ISSN: 2693-4965
DOI: 10.33552/OJCRR.2025.08.000680
Online Journal of Cardiology Research & Reports
Iris Publishers

Perspective

Achieving LDL Levels <30 mg/dL with a Plant-Based Diet: Trusting Expert Opinion Beyond Guidelines

Dasaad Mulijono*

Department of Cardiology, Bethsaida Hospital, Tangerang, Indonesia

***Corresponding author:** Dasaad Mulijono, Department of Cardiology, Bethsaida Hospital, Tangerang, Indonesia

Received Date: June 27, 2025

Published Date: July 09, 2025

Abstract

Low-density lipoprotein cholesterol (LDL-C) reduction remains a central focus in cardiovascular risk management, with ongoing debates regarding optimal target levels. While the European Society of Cardiology (ESC) has progressively lowered LDL-C targets to below 55 mg/dL - and even 40 mg/dL for very high-risk patients - the American College of Cardiology (ACC) remains more conservative, recommending levels below 70 mg/dL. However, emerging clinical evidence suggests that further reductions, potentially below 30 mg/dL, may confer additional cardiovascular benefits. At our cardiology center at Bethsaida, led by Prof. Dasaad Mulijono, we have successfully maintained LDL-C levels in patients with coronary heart disease below this threshold without using PCSK9 inhibitors, demonstrating significant reductions in restenosis and atherosclerotic progression. This article explores the discrepancies between major guidelines, expert opinions from leading cardiologists such as Eugene Braunwald and Eric Topol, and real-world outcomes observed in our clinical practice. Additionally, we discuss the role of a whole-food plant-based diet (WFPBD) combined with high-intensity lipid-lowering therapy in optimizing cardiovascular health. Given the historical trend of progressively lower LDL-C targets correlating with improved outcomes, future guidelines may align with expert recommendations that advocate for ultra-low LDL-C levels. This study underscores the importance of integrating guideline-based strategies with real-time clinical insights to advance cardiovascular risk management.

Keywords: LDL <30 mg/dL; guidelines; eugene braunwald; eric topol; plant-based diet; intensive lipid lowering; bethsaida hospital; dasaad mulijono

Introduction

LDL-C, often referred to as the "atherogenic" or "harmful" cholesterol fraction, has been a central focus of cardiovascular risk reduction strategies for several decades. Despite its well-established role, the precise therapeutic target for lowering LDL-C remains a matter of substantial debate, with inconsistencies between major clinical guidelines and the viewpoints of leading experts in the field [1,2]. This review explores these ongoing controversies by systematically comparing the recommendations issued by the ACC and the ESC, contrasting them with expert perspectives articulated by prominent cardiologists such as Professors Eugene Braunwald and Eric Topol [3-5].

Differing Guidelines: ACC vs. ESC

Over the years, the ACC and the ESC have progressively refined their recommendations regarding optimal target levels for LDL-C. However, a discernible divergence has emerged between their approaches, with the ACC - often in collaboration with the American Heart Association (AHA) - tending toward more conservative thresholds, in contrast to the increasingly aggressive stance adopted by its European counterpart. In the early 1990s, the

National Cholesterol Education Program (NCEP) Adult Treatment Panel III (ATP III) issued guidance recommending an LDL-C goal of less than 130 mg/dL for individuals at high risk of cardiovascular disease. Even then, some experts advocated for a more intensive target of less than 100 mg/dL to further mitigate residual risk [6]. Subsequent revisions to the ATP III guidelines in 2000 and 2004 reflected a shift toward more rigorous management of lipids. Updated recommendations specified an LDL-C target of less than 100 mg/dL for high-risk patients and introduced a more ambitious goal of less than 70 mg/dL for those classified as very high-risk [7].

In contrast, the 2016 iteration of the ESC guidelines explicitly endorsed a target LDL-C level of less than 70 mg/dL for individuals at very high risk of cardiovascular events [8]. Building upon this, the 2019 and 2021 ESC guidelines adopted an even more stringent approach, lowering the recommended target to below 55 mg/dL for very high-risk patients and suggesting a threshold of less than 40 mg/dL for those deemed to be at extreme risk [9,10]. As of 2022, the ACC/AHA continued to advocate for an LDL-C target of less than 70 mg/dL for individuals at very high risk, thereby maintaining a relatively conservative stance compared to the increasingly assertive recommendations of the ESC [6,11]. This ongoing divergence underscores fundamental differences in the aggressiveness of lipid-lowering strategies endorsed by these two leading cardiovascular societies. The ESC's progressively lower LDL-C targets reflect an expanding body of clinical evidence supporting that "lower is better" in atherogenic cholesterol reduction. In contrast, the ACC/AHA has demonstrated a more measured approach, possibly influenced by considerations regarding treatment feasibility, patient adherence, and potential side effects associated with intensive lipid-lowering therapies.

Guidelines vs. Expert Opinions: The Braunwald and Topol Perspective

In stark contrast to the conservative targets outlined in prevailing clinical guidelines, a growing contingent of eminent cardiovascular authorities has advocated for markedly more aggressive reduction of LDL-C, particularly in secondary prevention. Foremost among these proponents are Professor Eugene Braunwald and Prof. Eric Topol, who assert - on the strength of increasingly compelling empirical evidence - that optimal LDL-C levels for individuals at very high cardiovascular risk may lie well below conventional thresholds, potentially approaching concentrations under 30 mg/dL [3-5]. This evolving paradigm is substantiated by a robust and ever-expanding body of randomized controlled trials and large-scale observational studies, which demonstrate a clear, dose-dependent relationship between LDL-C reduction and a diminished incidence of adverse cardiovascular outcomes, including myocardial infarction, ischemic stroke, and cardiovascular death. The longstanding maxim that "lower is better" for LDL-C continues to gain momentum, reinforced by the landmark results of trials evaluating high-intensity statins and PCSK9 inhibitors, which show unprecedented reductions in event rates at ultra-low LDL-C levels.

The historical trend in clinical targets - from less than 130 mg/dL, successively lowered to 100 mg/dL, 70 mg/dL, and now below 55 mg/dL - reflects a consistent trajectory of evidence-based intensification. Braunwald and Topol argue that extending this trajectory toward targets below 30 mg/dL is not only logical but essential for high-risk populations, particularly those with established atherosclerotic cardiovascular disease, recurrent events, or multiple comorbidities [2,12-25]. Although initially perceived as radical, the pursuit of ultra-low LDL-C is firmly grounded in clinical science. Current evidence reveals no discernible threshold below which further LDL-C reduction fails to yield benefit. Indeed, the relationship between LDL-C levels and cardiovascular risk appears continuous and without a physiological "floor effect." This suggests that previously accepted therapeutic ceilings may be artificially constrained and ripe for redefinition. Thinking leaders such as Braunwald and Topol are not alone in calling for a bold re-evaluation of LDL-C targets. Other prominent figures - including Valentin Fuster, Steven Nissen, Jean-Claude Tardif, Paul Ridker, Kausik Ray, Brian Ference, and Sekar Kathiresan - have similarly endorsed the paradigm of ultra-low LDL-C as a cornerstone of contemporary cardiovascular risk management. Their unified stance challenges entrenched doctrines and urges clinicians and guideline committees alike to adopt a more progressive, data-driven approach to lipid lowering in the modern era.

Why Expert Opinion Often Outpaces Official Guidelines

In light of the dynamic and rapidly evolving landscape surrounding LDL-C management, one may reasonably ask: Why should greater credence be given to the perspectives of leading experts rather than strictly adhering to formal clinical guidelines? The answer lies in a nuanced understanding of how scientific insight progresses and how real-world application often demands agility that exceeds the pace of institutional consensus - several compelling considerations support prioritizing expert guidance in this context. First and foremost, it is well recognized that clinical guidelines, by their very nature, are retrospective in scope. They are grounded in large-scale randomized controlled trials and meta-analyses, which - although foundational to evidence-based medicine - require substantial time to conduct, publish, and synthesize the results. Consequently, an inherent delay exists between the emergence of new data and its integration into formal recommendations. In contrast, esteemed clinicians and researchers such as Professors Eugene Braunwald and Eric Topol can evaluate and respond to novel findings in near real-time, providing insights that often precede - and ultimately shape - the next generation of guidelines [17].

Secondly, the formulation of official recommendations is often constrained by various regulatory, logistical, and economic considerations. Guideline committees must weigh not only scientific validity but also issues such as drug accessibility, healthcare infrastructure, cost-effectiveness, and patient adherence across diverse populations. While these factors are crucial from a public health perspective, they can dilute the clinical aggressiveness of therapeutic targets. In contrast, expert opinion is liberated from such administrative burdens. It can focus squarely on interpreting the scientific data in its purest form, often pushing the boundaries of what is clinically achievable and optimal [17].

Third, a historical analysis of LDL-C target evolution provides compelling evidence of a consistent trajectory toward progressively lower thresholds. What was once considered adequate - 130 mg/dL - was later replaced by 100 mg/dL, then 70 mg/dL, and more recently, levels below 55 mg/dL or even 40 mg/dL for the highest-risk individuals. At each stage, proposals for more aggressive targets were initially met with scepticism, only to be validated by subsequent research. This pattern suggests that current expert recommendations advocating for LDL-C levels below 30 mg/dL may represent the next logical step in the continuum of cardiovascular risk reduction. This step may eventually become standard practice.

Furthermore, experts have repeatedly emphasized the importance of individualized risk stratification in lipid management. Not all patients benefit equally from uniform targets; those with established atherosclerotic cardiovascular disease, multiple comorbidities, or recurrent events may require substantially more intensive LDL-C lowering to achieve meaningful risk reductions. Such patient-specific considerations often fall outside the scope of generalized guidelines; however, they are routinely addressed through the nuanced judgment of seasoned clinicians (Figure 1).

Figure 1

Clinical Reflections from Our Centre: Integrating Diet and Pharmacology for Optimal Outcomes

Our experience at a tertiary cardiology centre further reinforces the clinical utility of embracing expert-led, evidence-informed approaches to lipid management. In treating patients with coronary artery disease, we have adopted a comprehensive strategy that combines a WFPBD with high-intensity statin therapy and adjunctive ezetimibe. Through this integrative model, we have successfully guided most patients to achieve LDL-C levels below 30 mg/dL - a threshold long considered unattainable without using PCSK9 inhibitors, which remain cost-prohibitive for many within our population. Importantly, this approach has yielded marked clinical benefits. We have observed significant reductions in restenosis rates and demonstrable attenuation in the progression of atherosclerosis. These outcomes suggest that the synergy between lifestyle intervention and pharmacologic therapy can often rival the results of more resource-intensive strategies. Our findings provide further support for the notion that an aggressive yet accessible LDL-C target—below 30 mg/dL—is not only feasible but may also be essential in redefining standards for secondary prevention in high-risk cardiovascular patients.

Conclusion

The ongoing debate regarding optimal LDL-C targets underscores fundamental tension in modern cardiovascular medicine: should clinicians wait for guidelines to catch up with emerging evidence, or should they adopt more ambitious targets championed by visionary experts? While the ACC and ESC continue to propose differing thresholds, many leading cardiologists, including Professors Braunwald and Topol, are urging the field to adopt a more aggressive paradigm that pursues LDL-C levels well below current standard targets. The historical trajectory of lipid management reveals a consistent pattern: what was once considered "too low" eventually becomes the new standard. This evolution suggests that current expert proposals for ultra-low LDL-C thresholds (e.g., <30 mg/dL) are not radical but prescient.

As accumulating evidence continues to validate the principle that "lower is unequivocally better," the real question is no longer

whether we should aim lower, but how long we are willing to wait before doing so. Adherence to outdated or overly cautious thresholds may represent a missed opportunity to prevent thousands of avoidable cardiovascular events. Clinicians are thus challenged to transcend passive guideline-following and instead adopt a more proactive, precision-driven approach—one that integrates robust scientific evidence and the bold insights of experienced thought leaders. By doing so, we not only elevate the standard of care but also shift the paradigm from reactive treatment to aggressive, anticipatory prevention, reducing reliance on invasive interventions and curbing cardiovascular mortality driven by persistent therapeutic inertia.

Author Contributions

D.M.; Conceptualization, writing, review, and editing.

Funding

This research received no external funding.

Institutional Review Board Statement

Not applicable.

Informed Consent Statement

Not applicable.

Data Availability Statement

Data are contained within the article.

Conflict of Interest

The authors declare no conflict of interest.

References

1. Apple SJ, Clark R, Daich J, Gonzalez ML, Ostfeld RJ, et al. (2023) Closing the Gaps in Care of Dyslipidemia: Revolutionizing Management with Digital Health and Innovative Care Models. Rev Cardiovasc Med 24(12): 350.
2. Jones JE, Tang KS, Barseghian A, Wong ND (2023) Evolution of More Aggressive LDL-Cholesterol Targets and Therapies for Cardiovascular Disease Prevention. J Clin Med 12(23): 7432.
3. Giugliano RP, Wiviott SD, Blazing MA, De Ferrari GM, Park JG, et al. (2017) Long-term Safety and Efficacy of Achieving Very Low Levels of Low-Density Lipoprotein Cholesterol: A Prespecified Analysis of the IMPROVE-IT Trial. JAMA Cardiol 2(5): 547-555.
4. Gencer B, Marston NA, Im K, Cannon CP, Sever P, et al. (2020) Efficacy and safety of lowering LDL cholesterol in older patients: a systematic review and meta-analysis of randomised controlled trials. Lancet 396(10263): 1637-1643.
5. Kesiena O, Onyeaka HK, Fugar S, Okoh AK, Volgman AS (2021) The top 100 Twitter influencers in cardiology. AIMS Public Health 8(4): 743-753.
6. Grundy SM, Feingold KR (2022) Guidelines for the Management of High Blood Cholesterol. In: Feingold KR, Ahmed SF, Anawalt B, et al., editors. Endotext [Internet]. South Dartmouth (MA): MDText.com.
7. Raymond C, Cho L, Rocco M, Hazen SL (2014) New cholesterol guidelines: worth the wait? Cleve Clin J Med 81(1): 11-19.
8. Sinning D, Landmesser U (2016) ESC-Leitlinien 2016 – Dyslipidämien [ECS guidelines 2016 - dyslipidaemias]. Herz 41(8): 671-676.
9. Katzmann JL, Tünnemann-Tarr A, Laufs U (2019) European dyslipidemia guidelines 2019 : What is new? Herz 44(8): 688-695.
10. Aygun S, Tokgozoglu L (2022) Comparison of Current International Guidelines for the Management of Dyslipidemia. J Clin Med 11(23): 7249.
11. Lloyd-Jones DM, Morris PB, Ballantyne CM, Birtcher KK, Covington AM, et al. (2022) 2022 ACC Expert Consensus Decision Pathway on the Role of Nonstatin Therapies for LDL-Cholesterol Lowering in the Management of Atherosclerotic Cardiovascular Disease Risk: A Report of the American College of Cardiology Solution Set Oversight Committee. J Am Coll Cardiol 80(14): 1366-1418. Erratum in: (2023) J Am Coll Cardiol 81(1): 104.
12. Karagiannis AD, Mehta A, Dhindsa DS, Virani SS, Orringer CE, et al. (2021) How low is safe? The frontier of very low (<30 mg/dL) LDL cholesterol. Eur Heart J 42(22): 2154-2169.
13. Bandyopadhyay D, Qureshi A, Ghosh S, Ashish K, Heise LR, et al. (2018) Safety and Efficacy of Extremely Low LDL-Cholesterol Levels and Its Prospects in Hyperlipidemia Management. J Lipids 2018: 8598054.
14. Rodriguez F, Khera A (2023) How Low Can You Go? New Evidence Supports No Lower Bound to Low-Density Lipoprotein Cholesterol Level in Secondary Prevention. Circulation 147(16): 1204-1207.
15. Patti G, Spinoni EG, Grisafi L, Mehran R, Mennuni M (2023) Safety and efficacy of very low LDL-cholesterol intensive lowering: a meta-analysis and meta-regression of randomized trials. Eur Heart J Cardiovasc Pharmacother 9(2): 138-147.
16. Rivera FB, Cha SW, Varona MC, Fernandez Co EM, Magalong JV, et al. (2024) Atherosclerotic coronary plaque regression from lipid-lowering therapies: A meta-analysis and meta-regression. Am J Prev Cardiol 18: 100645.
17. Makover ME, Shapiro MD, Toth PP (2022) There is urgent need to treat atherosclerotic cardiovascular disease risk earlier, more intensively, and with greater precision: A review of current practice and recommendations for improved effectiveness. Am J Prev Cardiol 12: 100371.
18. Dawson LP, Lum M, Nerleker N, Nicholls SJ, Layland J (2022) Coronary Atherosclerotic Plaque Regression: JACC State-of-the-Art Review. J Am Coll Cardiol 79(1): 66-82.
19. Marston NA, Giugliano RP, Park JG, Ruzza A, Sever PS, et al. (2021) Cardiovascular Benefit of Lowering Low-Density Lipoprotein Cholesterol Below 40 mg/dL. Circulation 144(21): 1732-1734.
20. Papafaklis MI, Koros R, Tsigkas G, Karanasos A, Moulias A, et al. (2024) Reversal of Atherosclerotic Plaque Growth and Vulnerability: Effects of Lipid-Modifying and Anti-Inflammatory Therapeutic Agents. Biomedicines 12(11): 2435.
21. Kayani T, Ahmad B, Chang RS, Qian F, Sahinoz M, et al. (2024) Beyond Statins: Novel Lipid-Lowering Agents for Reducing Risk of Atherosclerotic Cardiovascular Disease. Pharmacoepidemiology 3(1): 117-168.
22. Bryniarski KL, Dekker W, Legutko J, Gasior P, Tahon J, et al. (2024) Role of Lipid-Lowering and Anti-Inflammatory Therapies on Plaque Stabilization. J Clin Med 13(11): 3096.
23. Sucato V, Ortello A, Comparato F, Novo G, Galassi AR (2024) Cholesterol-Lowering Strategies for Cardiovascular Disease Prevention: The Importance of Intensive Treatment and the Simplification of Medical Therapy. J Clin Med 13(7): 1882.
24. Agnello F, Ingala S, Laterra G, Scalia L, Barbanti M (2024) Novel and Emerging LDL-C Lowering Strategies: A New Era of Dyslipidemia Management. J Clin Med 13(5): 1251.
25. Sarraju A, Nissen SE (2024) Atherosclerotic plaque stabilization and regression: a review of clinical evidence. Nat Rev Cardiol 21(7): 487-497.