

Cardiogenic shock without severe left ventricular dysfunction after acute myocardial infarction: population characterization and impact in prognosis

B.C. Picarra, A.R. Santos, J.A. Pais, M. Carrington, D. Bras, K. Congo, A.R. Rocha, D. Neves, R. Guerreiro, J. Aguiar

Hospital do Espírito Santo, Évora, Portugal

On behalf of Portuguese Registry on Acute Coronary Syndromes

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Introduction: Traditionally, severe left ventricular dysfunction is assumed to be the main predictor of CS after acute myocardial infarction (AMI), however trials and registries show that in average left ventricular function is only moderately depressed in CS after acute myocardial infarction.

Purpose: To characterize the population of patients (Pts) with CS after AMI but without severe left ventricular dysfunction (defined as ejection fraction >30%) and assess their impact in mortality.

Methods: From a national multicenter registry, we evaluated 16332 Pts with AMI and ejection fraction (EF) >30%. We considered 2 groups: Group 1 – Pts who developed CS and Group 2 – Pts who didn't developed CS. We registered age, gender, cardiovascular and non-cardiovascular comorbidities, electrocardiographic presentation and coronary anatomy. We also evaluated the following in-hospital complications: Re-Infarction, mechanical complications, high-grade atrial ventricular block, sustained ventricular tachycardia (VT) atrial fibrillation (AF) and stroke. We compared the in-hospital mortality.

Results: The presence of CS without severe left ventricular dysfunction was observed in 3,2% pts (n=518) with AMI, being CS present at admission in 46,8% of these pts. The mean EF was lower in group 1 pts (44% ± 11 vs 53±11%, p<0,001). Patients in group 1 were older (71±13 vs 65±13 years, p<0,001), more females (38,8% vs 26,6%, p<0,001), had a higher prevalence of previous valvular heart disease (6,1% vs 3,0%, p<0,001),

heart failure (10,1% vs 4,8%, p<0,001, peripheral artery disease (7,5% vs 5,3%, p=0,03), chronic kidney disease (9,8% vs 5,4%, p<0,001), chronic pulmonary obstructive disease (9,1% vs 4,9%, p<0,001) and previous stroke (11,0% vs 7,2%, p<0,001). At admission, Group 1 pts had more ST-elevation AMI (72,6% vs 43,0%, p<0,001), more AF (11,4% vs 6,6%, p<0,001) and more right bundle block (9,9% vs 5,8%, p<0,001). Group 1 patients received less coronary angiography (80,9% vs 88,2%, p<0,001). The presence of multivessel disease (64,3% vs 51,4%, p<0,001), left main disease (12,2% vs 7,2%, p<0,001), left anterior descending disease (72,4% vs 64,3%, p<0,001) and right coronary disease (64,8% vs 55,5%, p<0,001) were more prevalent in Group 1 pts. Group 1 pts had more in-hospital complications: Re-Infarction (4,4% vs 0,9%, p<0,001), AF (23,0% vs 4,3%, p<0,001), mechanical complications (8,9% vs 0,3%, p<0,001), high atrial ventricular block (21,9% vs 2,3%, p<0,001), VT (10,8% vs 1,2%, p<0,001) and major bleeding (8,9% vs 1,3%, p<0,001). In-hospital mortality was also much higher in Group 1 pts (29,5% vs 1,2%, p<0,001).

Conclusions: Cardiogenic shock is present in 3,2% of AMI pts without severe ventricular dysfunction. These pts were older, more frequent female, had higher morbidities and in-hospital complications. Even without severe ventricular dysfunction, cardiogenic shock in these patients was associated with a much higher in-hospital mortality.