

Lipoprotein (a)

Lipoprotein(a), or Lp(a), is a genetically inherited independent risk factor for cardiovascular disease and aortic valve disease. Individuals with high Lp(a) level have a 2 to 3-fold increase of coronary artery events and aortic stenosis. Lp(a) is a low-density lipoprotein (LDL)-like particle which is bounded by apolipoprotein(a). Levels of Lp(a) in plasma is 70-90% genetically determined and it is believed to be the most common genetic disorder of cholesterol affecting 20-25% of the population. The level also remains stable over the individual's lifetime.^{1,2} Lp(a) levels also differ across ethnic groups with Blacks of African descent and South Asians having higher median Lp(a) level than White or East Asian individuals³.

Who do we test?

Current European and National Lipid Association guidelines recommend testing all adults at least once in their lifetime.⁴ It is done via a simple blood test and results add prognostic insight for risk of ASCVD and aortic valve disease.⁵ However, currently testing for Lp(a) does not attract a Medicare rebate.

Lp(a) level can also be used as a risk-enhancing factor to adjust 10-year risk from conventional risk factors for reclassifying CVS risks. It is estimated that for every 50nmol/L increase in Lp(a) there is an 11% increase in ASCVD risk. This can be converted into the formular: predicted 10-year risk x 1.11^{(patient's Lp(a) level in nmol/L/50)}. Therefore, a patient with an Lp(a) level of 250nmol/L with

a 10-year risk of 10.0% will not have an updated estimated risk of $10.0\% \times 1.11^{(250/50)} = 10.0\% \times 1.69 = 16.9\%$.

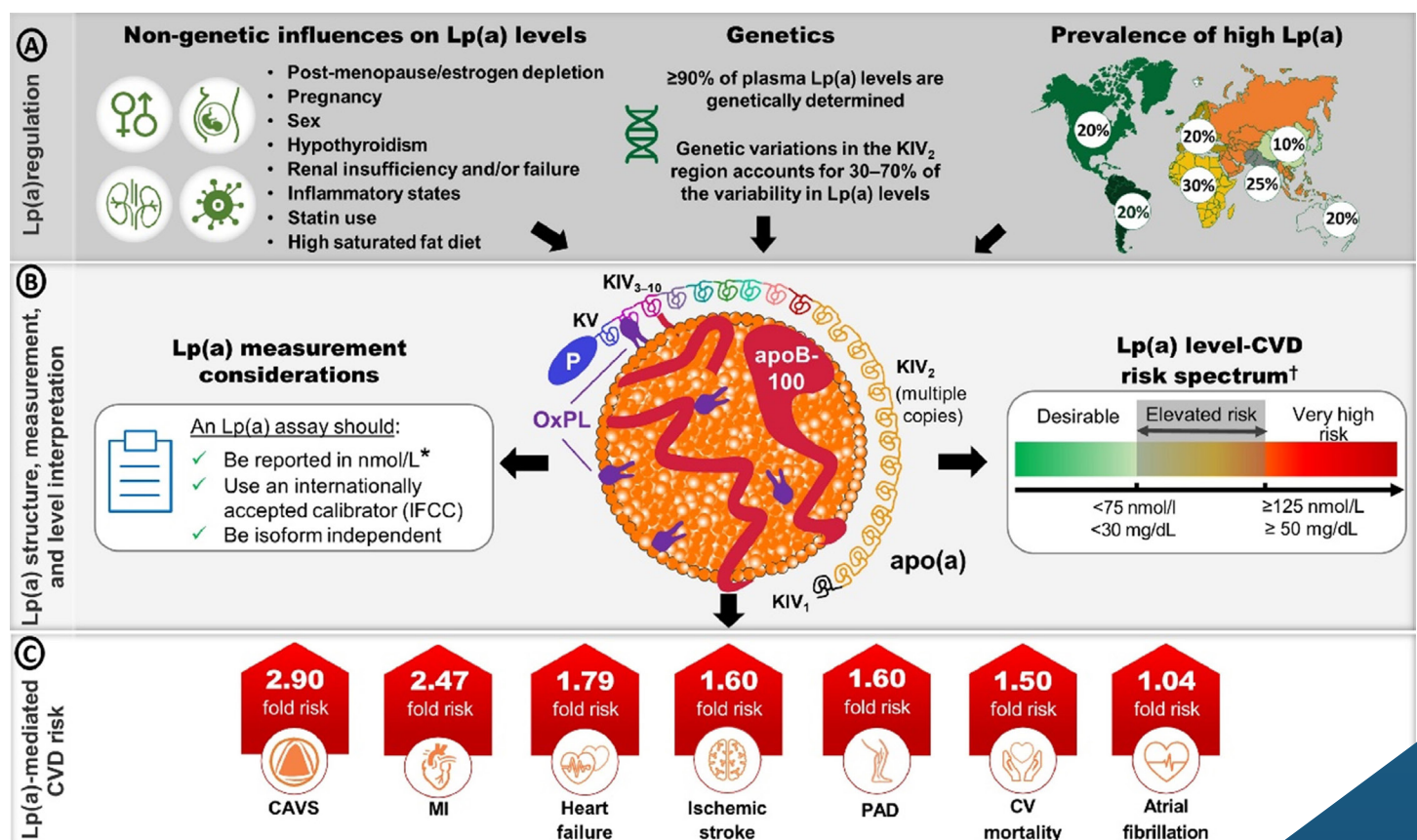
What can we do about raised Lp(a)

Studies are currently being conducted for the treatment of Lp(a). Currently there are no specific targeted therapy for lowering Lp(a) although PCSK9 inhibitors have been shown to lower Lp(a) by around 25%.⁶

Aggressive risk conventional factor management is the cornerstone of managing elevated Lp(a) levels. This would start from lifestyle modification with healthy diet, physical activity, healthy weight in the lower risk group to pharmacological interventions and lower LDL targets in the higher risk groups.

Conclusion

Lp(a) is a common independent genetically inherited risk factor. Recent guidelines suggest testing for all adults at least once in their lifetime especially for individuals with moderate to high ASCVD risk or family of people with premature ASCVD. This helps to reclassify risk profiles as well as identifying family members at risk. Although targeted therapies are still being researched, aggressive treatment of conventional cardiovascular risk factors is the cornerstone of managing these patients.



From: G Reyes-Soffer, C Yeang, ED Michos, W Boatwright, CM Ballantyne High Lipoprotein(a): Actionable strategies for risk assessment and mitigation. American Journal of Preventive cardiology 18 (2024), 100651

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¹ PR Kamstrup, A Tybjaerg-Hansen, R Steffensen, BG Nordestgaard. Genetically elevated lipoprotein(a) and increased risk of myocardial infarction. JAMA. 2009;301:2331–2339.

² PR Kamstrup, HA Tybjaerg, BG Nordestgaard Elevated lipoprotein(a) and risk of aortic valve stenosis in the general population J Am Coll Cardiol, 63 (5) (2014), pp. 470-477

³ Enkhmaa, E Anuurad, L Berglund. Lipoprotein (a): impact by ethnicity and environmental and medical conditions. J Lipid Res. 2016;57:1111–1125.

⁴ F Mach, C Baigent, AL Catapano, et al. 2019 ESC/EAS Guidelines for the management of dyslipidaemias: lipid modification to reduce cardiovascular risk: the Task Force for the management of dyslipidaemias of the European Society of Cardiology (ESC) and European Atherosclerosis Society (EAS) Eur Heart J, 41 (1) (2020), pp. 111-188

⁵ AP Patel, M Wang, JP Pirruccello, PT Ellinor, K Ng, S Kathiresan, AV Khera. Lp(a) (lipoprotein[a]) concentrations and incident atherosclerotic cardiovascular disease: new insights from a large national biobank. Arterioscler Thromb Vasc Biol. 2021;41:465–474

⁶ ML O'Donoghue, S Fazio, RP Giugliano, et al. Lipoprotein(a), PCSK9 inhibition, and cardiovascular risk Circulation, 139 (12) (2019), pp. 1483-1492



Dr Chung-yao Yu Cardiology

Bsc(Med) MBBS, FRACP, FCSANZ, PhD

📍 Level 7, Suite 702
31 Dora Street
Hurstville, NSW, 2220

📞 02 8046 8040
📠 02 8046 8090