STEMI-RVD SCALE: THE NEW TOOL TO RECOGNIZE RIGHT VENTRICULAR DYSFUNCTION IN PATIENTS WITH FIRST STEMI

Background: Right ventricular (RV) function provides strong prognostic information in patients treated with PCI for myocardial infarction. Identifying accurate and reliable parameters for the assessment of the RV dysfunction (RVD) is still a challenge. The aim of this study was to attempt to develop an optimal model of diagnosis of RVD in the study population.

Methods: Consecutive patients admitted with first STEMI treated with PCI were enrolled in to the study. The results of examination, laboratory tests and echocardiography were collected. Echocardiography was performed within 72 hours from admission. RV function was quantified with 5 different parameters: RV fractional area change (RVFAC), tricuspid annular plane systolic excursion (TAPSE), S wave, right ventricular outflow tract fractional shortening (RVOTfs) and isovolumic acceleration (IVA). RVD was defined as a presence of the dysfunction in 2 out of 5 echocardiographic methods for evaluation of RV function. The multiple logistic regression analysis was performed to evaluate factors which predict RVD in echocardiography.

Results: A total of 82 patients (mean age 61,02±11,88 SD, 72% males) were enrolled to the study. We identified 33 (40,2%) patients with RVD in echocardiography using our definition. Patients with RVD compared to patients without RVD were younger (59,06 ±11,99 vs. 62,35 ±11,74 years), were more often male (79% vs. 67%), current smokers (73% vs. 59%) and had family history of CVD (12% vs. 10%). In the multiple logistic regression analysis, acute chest pain ≥ 3 hours [odds ratio (OR) 3,43, 95% confidence interval (CI): 0,92-12,81; p=0,066], B-type Natriuretic Peptide (BNP) on admission above 187,5 pg/dl (OR 16,69, 95%CI: 4,36-63,82; p<0,0001), and Body Mass Index (BMI) >30 kg/m2 vs. <25 kg/m2 (OR 0,11, 95%CI: 0,02-0,66; p=0,015) were independent risk factors of RVD. Using combination of these parameters we created the scale called STEMI-RVD (Right Ventricular Dysfunction in ST-Elevation Myocardial Infarction).

Conclusions: RVD was highly prevalent in STEMI patients. Simple RVD-STEMI scale was found to have a high predictive value in assessment of high risk for RVD in STEMI.