. Statins such as atorvastatin (Lipitor), fluvastatin (Reskol XL), lovastatin (Altopreb), pitavastatin (Rivalo), pravastatin (Pravastatin), rosuvastatin (Crestol), simvastatin (Zocor)
2. Bile acid-blocking resins such as cholestyramine (Prevalite), colesevelam (WelChol), and colestid (Colestid)
3. Cholesterol absorption inhibitors such as acetimib (zetimib)
4. Injections such as alirocumab (Praluent) and evolocumab (Repatha)
5. Fenofibrate (fenofibrate, Tricor, Triglide) or gemfibrozil (Lopid) and other fibrates
6. Niacin (Niacol)
7. Dietary supplements containing omega 3 fatty acids
8. Other Cholesterol Lowering Food Supplements

Outlook

People with untreated hyperlipidemia have a greater chance of getting coronary heart disease than the general population. Heart disease is a condition in which plaque builds up inside the coronary (heart) arteries. Hardening of the arteries, called atherosclerosis, happens when plaque builds up on the walls of arteries. Over time, plaque buildup narrows the arteries and can block them completely, preventing normal blood flow. This can lead to heart attack, stroke, or other problems.

Prevention high cholesterol

Lifestyle changes can prevent hypercholesterolemia and reduce the risk of hyperlipidemia⁵.

- Exercise a few days a week
- Eat a diet low in saturated and trans fats
- Incorporate lots of fruits, vegetables, beans, nuts, whole grains, and fish into your diet on a regular basis.
- Avoid eating lean meats and processed meats such as bacon, sausages and cold cuts
- Drink skim milk or low-fat milk
- Maintain a healthy weight

- Eat lots of healthy fats such as avocado, almonds and olive oil.

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