

## The bad, the poor but alive

*Kötü, zayıf ama canlı*

Heart failure (HF) is a major public health problem in the industrial and developing world. Coronary artery disease continues to be the major cause of HF, and a major proportion of these, is associated with prior myocardial infarction (MI). It's increasing incidence, which is related to the aging of the population and, perhaps, to improved survival after acute coronary syndromes, is the reason why it can be described as a true epidemic.

The most important point in determination of post MI survival is revascularization methods, which speed up and are being used widely in the last decade. Among these methods, the optimal treatment for reducing the morbidity and mortality, for protecting left ventricular functions, and for decreasing the infarct area in patients with acute ST elevation myocardial infarction (STEMI), is prompt reperfusion in the infarct-related artery using fibrinolytic or percutaneous coronary interventions (PCI). In patients with STEMI, current indications for emergency coronary artery bypass surgery (CABG), briefly, are limited to those presenting with evolving myocardial ischemia refractory to optimal medical therapy, presence of left main stenosis and/or 3-vessel disease, ongoing ischemia despite successful or failed PCI, complicated PCI, or cardiogenic shock accompanied by complex coronary anatomy. In fact, despite all the efforts, only 1/3 of the patients are reaching or have benefit from early revascularization and the rest are still facing with severe ventricular dysfunction and mortality. In chronic ischemic period, determination of survival for those patients, accurate determination of myocardial viability and biventricular function is really very important for assessment of prognosis and therapeutic options. In particular, coronary artery disease patients with severely impaired left ventricular function benefit from preoperative viability imaging before revascularisation. Stress echocardiography (low dose dobutamine stress echocardiography), nuclear medicine techniques (stress-delayed, rest-delayed and reinjection thallium imaging, Tc-99m sestamibi imaging, metabolic imaging with positron emission tomography), cardiovascular magnetic resonance imaging (stress and delayed-enhancement magnetic resonance imaging) and recently introduced, cardiac multislice computed tomography are four major modalities to determine the left

ventricular function and viability. Ventricular viability and remaining viable ventricular area are the most important factors to determine the prognosis, success and necessity of the surgical approaches to be used thereafter. One of the other most important points, which maintain viable ventricular area and myocardial cell integrity, beside the success of revascularization, is to maintain and prevent the integrity of ventricular septum in right ventricular structure /function relationship (Buckberg solution). Despite all these primary invasive interventions, secondary prevention and surgical interventions, progression of heart failure goes on and takes patients to end-stage heart failure. Thus brings the need of novel treatment approaches and modalities. Among these approaches, "cell transfer therapy" has been shown to improve myocardial function in animal experiments. This finding indicates that a reduced myocardial function can be improved by "cell transfer therapy". However, this should be investigated further and the result of these further studies should be evaluated and added. For the time being, cardiac transplantation and assist device which bridges to this, still remains as proven therapies for the end-stage heart failure.

In this supplement, starting from the diagnostic evaluation of severe ventricular dysfunction and new imaging methods for investigating viable tissue presence, all stages and novel approaches like primary invasive and surgical interventions, cell transplantation and cardiac transplantation were discussed and tried to be enlightened. As a matter of fact, perhaps the most important approach in this special group, which treatment is getting more complicated, difficult and expensive day by day, is to use primary preventive approach and treatments more widely.

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