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A REVIEW ON: "LIPOPROTEIN"

Tushar Babasaheb Chavan*

Department of Pharmacology H.S.B.P.V.T, College of Pharmacy, Kashti, Ahmednagar, MH, India.

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***Corresponding Author**
Tushar Babasaheb Chavan
Department of Pharmacology H.S.B.P.V.T, College of Pharmacy, Kashti, Ahmednagar, MH, India.

ABSTRACT

Lipoproteins are complex particle with a central core containing cholesterol esters and triglyceride surrounded by free cholesterol, phospholipid, and apolipoproteins, which facilitate lipoprotein formation and function. Lipoproteins are the risk factor for cardiovascular diseases. Lipoproteins are the substance made up of protein and fat and that carry cholesterol through bloodstream. Lipoproteins are a class of particle found in the **lymph and the blood** that contain lipid and protein coat called Apo lipoproteins. Plasma lipoprotein can be divided into seven classes on size, lipid composition, and Apo lipoprotein (chylomicron, chylomicron remnants, VLDL, IDL, LDL, HDL, and LP. chylomicron remnants, VLDL, IDL,LDL, and LP are all pro-atherogenic while HDL is anti-atherogenic.

Apo lipoproteins has major functions.

(a) Serving a structural role.

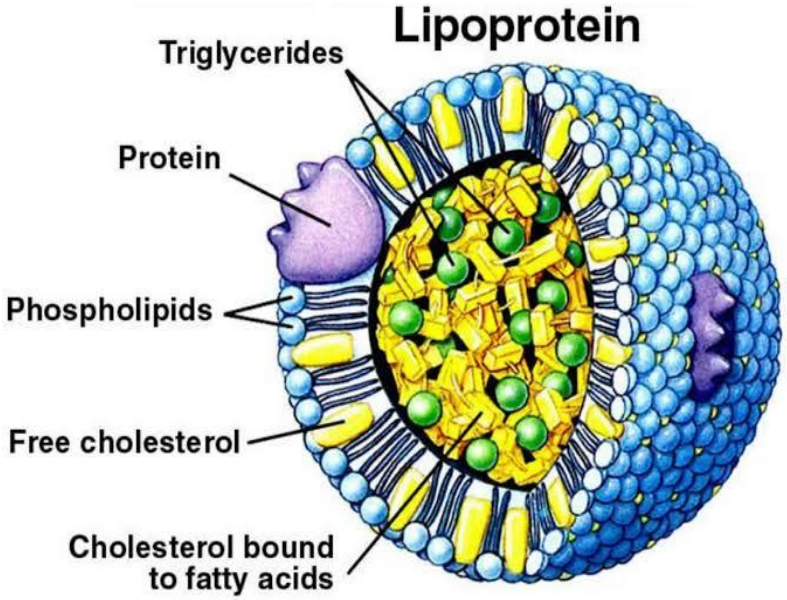
(b) Acting as a ligand for lipoprotein receptor.

(c) Formation of lipoprotein.

(d) Serving as activators and inhibitors of enzyme.

KEYWORDS: Lipoproteins, cholesterol, phospholipid, Apo lipoprotein, chylomicron, triglyceride, cholesterol.

GRAPHICAL ABSTRACT



INRODUCTION

A lipoprotein is a biochemical assembly and its primary function is to transport hydrophobic lipid (Fat) molecules in water, as in blood plasma or other extracellular fluids. They consist of triglyceride and cholesterol center. Many enzymes transporters like structural proteins, antigens, adhesins, and toxins are lipoproteins. Example include plasma lipoprotein particle.

Lipoproteins are globular, micelle-like particles consisting of a hydrophobic core of triacylglycerols and cholesterol esters are surrounded by an amphipathic coat of protein, phospholipid and cholesterol.

The major function of lipoproteins is transport triacylglycerols, cholesterol, and phospholipids around the body.

Tran's membrane lipoproteins -Some Trans membrane proteolipids, especially those found in bacteria, are referred to as lipoproteins; they are not related to lipoprotein particle.

TYPES OF LIPOPROTEINS

The lipoproteins are having five types

1. Chylomicrons
2. Very-low density lipoprotein(VLDL)
3. Intermediate-density lipoprotein(IDL)
4. Low-density lipoprotein(LDL)

5. High-density lipoprotein(HDL)

LIPOPROTEIN DISORDER

Disorder of lipid and lipoprotein metabolism has important health consequences, primarily on the cardiovascular system; it may also affect the cerebrovascular system as well as the gastrointestinal system.

Lipoprotein Disorder can be described as abnormalities in the level of lipids, which include cholesterol and triglycerides, or as abnormalities in the levels of lipoprotein that include LDL, HDL, VLDL and chylomicrons.

Lipoprotein disorder (also referred to as lipid disorder, or Dyslipidemias, or Dyslipoproteinemias) was first classified in1967 into different phenotypes by Frederickson according to the type of lipoprotein that are affected. Firstly Frederickson classification failed to classify disorders of low lipids. Secondly Frederickson classification of hyperlipoproteinemias took into consideration the evaluation in chylomicrons, LDL, VLDL but did not include abnormalities in HDL level.

HYPERLIPOPROTEINEMIA

The causes of hyperlipoproteinemia are familial, acquired or idiopathic. Familial Causes are mainly due to genetic abnormalities and a few examples include Familial hypercholesterolemia, familial combined hyperlipidemia and familial hyper triglyceride.

CAUSES

The following are the conditions which can cause low LDL C and low HDL C levels.

Primary lipoprotein abnormalities

- Hypoalphalipoproteinemia (Apo lipoprotein A-1 deficiency). Low HDL.
- Hypobetalipoproteinemia and Abetalipoproteinemia. Low LDL and VLDL, but not low HDL.
- Chylomicron retention disease.
- Cholesteryl ester transfer protein (CETP) elevation.
- Familial combined hypolipidemia (does not increase risk of atherosclerosis).
- LCAT deficiency.
- Proprotein convertase subtillsin loss of function.

- Adenosine triphosphate (ATP)-binding cassette transporter (ABCA1)gene mutations.
- Familial HDL deficiency. This is the most common cause of low HDL and coronary artery disease.
- Tangier disease.

Secondary Causes

- Anemia
- Chronic inflammation
- Chromic liver disease
- Critical illness
- Hyperthyroidism
- Infection
- Malabsorption
- Malignancy

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