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LIPOPROTEIN(A): A GENETICALLY DETERMINED RISK MARKER IN TYPE 2 DIABETES AND OBESITY

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Background. Lipoprotein(a) [Lp(a)] is a genetically determined, independent, and causal risk factor for atherosclerotic cardiovascular disease and calcific aortic valve stenosis, with elevated levels found in approximately 20% of the global population. Unlike most lipid parameters, Lp(a) is largely unaffected by lifestyle modification or statin therapy, making it one of the main contributors to residual atherogenic risk even when target LDL-cholesterol levels are achieved. Lp(a) acquires particular clinical relevance in patients with type 2 diabetes mellitus (T2DM) and obesity — a population with inherently elevated cardiometabolic risk, in whom its relationship with Lp(a) is complex.

Aim. To summarize current data on the clinical significance of lipoprotein(a) in patients with type 2 diabetes mellitus and obesity.

Materials and methods. A literature review was conducted using the PubMed and Google Scholar databases.

Results. The relationship between Lp(a) and T2DM appears paradoxical: low Lp(a) concentrations are associated with an increased risk of developing T2DM — as shown in the Bruneck study and a meta-analysis of four cohorts, with a hazard ratio of 1.28 in the lowest Lp(a) quintile — whereas elevated concentrations retain an independent contribution to cardiovascular risk in patients with established diabetes. The causal nature of this inverse association has not been confirmed by Mendelian randomization, suggesting a marker rather than a causal role. The association between Lp(a) and obesity or metabolic syndrome is weaker: a systematic review of 50 studies (over 150,000 participants) found reduced Lp(a) to be associated with the presence of metabolic syndrome, whereas no direct relationship with body mass index was found in pediatric cohorts. The clinical relevance of these findings is underscored by international guidelines (ACC/AHA, EAS), which recommend measuring Lp(a) at least once in adulthood — particularly relevant for patients with T2DM and obesity as a high-risk cardiometabolic group.

Conclusion. Lipoprotein(a) is an independent, genetically determined marker of residual cardiovascular risk, whose significance in patients with type 2 diabetes mellitus and obesity requires differentiated clinical interpretation given the divergent nature of its associations.

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