Surgicol treatment of myocardial infarction complications

Tamer Hamdy Mohamed Azz El Deen

Acute myocardial infarction (AMI) is necrosis of part of the heart muscle due to total interruption of its blood supply. It is one of the main clinical manifestations of coronary heart disease and it is a major cause for morbidity and mortality in such patients. AMI is almost always due to coronary atherosclerotic heart disease, occurring more common in males between 40 and 80. Thrombosis superimposed on an atherosclaerotic plaque is the most common event leading to such acute interruption in coronary blood flow.Coronary atherosclerosis , coronary spasm, intimal injury and monocellular infiltration are the most important factors in the pathogenesis of this thrombotic occlusion. Necrosis doesn’t occur simultaneously throughout the area supplied by the occluded artery. In reality there is a necrosed area surrounded by an ischemic zone. By time more and more ischemic cells undergo necrosis till the infarction becomes complete involving all the area supplied by the occluded artery. The average time of completion of infarction is about 6 hours and depends on many factors as severity and duration of obstruction , collateral blood flow, antegrade blood flow by spontaneous recanalization or by reperfusion therapy and myocardial 02 demand at the time of obstruction. This time window is the time allowed for any reperfusion treatment before complete death of the affected part of the myocardium. Diagnosis of AMI depends mainly on patient’s symptoms, ECG, and assessment of cardiac enzymes. At present, more advanced techniques as coronary angiography and echocardiography are used to visualize the site of coronary lesions and to diagnose the complications. There is no doubt that AMI is mainly a medical not surgical problem. Medical treatment includes 02, analgesics, nitroglycerin, beta-blockers and more recently thrombolysis. This is thllowed by anticoagulants as heparin and antiplatelets as aspirin. In about 30% of cases of AMI thrombolysis is contraindicated. In such patients reperfusion could be achieved surgically by CABS or mechanically by PTCA. Surgery is indicated for 2 main indications :1)Reperfusion of the affected area.2)Treatment of the complications .At present, surgical reperfusion is indicated mainly for acutely failed or contraindicated use of thrombolysis or PTCA. Some investigators still use surgical reperfusion as primary treatment for AMI. But these studies are so limited. In addition CABS is used after successful thrombolysis or after the course of AMI to correct any serious underlying lesions which could lead to reinfarction with its very serious effects. The second main indication for surgery in AMI is treatment of the complications. In such patients circulatory support by inotropes, afterload reduction

and intra-aortic balloon pump is indicated before any surgical intervention. In AMI patients with cardiogenic shock, thrombolysis and emergency PTCA may be attempted If these procedures fail and the infarct is less than 8 hours old, urgent CABG is considered with mortality rate about 30%. In such patients, if cardiac damage is overwhelming and irreversible cardiac transplantation and bridging with artificial heart will be the appropriate choice. In post-infarction VSD, the mortality rate of patients treated medically is very high about 85%by the end of the second week, so, it is considered as a surgical emergency with inhospital mortality rate about 43%In patients with post-infarction acute MR, urgent surgery is indicated for papillary muscle rupture. Currently, surgery is avoided in acute MR secondary to generalized ventricular dysfunction. In acute MR due to posterior papillary muscle dysfunction , thrombolysis and or PTCA is indicated first. If regurgitation persists, a valve-coronary operation is undertaken. In left ventricular free wall rupture, death is almost always the end result, but , in rare cases pericardiocentesis was done to relief the tamponade and the patients were transferred immediately to the operating room to close the defect.Repair of left ventricular aneurysm has become a standard procedure in cardiac surgery that can be done with an acceptable mortality (about 9%) and produce sustained symptomatic reliefRecently , surgery has an important role in control of ” drug- resistant malignant ventricular arrhythmias”.This is done either by subendocardial resection guided by pre and intra-operative electrical mapping of the heart to ablate the site of arrhythmia or by implantation of automatic defibrillator which terminates the arrhythmia once it occurs.