

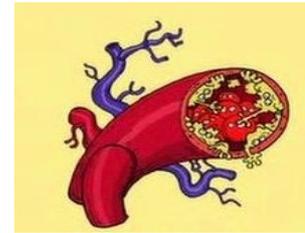
DYSLIPIDEMIA

BRIEF BACKGROUND

Dyslipidemia is an abnormal amount of lipids (e.g. cholesterol and/or fat) in the blood. Dyslipidemia causes cholesterol deposits in the arteries and provokes atherosclerosis, which reduces the size of the artery and, in the long term, the blood flow through the affected vessel.

Dyslipidemia is one of the life style disorders due to the today's faulty life style. It may be manifested by elevation of the Total cholesterol

(Bad Low Density Lipoprotein (LDL) cholesterol) and/or the rise in triglyceride concentrations and a decrease in the good High Density Lipoprotein (HDL) cholesterol concentration in the blood. Dyslipidemia is widely regarded as a major risk factor for Coronary Heart Disease (CHD), for every 1% increase in cholesterol level there is 1-2% increase in the incidence of CHD



CLASSIFICATION OF BLOOD LIPID LEVELS

Blood lipids	Serum level (mg/dl)	Blood lipids	Serum level (mg/dl)
Total Cholesterol		Serum Triglycerides	
Desirable	<200	Borderline High	<150
Borderline high	200-239	High	150-199
High	>240	Very High	200-499 (≥500)
LDL Cholesterol		Serum HDL Cholesterol	
Optimal	<100	Low	<40
Near Optimal	100-129	High	≥60
Borderline High	130-159		
High	160-189		
Very High	≥190		

LDL-Low-density lipoprotein; **HDL**- High-Density lipoprotein

SIGNS & SYMPTOMS

Dyslipidemia itself causes no symptoms but can lead to symptomatic vascular disease, including coronary artery disease and peripheral arterial disease. High levels of LDL can cause eyelid Xanthelasmas; arcus corneae; and tendinous xanthomas (an irregular yellow patch or nodule on the skin, caused by deposition of lipids) found at the Achilles, elbow, and knee tendons and over knuckles.



Eyelid xanthelasmas



Tendinous xanthomas at the Achilles

Patients with severe elevations of TGs can have eruptive xanthomas over the trunk, back, elbows, buttocks, knees, hands and feet. Patients with the rare dys-beta lipoproteinemia can have palmar and tuberous xanthomas.



Xanthomas over back

Investigations

In addition to complete medical history and physical examination, following investigations should be done:

1. Lipid profile
2. Blood chemistry
3. Thyroid Function Test

MEDICAL MANAGEMENT

1. **Nidana parivararjana** (Avoidance of the aetiological factors) – Patients with Dyslipidemia/Medo roga should avoid consumptions of excessive fats, carbohydrates, alcohol and sedentary lifestyle.
2. **Upavasa** (Observing fast) – Patients with Dyslipidemia should consume very light and easily digestible food preferably vegetarian diet.
3. **Samsodhana chikitsa** (Bio cleansing therapies) – Panchkarma measures can be adopted to detoxify the body. Especially, administration of *Lekhana basti* using *Vaca* and *Manjistha* has been found to be effective in the management of Dyslipidemia. Other Panchakarma procedures that can be administered are:
 - **Virecana karma** (purgation) with eranda taila 15-30 ml with half glass of milk at night.
 - **Sirodhara** with medicated liquids milk/water/oils (narayana taila) daily 45-90 minutes for 21 days.
 - **Takra dhara**

***It should be decided by physician according to the condition of the patient whether Shodana therapy is beneficial or not.**

4. **Vyayama** (Physical exercise)
5. **Samana citikitsa** (Drug Therapy): Plenty of herbal and herbo-mineral preparations are in the practice which strengthens the cardiovascular system, act as cleansing agents for the micro-circulatory channels (srotovisodhaka) and aid in lipid metabolism. The following drugs/formulations may help in the prevention and management of lipid metabolism related complications in the patients of Medo roga:

Single Drugs: Vaca (*Acorus calamus*) churna, Haritaki churna, Arjuna churna, Guggulu niriyasa, Shilajatu (Black Bitumen), Rasona



Rasona (Garlic)



Vacha



Harad (Haritaki)



Guggulu niriyasa

Compound Formulations: Varunadi kwatha, Navaka guggulu, Amrtadi guggulu, Trikatu churna, Arogyavardhini vati, Phalatrikadi kwatha, Triphala Guggulu, Hrdayarava Rasa, Arjunarishta

PREVENTION

- Reduce the intake of saturated fats and cholesterol.
- Increase the intake of high fibre diet. Consume plenty of fruits and vegetables such as apple, banana, blackberries, broccoli, cabbage, carrot, garlic, grape fruit, green leafy vegetable, onion, pea, tomato, etc. Consume preferably vegetarian, low fat, low calorie diet rich in whole grain, high fibre and nuts
- Increase the physical activity i.e. exercise regularly.
- Manage stress by meditation, involvement in spiritual activities, listening to soothing music or etc.
- Maintain healthy body weight and waist circumference.
- Smoking/Tobacco cessation
- Quit alcohol.

- Reduce the intake of saturated fats and cholesterol.
- Increase the intake of high fibre diet.
- Engage in regular aerobic physical activity such as brisk walking.
- Control weight.
- Reduce dietary sodium intake to no more than 100 mmol per day (approximately 2.4 g of sodium or 6g of sodium chloride)] per day.
- Use garlic and onion in diet.
- Avoid day sleep, anger, anxiety, hyper activity, over exertion.
- Get regular medical checkups.

Do's:

1. Intake of regular and balanced diet.
2. Use of lukewarm water (*Ushnodaka*) for drinking.
3. Use of Barley (*Yava*), Sorghum (*Jowar*), Indian gooseberry (*Amla*), Honey (*Madhu*) and Butter milk (*Takra*)
4. Use of Green gram (*Moong*), Horse gram (*Kulathi*), Bengal gram (*Chana*) and Spilt Red Gram (*Arhar*)
5. Plenty of green leafy vegetables and fruits
6. Fibrous food items
7. Brisk walking and jogging in fresh air everyday in early morning
8. Regular exercise
9. Practice of Yoga & Naturopathy in consultation with the specialist

Don'ts:

1. Frequent and excessive intake of oily / heavy food items
2. Sleeping in day time (*Diva-swapna*)
3. Sleeping immediately after taking meals
4. Canned food products
5. Sedentary lifestyle.
6. Junk food like burger, pizza, cold drinks and fried food items

Note:

1. Medication is to be strictly taken under the supervision of an Ayurvedic physician.
2. Visit national Institutes/CCRAS Research Centres for necessary consultation. (www.ccras.nic.in)

What is Cholesterol?

Cholesterol is a soft, waxy substance found in bloodstream and in all the body's cells. It plays an important role in keeping body healthy in several ways. But too much cholesterol, however, can lead to heart disease.

How do I know if I have high cholesterol?

People with high cholesterol levels may not have any symptoms until blockage in the arteries becomes severe and causes chest pain, heart attack, or stroke. The best way to know if your cholesterol levels are high is to have your cholesterol checked regularly.

What are the reasons for abnormal lipids?

There are some health conditions that can lead to a high level of LDL such as Hypothyroidism, Chronic renal failure, and Nephrotic syndrome.

The most common causes of secondary high triglyceride levels include Alcohol abuse, Diabetes, Kidney problems, Obstructive liver disease and Hypothyroidism. Certain medications can also have a negative impact on the lipid profile and may raise cholesterol and/or triglyceride levels.

What is a Lipid profile and how should it be done?

Lipid profile is a blood test to know the exact levels of various Lipids in the body. A non-fasting lipid profile is usually recommended. This test gives information about: **Total cholesterol**, **LDL (or Bad cholesterol)** — the main source of cholesterol buildup and blockage in the arteries, **HDL (or Good cholesterol)** — helps keep cholesterol from building up in the arteries and **Triglycerides (TG)**, which is another form of fat in the blood.

What is a normal lipid profile?

A normal lipid profile depends on risk factors for heart disease. The more risk factors person may have, the lower target LDL level should be. Following are the recommend levels:

LDL cholesterol	:	Below 130 mg/dL if you don't have diabetes and have few risk factors for heart disease, and Below 100 mg/dL or below 70 mg/dL if you have diabetes, heart disease, or atherosclerosis
HDL cholesterol	:	Above 40 mg/dL for men and above 50 mg/dL for women
TG	:	Below 150 mg/dL

What lifestyle changes can decrease my lipid levels?

Yes, it is possible if you change your lifestyles and understand what to eat and what should be avoided. Below are some guidelines to follow:

- **Stop Smoking** - Increases triglyceride levels.
- **Alcohol in Moderation** - Alcohol can increase your triglyceride level. If it is the case the only way you will find out is to give it up for 3 months and recheck it.
- **Keep Moving** - If you have a sedentary lifestyle take breaks to walk around your office or house every 30 minutes.
- **Maintain an Ideal Weight** - know how much is your ideal weight and achieve the target. Even a reduction of 10% of weight can lower your triglyceride level.
- **Beware of Bad carbs & Good carbs** - Avoid food like white bread, white rice and cornflakes as they can give boost to triglycerides. Eat whole grains, lentils, popcorn and brown rice.
- **Increase the amount of fibre in the diet** as they fill you up and avoids overeating.

- **Beware of Bad Fats** - Saturated & trans fats are bad fats. This mainly includes red meat and all kind of fried food.
- **Go fish.** Omega-3 fats in salmon, tuna, sardines, and other fatty fish can lower triglycerides. Having fish twice a week is fine.
- **Get moving.** Exercise lowers triglycerides and boosts heart-healthy HDL cholesterol.

How much cholesterol in diet is allowed?

About 200 mg of cholesterol in diet per day should be enough.

Whether fish is healthy to eat?

Fish is a good source of protein if eaten once or twice a week. Fish like salmon are high in omega-3 fatty acids and can help lower triglycerides.

Should the level of cholesterol in a child also be monitored?

If any familial history is present or if there are signs of Overweight or Obesity then it necessitates that child over 2 years of age is to be monitored for the level of cholesterol.

Once cholesterol levels are within limits, should treatment be discontinued?

The management of cholesterol levels involves monitoring diet, exercise as well as drug therapy. If treatment is stopped suddenly, then the level of cholesterol will rapidly rise to the level that existed before the start of treatment.

What are ways to increase the level of HDL in the body?

The level of HDL in the body can be increased by:

- Leading an active life
- A brisk walk every day will do wonders to the level of HDL
- Quitting smoking

What are the complications of very high level of triglycerides in the blood?

When the triglyceride levels are very high individuals besides being prone to

- Heart disease
- Fatty liver
- Stroke
- Pancreatitis (This is a very serious inflammation of the pancreas)