Apolipoprotein B100

What is apolipoprotein B100?
Apolipoprotein B is a protein that is attached to the surface of all low density lipoproteins (LDL). ApoB attaches to cells, acting like a “key” that unlocks a pathway to which cholesterol that is carried within the LDL can be delivered into the cells that need it. The protein occurs in two main forms: ApoB100 (produced by the liver) and a shortened version ApoB48 (produced in the small intestine). Specifically, every molecule of VLDL, IDL, Lp(a) and LDL has exactly one, and only one apoB100 molecule attached to it.

Why measure apolipoprotein B?
It is now understood that the number of lipoprotein particles versus cholesterol levels within those particles is a superior indicator of cardiovascular risk. Since a single molecule of apoB is present on all non-HDL lipoproteins, apoB indicates the number of atherogenic lipoprotein particles in blood.

Even when LDL levels are not in the high-risk range, high levels of ApoB100 are associated with increased risk of cardiovascular disease. This is especially true in patients with elevated triglycerides or low HDL. Although the terms apoB, non-HDL and LDL are often used interchangeably, LDL and non-HDL are often calculated, but apolipoprotein B is measured directly. Apolipoprotein B levels should be under 100 mg/dL.

Why are high levels of apolipoprotein B harmful?
Apolipoprotein B levels reflect the number of atherogenic lipoprotein particles in plasma. Atherosclerosis (hardening of the arteries) occurs as the result of several contributing factors including inflammation and an unhealthy lipoprotein profile. The higher the number of LDL particles that are present in the circulatory system, the higher the probability these LDL particles will penetrate the arterial lining, become oxidized and cause vascular damage, particularly if they are the atherogenic type. Once vascular damage occurs, atherosclerotic lesions form foam cells that become arterial plaque and heart disease risk increases.

How is apolipoprotein B treated?
It is treated in the same way high LDL is treated, which includes pharmaceuticals such as statins, bile acid sequestrants, niacin or fibrates, depending on the specific type of LDL that is elevated.

References

