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MRI and Cardiac US Utilities in Patients with Pharmacoresistant Epilepsy and Acute Myocardial Infarction

Background: Investigation of intracardiac hemodynamics and myocardial perfusion by using combined myocardial imaging (cardiac ultrasound and MRI) in patients with pharmacoresistant epilepsy and acute myocardial infarction was aimed.

Methodology: Twelve patients with pharmacoresistant epilepsy and acute myocardial infarction underwent coronaryangiography (CA) directly after hospital admission. All patients were treated with anticoagulants, antiplatelet agents, morphine and nitrates since first medical contact. There is no diabetes mellitus or acute inflammatory disease. Transthoracic ultrasound in emergency care unit was performed after coronary reperfusion for estimation of chamber size, function and myocardial deformation, as well as cardiac valve competence. MRI with Gadolinium enhancement was used for estimation size and volume of damaged myocardium and myocardial edema at 5-7 days after CA. Blood samples for troponins were collected.

Results: Patients with no-reflow phenomena had depressed left ventricle pump function early after endovascular coronary reperfusion (LVEF<45%). Post CA depressed LVEF was correlated with MRI signs of myocardial edema (Pearson, $r=0.44$, $p=0.01$), but not with TIMI flow ($p=0.4$) in all patients. MRI volume of impaired but not scarred myocardium in the bed of infarct-related coronary artery was significantly large in patients with CA no-reflow phenomena (HR 4.3, $p<0.001$).

Conclusions: MRI data may be used for estimation of acute coronary syndrome prognosis and personalization of treatment. Combined cardiac ultrasound and MRI cardiac imagine can prove a substrate for no-reflow phenomena and drug resistance in patients with pharmacoresistant epilepsy early after invasive treatment of acute myocardial infarction.

Country/Organization invited to participate

Belarus/National Center for Mental Health of Belarus

Primary author: Dr DOKUKINA, Tatyana (National Center for Mental Health of Belarus)

Co-author: Dr SLOBINA, Elena (National Center of Psychyc Health of Belarus)

Presenter: Dr DOKUKINA, Tatyana (National Center for Mental Health of Belarus)

Track Classification: Member States experience with other imaging modalities in cardiology (MRI, CT, echocardiography)