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Cardiovascular Risk Factors and Subclinical Atherosclerosis

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Nearly one third of all deaths worldwide are attributed to cardiovascular disease (CVD), which continues to be the leading cause of morbidity and mortality. CVD accounts for more than 62% of deaths in Romania. Recent trends indicate an increase in cardiovascular mortality rates as the prevalence of cardiovascular risk factors continues to rise, pointing to a grim future.

Atherosclerosis is connected to the vast majority of cardiovascular diseases. Atherosclerosis is a process that starts early in life and doesn't show up until a long time later. As a result, one important objective of modern cardiology is the early detection of atherosclerotic disease before symptoms appear. Atherogenic lipids and inflammation play a central role in the pathogenesis of atherosclerosis, contributing not only to the onset but also to the progression of atherosclerotic plaques. Atheromatous plaque instability is the primary cause of acute atherosclerosis-related complications, such as acute coronary syndromes. It can occur at any time during the progression of atherosclerosis.

Low-density lipoproteins (LDL) are the most important lipids in atherogenesis because they play a major role in the transport of cholesterol. One of the most important goals for cardiovascular prevention is to alter the lipid profile, primarily by targeting LDL-cholesterol with various lowering molecules to lower cardiovascular risk. In recent times, compounds that better reflect pro-atherogenic risk have also received attention. Apo lipoproteins, which regulate lipoprotein metabolism, have recently been linked to a significant role in atherosclerosis. All atherogenic lipids, including very low-density lipoproteins (VLDLs), intermediate density lipoproteins (IDLs), low-density lipoproteins (LDLs), and chylomicrons, contain apo lipoprotein B (Apo B), which is the most common type of apo lipoprotein. The literature indicates that the lipid composition of Apo B lipoproteins varies significantly. In terms of predicting cardiovascular risk, Apo B is currently regarded as superior to total cholesterol and triglyceride levels. The connection between Apo B and atherosclerosis. Controversial data exist regarding the relationship between Apo B and LDL-cholesterol's predictive power. According to a number of studies, Apo B is a better predictor of cardiovascular risk than LDL and non-high-density lipoprotein cholesterol (non-HDL). However, a recent study with over 300,000 participants did not demonstrate that Apo B is superior to LDL-cholesterol in the assessment of cardiovascular risk. The 2021 ESC Guidelines on Cardiovascular Disease Prevention in Clinical Practice contain the same data. To determine whether Apo B is a CVD predictor, a series of studies are required [1,2].

Conclusion

According to the findings of this analysis of the national registry on hypertension in Romania, high Apo B may be considered a risk factor for cardiovascular disease (CVD), promoting atherosclerosis, and causing an increase in the expression of classic clinical or subclinical CVD markers. An altered lipid profile, poorer glycemic control, significant carotid plaques, and a higher inflammatory status reflected in elevated uric acid are all linked to elevated Apo B levels. These results suggest that elevated Apo B is involved in various stages of atherosclerosis progression and is a CVD risk factor

Keywords: Subclinical atherosclerosis; Lipoproteins; Cardiovascular disease

References

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