

The Implication of Lipoprotein(a) in Metabolic Diseases

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Abstract

Lipoprotein(a) [Lp(a)] is produced mainly by the liver and is a low-density lipoprotein (LDL)-like particle, consisting of a apolipoprotein(a) moiety covalently attached to one molecule of apoB100 via a disulfide bond. High serum level of Lp(a) is known to be associated with increased risk of cardiovascular disease (CVD). Given that Lp(a) is known to be able to enter the intima of blood vessels in humans and animals, where it may contribute to intimal inflammation, thrombosis, and foam cell formation, it is plausible that Lp(a) may contribute to atherosclerosis.

Recent studies suggest the association between hyperlipidemia and diabetes development. In animal studies, high intracellular concentration of cholesterol is known to affect insulin secretory process, and hypercholesterolemia impairs insulin secretion in LDL receptor knockout mice. In a human study, increased serum level of total cholesterol was related with decreased insulin secretory function assessed by homeostasis model assessment for beta cell. Risk of development of type 2 diabetes is reported to significantly increase as the ratio of TC to high-density lipoprotein cholesterol (HDL-C) increases.

Apart from known evidence of association between Lp(a) and CVD, there are not many evidences on its association with metabolic diseases. In this talk, I would like to review recent works and evidences on association between Lp(a) and metabolic diseases.

Keywords

Lipoprotein(a), diabetes, metabolic diseases, cardiovascular diseases, insulin resistance