Lipoprotein (a) levels in patients with acute coronary syndrome under the age of 60 – a single-center clinical study

Lucija Klobučar[1,2]*, Ivica Bošnjak[1,2], Kristina Selthofer-Relatić[1,2]

[1]University Hospital Center Osijek, Osijek, Croatia
[2]Josip Juraj Strossmayer University of Osijek, School of Medicine Osijek, Osijek, Croatia

KEYWORDS: lipoprotein (a), cardiovascular risk, acute coronary syndrome.

CITATION: Cardiol Croat. 2024;19(11-12):508. | https://doi.org/10.15836/ccar2024.508

***ADDRESS FOR CORRESPONDENCE**: Lucija Klobučar, Klinički bolnički centar Osijek, Josipa Huttlera 4, HR-31000 Osijek, Croatia. / Phone: +385-91-5958-144 / E-mail: klobucar.lucija@gmail.com

ORCID: Lucija Klobučar, https://orcid.org/0000-0003-4333-1048 • Ivica Bošnjak, https://orcid.org/0000-0002-0223-4287 Kristina Selthofer-Relatić, https://orcid.org/0000-0002-9890-6489

Introduction: Lipoprotein (a) [Lp(a)] is a particle consisting of lipids and proteins, structured similarly to low-density lipoprotein (LDL), with the addition of apolipoprotein (a). Lp(a) promotes atherogenesis – it increases release of proinflammatory cytokines and infiltration of monocytes to the arterial wall, and decreases stability of atherosclerotic plaques. Its levels are genetically determined and relatively stable during lifetime. Levels >125 nmol/L are considered to be elevated. It is recommended to measure Lp(a) levels in individuals with premature cardiovascular disease (CVD), reccurent CVD despite optimal therapy, SCORE risk ≥5% or aortic valve stenosis.[1-3] *Aim:* To analyze Lp(a) serum levels in patients with acute coronary syndrome (ACS) under the age of 60.

Patients and Methods: Patients hospitalized due to ACS at the University Hospital Center Osijek, under the age of 60, were enrolled into the study.

Results: Lp(a) levels were measured in 21 patients (14 male, 7 female). Median Lp(a) levels for all patients were 36 nmol/L (3–560 nmol/L) with no significant difference between male and female (p=0.551). Lp(a) levels did not correlate with widely known risk or protective factors for CVD: age (p=0.172); body weight (p=0.437); body mass index (p=0.204); serum levels of total cholesterol (p=0.312), LDL cholesterol (p=0.541), HDL cholesterol (p=0.942), triglycerides (p=0.074); and did not differ depending on prior statin treatment. Nineteen patients were treated with percutaneous coronary intervention, 1 was appointed to surgical revascularization, and 1 did not require invasive treatment. The number of surgically treated patients was low and did not enable statistical analysis, but it should be emphasized that Lp(a) levels of the patient treated surgically were 206 nmol/L, compared to the median Lp(a) levels of 36 nmol/L for all enrolled patients.

Conclusion: Lp(a) represents additional risk factor for CVD and its levels do not correlate with traditionally known risk and protective factors for CVD. Although specific Lp(a)-lowering therapies are not yet available in everyday clinical practice, lipoprotein apheresis may be considered in patients with very high Lp(a) levels and progressive atherosclerotic disease despite optimal control of all other modifiable risk factors.

RECEIVED:
October 12, 2024
ACCEPTED:
October 31, 2024

LITERATURE

1. Kronenberg F, Mora S, Stroes ESG, Ference BA, Arsenault BJ, Berglund L, et al. Lipoprotein(a) in atherosclerotic cardiovascular disease and aortic stenosis: a European Atherosclerosis Society consensus statement. Eur Heart J. 2022 Oct 14;43(39):3925-3946. https://doi.org/10.1093/eurheartj/ehac361
2. Lampsas S, Xenou M, Oikonomou E, Pantelidis P, Lysandrou A, Sarantos S, et al. Lipoprotein(a) in Atherosclerotic Diseases: From Pathophysiology to Diagnosis and Treatment. Molecules. 2023 Jan 18;28(3):969. https://doi.org/10.3390/molecules28030969
3. Svilaas T, Klemsdal TO, Bogsrud MP, Græsdal A, Vesterbekkmo EK, Asprusten EA, et al. High levels of lipoprotein(a) - assessment and treatment. Tidsskr Nor Laegeforen. 2022 Dec 16;142(1). English, Norwegian. https://doi.org/10.4045/tidsskr.21.0800