

Statins and Other Lipid-lowering Medicines

Statin medicines reduce the blood cholesterol level. This helps to prevent heart disease, stroke and related diseases in people at increased risk. Most people are not troubled by side-effects. However, if you take a statin, tell a doctor if you develop unexplained muscle pain, tenderness or weakness (which may be due to a rare, but serious, side-effect).

What are cholesterol, lipids and atheroma?

Cholesterol is a lipid (type of fat) that is made in the liver, from fatty foods that we eat. A certain amount of cholesterol is present in the bloodstream. You need some cholesterol to keep healthy. Cholesterol is one factor involved in forming atheroma.

Patches of atheroma are like small fatty lumps which develop within the lining of arteries (blood vessels). A patch of atheroma makes an artery narrower, which may reduce the blood flow. A build-up of atheroma can cause heart diseases such as angina and heart attacks, stroke, transient ischaemic attack (TIA) - sometimes called a mini-stroke - and peripheral vascular disease (narrowing of the arteries to the legs).

See separate leaflet called '*Cholesterol*' for details.

What are statins and how do they work?

Statins are a group of medicines that are commonly used to reduce the level of cholesterol in the blood. They include atorvastatin, fluvastatin, pravastatin, rosuvastatin, and simvastatin. They each have different brand names. Statins work by blocking the action of a certain enzyme (chemical) which is needed to make cholesterol.

Who should take a statin?

Your doctor will advise if you should take a statin. One is usually advised if:

- You have an atheroma-related disease. This is a cardiovascular disease such as angina or peripheral vascular disease, or you have had a myocardial infarction (heart attack), stroke or TIA. A statin helps to reduce the risk of these conditions getting worse; or, it can delay the disease becoming worse.
- You have a high increased risk of developing an atheroma-related disease. For example, if you have diabetes, or other risk factors. Risk is measured as a percentage. High risk is when your score is 20% or more (that is, a 2 in 10 chance or more of developing a cardiovascular disease within the 10 years that follow). See separate leaflet called '*Cardiovascular Health Risk Assessment*' for details.

Note: a statin is just one factor in reducing your risk of developing cardiovascular diseases. Just as important are: eating a healthy diet, not smoking, taking regular exercise, losing weight if you are overweight, reducing blood pressure if it is high and taking a daily low dose of aspirin if advised to do so.

See separate leaflet called '*Preventing Cardiovascular Diseases*' for details.

What happens when I take a statin?

You should have a blood test before starting treatment. This checks the level of cholesterol. It also checks if your liver is working properly. After starting treatment you should have a blood test within 1-3 months, and again at 12 months. The blood test is to check that the liver has not been affected by the medication. The blood may also be checked to measure the cholesterol level to see how well the statin is working.

What is the target cholesterol level to aim for?

There is no actual target cholesterol blood level for people who do not already have cardiovascular disease.

If you do have a cardiovascular disease the aim, if possible, is to reduce total cholesterol to less than 4.0 mmol/L *and* low-density lipoprotein (LDL) cholesterol to less than 2.0 mmol/L. If the target is not reached at first, the dose may need to be increased or a different preparation used.

What are the possible side-effects or problems with statins?

Most people who take a statin have no side-effects, or only minor ones. Read the information leaflet that comes with your medicine. It will have a full list of possible side-effects. They include headache, pins and needles, abdominal pain, bloating, diarrhoea, feeling sick, and a rash.

Some people are prescribed very high doses of statins. This is usually because they have a high risk of cardiovascular disease or lower doses have not worked. Some recent research has shown this may increase their risk of developing diabetes. This happens about once for every 500 people treated this way. This needs to be balanced against the benefits. For about every 155 people treated with very high doses of statins, there is one less heart attack or stroke.

Points to remember:

- Tell your doctor if you have any unexpected muscle pains, tenderness, cramps or weakness. This is because a rare side-effect of statins is a severe form of muscle inflammation.
- You should not take a statin if you have active liver disease, if you are pregnant or intend to be pregnant, or if you are breast-feeding. You should stop a statin if you develop liver disease.
- Do not eat grapefruit or drink grapefruit juice if you are taking a statin. A chemical in grapefruit can increase the level of statin in the bloodstream, which can make side-effects from the statin more likely.
- Various other medicines may interfere with statins. For example, some antibiotics and ciclosporin. The doses of either the statin or the other interacting drug may need to be adjusted. So, if you are prescribed (or buy) another drug, remind the doctor or pharmacist that you are on a statin in case an interaction is likely.

- Tell a doctor if you develop chest symptoms such as unexplained shortness of breath or cough. This is because (in very rare cases), statins may cause a disease called interstitial lung disease.

Other medicines to reduce cholesterol and other lipids

Other medicines are sometimes used to lower cholesterol and other blood lipids. These include:

- **Bile acid sequestrants** which include colestyramine, colesvelam and colestipol. They work by binding to bile acids which are passed into the gut from the liver and gallbladder. This stops bile acids being reabsorbed into the bloodstream which has a knock-on effect of lowering cholesterol.
- **Fibrates** which include bezafibrate, ciprofibrate, fenofibrate, and gemfibrozil. One of these is used mainly if you have a high level of triglyceride (another type of lipid) with or without a high cholesterol level.
- **Nicotinic acid** may be tried if other medicines do not work. It is not used often, as it has a high rate of side-effects such as facial flushing, feeling sick, vomiting and headache.
- **Ezetimibe** is sometimes used in certain situations in combination with a statin, or on its own. It prevents the absorption of cholesterol from the gut.
- **Fish oils** may help to reduce blood lipid levels. These occur naturally in oily fish such as mackerel. This is why at least 1-2 portions of oily fish per week are recommended in a healthy diet. Dietary supplements ('fish oil tablets') are also available. However, the value of fish oil supplements is controversial, as the evidence from research trials is unclear.

Can I buy a statin?

Statin medicines are available on prescription and funded by the NHS if you have a cardiovascular disease, or you have a high risk of developing a cardiovascular disease.

A statin is not usually prescribed for people with lower levels of risk. Some statins are available to buy without a prescription. Some people choose to buy a statin to lower their cholesterol level.

References

- [Lipid modification](#), NICE Clinical Guideline (May 2008); (*Cardiovascular risk assessment and the modification of blood lipids for the primary and secondary prevention of cardiovascular disease.*) amended May 2010
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- [Cardiovascular risk assessment and management](#), Prodigy (July 2008)
- [Preiss D, Seshasai SR, Welsh P, et al](#); Risk of incident diabetes with intensive-dose compared with moderate-dose statin JAMA. 2011 Jun 22;305(24):2556-64. [abstract]

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Patient Information

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