

High cholesterol- risk factors, complications and prevention

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Cholesterol is a waxy substance found in the blood stream. Body needs cholesterol to build healthy cells, but high levels of cholesterol can increase the risk of heart disease.

INTRODUCTION

Cholesterol is carried through your blood, attached to proteins. This combination of proteins and cholesterol is called a lipoprotein. There are different types of cholesterol, based on what the lipoprotein carries. They are:

Low-density lipoprotein (LDL) or bad cholesterol transports cholesterol particles throughout the body. LDL cholesterol builds up in the walls of the arteries, making them hard and narrows [1].

High-density lipoprotein (HDL) or good cholesterol picks up excess cholesterol and takes it back to your liver.

A lipid profile also typically measures triglycerides, a type of fat in the blood. Having a high triglyceride level can also increase your risk of heart disease [2].

DISCUSSION

Factors that can increase your risk of bad cholesterol include poor diet, obesity, lack of exercise, smoking, age, and diabetes. High cholesterol can cause a dangerous accumulation of cholesterol and other deposits on the walls of your arteries (atherosclerosis). These deposits (plaques) can reduce blood flow through your arteries, which can cause complications, such as Chest pain, Heart attack, Stroke [3-5].

High cholesterol levels are diagnosed by blood tests such as lipid panel or lipid profile which includes Total cholesterol, LDL cholesterol, HDL cholesterol, Triglycerides- a type of fat in the blood.

Don't eat or drink anything (other than water) for 9-12 hours before the blood sample is taken for accurate measurements.

High cholesterol can be prevented by changing the life style to heart-healthy lifestyle which lowers the cholesterol. To help prevent high cholesterol eat a low-salt diet like fruits, vegetables and whole grains, animal fats should be limited and switch to good fats, maintain a healthy weight, quit smoking, exercise for at least 30 minutes, alcohol consumption should be moderate and stress management [6-9].

To treat high cholesterol lifestyle changes such as exercising and eating a healthy diet are the first line of defense. The choice of medication or combination of medications depends on various factors, including personal risk factors, age, health and possible drug side effects [10-12]. This includes

Statins- Statins causes the liver to remove cholesterol from the blood. Statins help to reverse coronary artery disease by reabsorbing cholesterol from built-up deposits on the walls of arteries. Atorvastatin (Lipitor), fluvastatin

High cholesterol levels develop fatty deposits in the blood vessels which eventually deposits making it difficult for the free flow of blood to the arteries. Sometimes these deposits can break suddenly and form a clot that causes a heart attack or stroke.

Key Words: High cholesterol, Statins, Heart diseases, Obesity, VLDL, LDL, HDL.

(Lescol XL), lovastatin (Altoprev), pitavastatin (Livalo), pravastatin (Pravachol), rosuvastatin (Crestor) and simvastatin (Zocor) are few drugs used to reduce cholesterol [13].

Bile-acid-binding resins- Liver uses cholesterol to make bile acids, a substance needed for digestion. Medications such as cholestyramine (Prevalite), colestevlam (Welchol) and colestipol (Colestid) lower cholesterol indirectly by binding to bile acids. This makes the liver to use excess cholesterol to make more bile acids, which reduces the level of cholesterol in your blood.

Cholesterol absorption inhibitors-Small intestine absorbs the cholesterol from your diet and releases it into your bloodstream. The drug ezetimibe (Zetia) helps reduce blood cholesterol by limiting the absorption of dietary cholesterol. Ezetimibe along with statins can be used.

Injectable medications- Drugs known as PCSK9 inhibitors, help the liver absorb more LDL cholesterol thus lowers the amount of cholesterol circulating in the blood. Genetic condition that causes very high levels of LDL or in people with a history of coronary disease who have intolerance to statins or other cholesterol medications Alirocumab (Praluent) and evolocumab (Repatha) is used.

Medications for high triglycerides

Fenofibrate and gemfibrozil reduce liver's production of very low-density lipoprotein (VLDL) cholesterol and speed the removal of triglycerides from your blood. VLDL cholesterol contains mostly triglycerides. Using fibrates along with a statins can increase the risk of statin side effects.

Niacin limits the liver's ability to produce LDL and VLDL cholesterol. But niacin doesn't provide additional benefits over statins. Niacin has also been linked to liver damage and strokes, so most doctors recommend it only for people who can't take statins.

Omega-3 fatty acid supplements can help lower your triglycerides. They are available by prescription or over-the-counter.

Tolerance of medications varies from person to person. The common side effects of statins are muscle pains and muscle damage, reversible memory loss and confusion, and elevated blood sugar. If you decide to take cholesterol medication, liver function tests are recommended to monitor the medication's effect on your liver [14].

Cholesterol treatment for children

Diet and exercise are the best initial treatment for children age 2 and older who have high cholesterol or who are obese. Children age 10 and older who

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have extremely high cholesterol levels cholesterol-lowering drugs, such as statins might be prescribed [15].

CONCLUSION

High cholesterol develops as fatty deposits in the blood vessels and makes it difficult for the free flow of blood to the arteries. This commentary includes various tests for the diagnosis of bad cholesterol and diet restrictions which includes bad cholesterol and several preventive measures and different modes of treatment with statins and few other medications. By using all these medications and changes in the life style high cholesterol can be reduced.

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