318. THE ROLE OF GENETIC POLYMORPHISMS AND PLASMA LIPOPROTEIN(A) LEVELS IN THE PATHOGENESIS OF DEGENERATIVE AORTIC STENOSIS

Author: Ariana Chiriloae**; Co-author:** Lucia Mazur-Nicorici, Ruben Angelo Chiriloae

Scientific adviser: Lucia Mazur-Nicorici, MD, PhD Professor, Department of Internal Medicine, Discipline of Cardiology, University of Medicine and Pharmacy *Nicolae Testemitanu*, Chisinau, Republic of Moldova"

Introduction. Although aortic stenosis is a valvular heart disease prevalent in the elderly population, in recent years it has turned into a molecular disease, unrelated to the traditional risk factors such as hypertension and age. It has been demonstrated that genetic polymorphisms affiliated to lipid metabolism are involved in the pathogenesis of aortic stenosis.

Aim of study. This research evaluates the potential of Lipoprotein (a) [Lp(a)] to serve as a predictive marker for the evolution of aortic valve calcification, also aiming at stratifying and identifying patients with high phenotypic risk.

Methods and materials. Through the retrieval of literature in PubMed, ScienceDirect and IEEE Xplore databases, this study selected the relevant literature published in 2022-2026 according to the research criteria and ultimately retained 110 basic reference literatures for analysis.

Results. Recent research highlights the determining role of genetic risk factors in the evolution of aortic stenosis, with a particular focus on LPA gene polymorphisms. It is postulated that specific genetic variants at the Lipoprotein (a) locus, directly correlated with plasma Lp(a) concentrations, are involved in the pathogenesis of aortic stenosis in multiethnic cohorts. Elucidation of the genetic mechanisms and clinical significance of plasma Lp(a) levels, together with genetically determined structural variations, could facilitate the development of strategies for prognosis and early intervention in the process of valvular calcification.

Conclusions. Lipoprotein(a) [Lp(a)] is not simply an associated biomarker but an independent and genetically determined risk factor for aortic stenosis. High levels of Lp(a) are associated with increased lipid peroxidation and chronic endothelial valve inflammation leading to valve calcification. Lipoprotein profiling will represent an important step in assessing cardiovascular risk and in guiding an appropriate therapeutic strategy to slow valve calcification.

Keywords. aortic stenosis, modern risk factors, Lipoprotein (a) locus, genetic polymorphisms.

https://doi.org/10.66603/medespera2026.849