What is the potential cardiovascular risk reduction associated with achieving LDL-C levels recommended in the ESC/EAS guidelines for very high-risk patients? data from 18 European countries

Authors:
KK Ray¹, S Bray², AL Catapano³, N Poulter¹, G Villa⁴, ¹Imperial College London - London - United Kingdom of Great Britain & Northern Ireland, ²Amgen - Cambridge - United Kingdom of Great Britain & Northern Ireland, ³University of Milan and IRCCS Multimedica - Milan - Italy, ⁴Amgen (Europe) GmbH - Rotkreuz - Switzerland

Topic(s):
Lipids: Drug therapy

Background/Introduction: For patients at very-high risk of cardiovascular (CV) events, the 2016 ESC/EAS dyslipidaemia guidelines recommended lipid-lowering therapy (LLT) to achieve an LDL-C level below 70 mg/dL. This was lowered to an LDL-C level below 55 mg/dL in the 2019 guidelines.

Purpose: To assess: 1) the risk profile of European patients with established atherosclerotic CV disease (ASCVD) receiving LLT; and 2) the treatment gap between the estimated risk and the population benefits if all patients were to achieve LDL-C levels of 70 mg/dL and 55 mg/dL.

Methods: We used data from Da Vinci, an observational cross-sectional study conducted across 18 European countries. Data were collected at a single visit between June 2017 and November 2018, for consenting adults who had received any LLT in the prior 12 months and had an LDL-C measurement in the prior 14 months. LDL-C level was assessed at least 28 days after starting the most recent LLT (stabilised LLT). For each patient with established ASCVD receiving stabilised LLT, we: 1) calculated their absolute LDL-C reduction required to achieve LDL-C levels of 70 mg/dL and 55 mg/dL; 2) predicted their 10-year CV risk using the REACH score based on demographic and medical history; 3) simulated their relative risk reduction (RRR) by randomly sampling from the probability distribution of the rate ratio per 38.7 mg/dL (1 mmol/L) estimated by the Cholesterol Treatment Trialists Collaboration meta-analysis; and 4) calculated their absolute risk reduction (ARR) achieved by meeting LDL-C levels of 70 mg/dL and 55 mg/dL.

Results: A total of 2039 patients with established ASCVD were included in the analysis. Mean (SD) LDL-C was 83.1 (35.2) mg/dL. 40.4% and 19.3% of patients achieved LDL-C levels of 70 mg/dL and 55 mg/dL, respectively. Mean (SD) 10-year CV risk calculated using the REACH score was 36.3% (15.4%). Mean absolute LDL-C reductions of 19.6 mg/dL and 30.4 mg/dL were needed to reach LDL-C levels of 70 mg/dL and 55 mg/dL, respectively. When adjusted for the LDL-C reduction required to achieve an LDL-C level of 70 mg/dL, mean ARR was 3.0%, leaving a mean (SD) residual 10-year CV risk of 33.3% (15.5%). When adjusted for the LDL-C reduction required to achieve an LDL-C level of 55 mg/dL, mean ARR was 4.6%, leaving a mean (SD) residual 10-year CV risk of 31.7% (15.2%).

Conclusion(s): In a contemporary European cohort with ASCVD receiving LLT, the 10-year risk of CV events is high and many patients do not achieve LDL-C levels of 55 mg/dL or even of 70 mg/dL. Moreover, even if all patients were to achieve recommended LDL-C levels, they would still remain at a high residual risk of CV events. These data suggest these patients require even more intensive LLT.