Lipoprotein(a) does not correlate with hypertensive mediated organ damage and subsequent cardiovascular events in a primary prevention cohort

Beatrice Invernici[17], Chiara Tognola[1], Davide Paolo Bernasconi[2,3], Paola Rebora[2,4], Rita Cristina Myriam Intravaia[5], Costantino Mancusi[6], Valeria Visco[7], Arturo Cesaro[8,9], Enrica Golia[8,9], Fucile Ilaria[6], Piera Merlini[1], Maddalena Ardissino[10,11], Elvira Inglese[12], Romano Danesi[12,13], Fabrizio Oliva[14], Anita Andreano[15], Magda Rognoni[15], Antonio Russo[16], Paolo Calabrò[8,9], Nicola De Luca[6], Cristina Giannattasio[1,17], Alessandro Maloberti[1,17]

[1]*Cardiology 4, ASST GOM Niguarda, Milan, Italy*
[2]*Bicocca Center of Bioinformatics, Biostatistics and Bioimaging (B4 center), School of Medicine and Surgery, University of Milano-Bicocca, Milan, Italy*
[3]*Clinical Research and Innovation Department, Niguarda Hospital, Milan, Italy*
[4]*Biostatistics and Clinical Epidemiology, Fondazione IRCCS San Gerardo dei Tintori, Monza, Italy*
[5]*Cardiology, Garibaldi-Nesima Hospital, Catania, Italy*
[6]*Cardiac Rehabilitation Unit, Federico II° University Hospital, Naples, Italy*
[7]*Department of Medicine, Surgery and Dentistry, University of Salerno, Fisciano, Italy*
[8]*Cardiology S. Anna e S. Sebastiano Hospital, Caserta, Italy*
[9]*University of Campania L. Vanvitelli, Caserta, Italy*
[10]*Medical Research Council, Laboratory of Medical Sciences, Imperial College London, London, UK*
[11]*British Heart Foundation Cardiovascular Epidemiology Unit, Department of Public Health and Primary Care, University of Cambridge, Cambridge, UK*
[12]*Department of Laboratory Medicine, ASST GOM Niguarda, Milan, Italy*
[13]*Department of Oncology and Hemato-Oncology, University of Milano, Milan, Italy*
[14]*Cardiology 1, ASST GOM Niguarda, Milan, Italy*
[15]*Epidemiology Unit, Agency for Health Protection (ATS) of Brianza, Monza, Italy*
[16]*Epidemiology Unit, Agency for Health Protection (ATS) of Milan, Milan, Italy*
[17]*School of Medicine and Surgery, University of Milano-Bicocca, Milan, Italy*

https://doi.org/10.56095/eaj.v5i1.133

Beatrice Invernici: b.invernici@campus.unimib.it

Aim: Elevated lipoprotein(a) [Lp(a)] levels have been strongly related to cardiovascular (CV) risk. However, its association with Hypertension Mediated Organ Damage (HMOD) and CV events in the primary prevention setting remains unclear. The aim of our study is to evaluate in these patients the correlation between Lp(a) levels and: (i) heart, vessels and kidney HMOD and; (ii) CV events and all-cause mortality in a primary prevention setting.

Methods: 747 low CV risk subjects were recruited between 2009 and 2014. HMOD was assessed through Pulse Wave Velocity (PWV), carotid Intima-Media Thickness (IMT), presence of carotid plaques, Left Ventricular Hypertrophy (LVH), Ejection Fraction (EF) and glomerular filtration rate (GFR). All-cause mortality and CV events up to 2021 were retrieved by electronic health records, for a median follow-up time of 10 years (I-III quartiles 9.6-11.1).

Results: Mean age was 50.8 ± 13.0 years and 63.5% of the subjects were men. The prevalence of hypertension was 37.9%, dyslipidemia 67.2%, smoking 17.8%, and diabetes mellitus 8.7%. Median Lp(a) value was 17 mg/dL (5.9–56.0), and 26.5% of patients had values above 50 mg/dL. Regarding HMOD, 10.3% subjects had arterial stiffness, 7.2% increased IMT, 19.8% carotid plaques while only 0.7% had LVH. No significant correlation was found between Lp(a) levels and indices of subclinical HMOD. Furthermore, no relationship was found between CV events and all-cause mortality and Lp(a) levels.

Conclusions: In this primary prevention cohort, elevated Lp(a) levels were not associated with significant structural damage to the heart, carotid arteries, or increased aortic stiffness and were not associated with CV events and all-cause mortality.