

 MYOCARDIAL ISCHEMIA AND INFARCTION

THE RELATIONSHIP BETWEEN GLOMERULAR FILTRATION RATE, PLASMA ASYMMETRIC DIMETHYLARGININE (ADMA) LEVEL AND DEVELOPMENT OF CORONARY COLLATERAL CIRCULATION

ACC Poster Contributions
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Background: There were some differences among patients with same degree coronary artery disease in terms of coronary collateral development (CCD), and it has not been known exactly which factors are responsible. Many physiological factors and biochemical markers can effect the CCD. Nevertheless, the number of studies examined the association between the effect of low GFR and relatively high plasma ADMA level on the development of coronary collateral are limited.

Methods: Sixty one patients (46 men, mean age 69.31 ± 7.01 years) who underwent to coronary angiography and found to have a greater than or equal to 95% stenosis in at least one epicardial coronary artery were composed the study group. Patients were classified into two groups according to their GFR level measured by MDRD (Modification of Diet in Renal Disease) formula; group 1 (GFR < 60 ml/min) and group 2 (GFR > 60 ml/min). Degree of CCD was graded from 0 to 3 according to Rentrop classification. Rentrop grade 0-1 were regarded as poor CCD, and grade 2-3 were regarded as good CCD. Plasma concentration of ADMA was measured by high performance liquid chromatography (HPLC).

Results: The good CCD was found frequently in patients with GFR > 60 ml/min than in patients with GFR < 60 ml/min (%68.6 vs % 41.4, $p=0.032$). When we divided patients into four groups according to their GFR levels and Rentrop grade; we found a statistically significant difference between groups for L-arginine/ADMA ratio ($p=0.003$) whereas we did not found any significant difference for L-arginine or ADMA levels (respectively $p=0.629$ and $p=0.076$). This statistically significant difference was evident between patients with GFR < 60 ml/min and Rentrop grade 0-1 and patients with GFR > 60 ml/min and Rentrop grade 2-3 (1.23 vs 1.69, $p<0.001$). Multivariate logistic regression analyse revealed that L-arginine/ADMA ratio was the only variable which had a significant effect on CCD (OR=1.016; 95% CI: 1.001 - 1.031, Wald=4.565; $p=0.033$).

Conclusions: These results showed that CCD was poor in patients with GFR < 60 ml/min presumably because of the adverse effect of decreased L-Arginine/ADMA ratio, relatively increased plasma ADMA level, on endothelial cells and angiogenesis.