

609 Prognostic role of renal function in patients with previous myocardial infarction. A study with cardiac magnetic resonance

Davide Restelli¹, Roberto Licordari¹, Paolo Piaggi², Scipione Carerj¹, Domenico Santoro¹, Vittoria Arcadi¹, Giovanni Donato Aquaro³, Alessandro Pingitore⁴, and Gianluca Di Bella¹

¹Department of Clinical and Experimental Medicine, University of Messina, Messina, Italy, ²Department of Energy and Systems Engineering, University of Pisa, Pisa, Italy, ³Fondazione G. Monasterio, Pisa, Italy, and ⁴Institute of Clinical Physiology, National Council of Research, Pisa, Italy

Aims: There is not strong evidence in literature about the impact of renal function on the prognosis of patients with ischaemic cardiomyopathy. Thus, the aim of the study was to investigate mild renal impairment [estimated glomerular filtration rate (eGFR): 60-89 ml/min] as an independent prognostic factor in patients with history of myocardial infarction (MI).

Methods and results: We studied 339 consecutive patients (65 ± 13 years old, female 13%) from 2001 and 2012 with previous MI. Patients with eGFR <60 ml/min were excluded. We performed cardiac magnetic resonance (CMR) in all patients to quantify left ventricular ejection fraction (LVEF), volumes, and wall motion score index (WMSI), and to measure the infarction extent by late gadolinium enhancement (LGE). Renal function was estimated by creatinine value with Cockcroft-Gault formula and patients were divided according to normal (≥90 ml/min) and reduced (60-89 ml/min) eGFR. Patients with normal eGFR were 106 (31%, 56.9 ± 10.5 years old), 233 (69%, 66.1 ± 9.9 years old) had renal impairment. During follow-up (median 3.5 years), cardiac events (cardiac death or appropriate intra-cardiac defibrillator shock) occurred in 28/233 (12%) of patients with eGFR <90 ml/min and in 4/106 (4%) of patients with eGFR ≥90 ml/min ($P < 0.05$). Furthermore, survival curve showed a significantly worst prognosis in patients with renal impairment ($P < 0.03$). In the

group of patients with ejection fraction (EF) < 35% (121 patients), cardiac events were observed only in patients with eGFR <90 ml/min (23/99, 23%, $P < 0.05$). At multivariate stepwise analysis, age >65 years old, eGFR <90 ml/min and WMSI >1.7 turned out to be independent predictor of cardiac events ($P < 0.05$).

Conclusions: In patients with previous MI, a mild renal impairment (eGFR between 60 and 89 ml/min) was an independent predictor of prognosis, especially if combined with left ventricular dysfunction.