

# Pathophysiology and Significant Relation between Diabetic Dyslipidemia Cardiovascular Diseases

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## Introduction

Diabetic dyslipidemia (DD) is characterized by atherogenic dyslipidemia (A-C/D), which includes hypertriglyceridemia (H G), low HDL-C (HDL-), and small dense LDL (LDL). This combination of abnormalities significantly increases the risk of cardiovascular disease (CVD). The pathophysiology of DD involves insulin resistance (IR) and hyperinsulinemia (H I), which lead to increased hepatic VLDL production and decreased HDL-C levels. Additionally, IR is associated with increased levels of lipoprotein(a) (Lp(a)) and oxidized LDL, further contributing to atherogenesis. The presence of DD in individuals with type 2 diabetes (T2D) is associated with a higher risk of cardiovascular morbidity and mortality, independent of glycemic control.

## Pathophysiology

The pathophysiology of diabetic dyslipidemia is primarily driven by insulin resistance (IR) and hyperinsulinemia (H I). IR leads to increased hepatic VLDL production, which is converted to LDL in the circulation. This results in a shift towards smaller, denser LDL particles, which are more atherogenic. Additionally, IR is associated with decreased HDL-C levels, which are protective against CVD. The combination of hypertriglyceridemia (H G), low HDL-C (HDL-), and small dense LDL (LDL) is characteristic of atherogenic dyslipidemia (A-C/D). This dyslipidemic profile is associated with increased levels of lipoprotein(a) (Lp(a)) and oxidized LDL, further contributing to atherogenesis. The presence of DD in individuals with T2D is associated with a higher risk of cardiovascular morbidity and mortality, independent of glycemic control. The pathophysiology of DD involves IR and H I, which lead to increased hepatic VLDL production and decreased HDL-C levels. Additionally, IR is associated with increased levels of Lp(a) and oxidized LDL, further contributing to atherogenesis. The presence of DD in individuals with T2D is associated with a higher risk of cardiovascular morbidity and mortality, independent of glycemic control.

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## Diabetic dyslipidemia and cardiovascular disease

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