Biomarkers

Homocysteine, a predictor of cardiovascular adverse events in coronary artery disease

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Introduction: After the diagnosis of coronary artery disease (CAD), traditional risk factors such as diabetes mellitus, dyslipidemia, hypertension and smoking have been used to assess the risk of major cardiovascular adverse events (MACE). However, despite reduction of these factors, presence of MACE remains high. It is necessary to identify other causal risk factors for MACE in coronary patients and increased plasma Homocysteine (Hcy) level seems to be a likely candidate. However, the influence of Hcy levels in the prognosis of coronary patients presents a limited knowledge.

Objective: To evaluate the influence of high level of Hcy in MACE (defined as a composite endpoint of cardiovascular death, acute myocardial infarction, stroke, admission for heart failure and need to revascularization) of coronary artery patients.

Materials and Methods: Study analyses of 1687 patients selected from GENEMACOR study population, with at least one > 75% coronary stenosis by angiography. That population was divided in three terciles according to the Hcy level and the population of the 2nd tercil (Hcy 11.1-13.6mmol/L) was excluded. The end population of 1118 patients was a median age of 53.1 ± 7.9 years and 77.6% were men. We compared patients in the 1st (Hcy < 11.1mmol/L) and 3rd tercil (Hcy > 13.6mmol/L) during a mean follow up of 5.0 ± 4.8 years.

Results: 560 (50.1%) patients were included in the 1st tercil group (median age 51.6 ± 3 years, 72.0% men) and 558 (49.9%) patients were in the 3rd tercil group (median age 54.6 ± 3 years, 83.3% men). In our population, high levels of Hcy were associated with MACE (OR 1.43, 95% CI: 1.12-1.83, p 0.004).

Conclusion: In our population a higher level of Hcy was associated with adverse prognosis and increased occurrence of MACE. Knowing that elevated homocysteine levels are associated with increased risk of MACE, in these patients is essential to have a more intensive therapeutic strategy.