

Often referred to as "bad" cholesterol, high levels can lead to plaque buildup in arteries, increasing the risk of heart disease.

Low-Density Lipoprotein (LDL) cholesterol serves as a vital indicator in evaluating cardiovascular health due to its strong link to atherosclerotic cardiovascular disease (ASCVD). The following points underscore the significance of LDL cholesterol:

Causal Risk Factor for Cardiovascular Disease

Primary Risk Indicator: LDL cholesterol is acknowledged as a major risk factor for cardiovascular issues, primarily due to its direct connection with ASCVD. Elevated levels of LDL-C can contribute to the accumulation of plaque in arteries, thereby heightening the likelihood of heart attacks and strokes.

Increased Mortality Risk: High LDL-C levels correlate with an increased risk of mortality from cardiovascular disease (CVD). Research indicates that individuals with LDL-C levels exceeding 100 mg/dL experience a markedly higher risk of CVD-related death, with hazard ratios suggesting a 30% or more increase in risk as LDL-C levels rise.¹

Age and LDL Cholesterol

Impact Across Age Groups: Studies reveal that the dangers associated with high LDL cholesterol are especially significant in older populations. For example, individuals aged 70 to 100 years exhibit a greater risk of myocardial infarction and ASCVD as LDL levels increase, highlighting the necessity for careful monitoring in this demographic.²

Clinical Implications

Guidelines for Treatment: Current clinical recommendations advocate for the management of LDL cholesterol levels to prevent both primary and secondary cardiovascular events. This includes the implementation of lipid-lowering treatments, such as statins, which have proven effective in decreasing LDL-C and mitigating the risk of ASCVD.

Long-Term Monitoring: The relationship between elevated LDL-C and cardiovascular events remains relevant even among individuals considered to be at low short-term risk. This indicates that ongoing monitoring and management of LDL levels are essential for achieving favorable long-term health outcomes.

Variability in Risk Assessment

Subfraction Analysis: Recent studies indicate that LDL particles do not uniformly represent risk levels. Smaller, denser LDL particles have a stronger association with cardiovascular events compared to their larger counterparts. This insight has prompted an increased emphasis on the examination of LDL subfractions as potential indicators for prognosis.³

References

1. Elevated LDL cholesterol and increased risk of myocardial infarction and atherosclerotic cardiovascular disease in individuals aged 70–100 years: a contemporary primary prevention cohort. Mortensen, Martin Bødtker et al. *The Lancet*, Volume 396, Issue 10263, 1644 – 1652.
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