Abstract


Premature myocardial infarction is strongly associated with increased levels of remnant cholesterol.


Department of Internal Medicine II, Medical University of Vienna, Vienna, Austria; Department of Internal Medicine I-Cardiology, Linz General Hospital, Johannes Kepler University School of Medicine, Linz, Austria; Department of Laboratory Medicine, Medical University of Vienna, Vienna, Austria; Ludwig Boltzmann Cluster for Cardiovascular Research, Vienna, Austria; Medical Department, Cardiology and Intensive Care Medicine, Wilhelminen Hospital, Vienna, Austria.

BACKGROUND: Remnant cholesterol has been defined as the cholesterol present in triglyceride-rich remnant lipoproteins. Elevated levels of remnant cholesterol have been associated with increased cardiovascular risk. Acute myocardial infarction (AMI) in very young individuals (≤40 years) represents a rare disease with a typical risk factor profile and a lipid phenotype that is characterized by a predominance of elevated triglyceride-rich lipoproteins.

OBJECTIVE: The aim of this study was to investigate the role of remnant cholesterol in premature AMI.

METHODS: We prospectively enrolled 302 patients into our multicenter case-control study comprising 102 consecutive myocardial infarction survivors (≤40 years) and 200 hospital controls. Myocardial infarction patients were frequency matched for age, gender, and center. Remnant cholesterol was calculated from standard lipid parameters.

RESULTS: Remnant cholesterol was 1.7-fold higher in premature AMI patients compared with controls (61.1 ± 36.8 vs 35.8 ± 16.8 mg/dL; P < .001). Remnant cholesterol was the lipid fraction most strongly associated with premature myocardial infarction (odds ratio 3.87; 95% confidence interval 2.26-6.64; P < .001) for an increase of 1-standard deviation. This observation was independent from clinical risk factors and plasma lipid levels.

CONCLUSIONS: Remnant cholesterol is strongly associated with premature myocardial infarction, can be easily calculated, and might serve as a new potent risk marker in this young patient population.

PMID: 26687701