SUMMARY

Coronary heart disease is the leading cause of death both in the Czech Republic and worldwide. About 91 359 patients are in charge of practitioner due to acute myocardial infarction in the Czech Republic. After an acute myocardial infarction with ST elevation, early and successful myocardial reperfusion with the use of primary percutaneous coronary intervention (PCI), as first choice, is the most effective strategy for reducing the size of a myocardial infarct and improving the clinical outcome. The process of restoring blood flow to the ischemic myocardium, however, can induce injury. This phenomenon, termed myocardial reperfusion injury, can paradoxically reduce the beneficial effects of myocardial reperfusion. Myocardial reperfusion leads to 4 types of cardiac dysfunction: myocardial stunning, reperfusion arrhythmias, no-reflow phenomenon and lethal reperfusion injury. Many factors may contribute to the reperfusion injury. The principal mechanisms of myocardial reperfusion injury are oxygen free radicals and neutrophils. On the basis of the multiplicity of mechanisms that seem to be involved in the creation of reperfusion injury, a number of pharmacological agents have been investigated for their cardioprotective effect. These include oxygen free radicals scavengers, inhibitors of neutrophils, statins, ACEI and others. Another injury-limiting interventions are nonpharmacological (i.e. ischemic pre- and postconditioning, hypothermia, mechanical device for prevention of microembolisation) and alternative (i.e. palm oil, acupuncture).