Introduction: Matrix metalloproteinases (MMPs) are zinc-containing metalloproteins which take part in many processes associated with extracellular matrix (ECM) remodeling. These enzymes participate in most processes degrading connective tissue during ontogenesis. Changes in MMP expression and activity can be observed in most inflammato ry, degenerative, and malign processes. Methalothionein also belongs to the group of zinc-dependent metalloproteins and it is involved in metal trafficing, detoxification or protection of cells against reactive oxygen species.
Aim: The aim of th is study was to analyze MMP and metallothionein in various experimental models of caridac tissue remodeling (under hypoxia and methamphetamine administration) and in groups of patiens with dislipoproteinemia and traumatic brain injury.
Methods: Laboratory rats were exposed to 1) hypoxia for 3 weeks and treated with MMP inhibitor 2) hypoxia and hypoxic hypercapnia for 4 days. 3) ln another experimental set methamphetamine was aplicated to rats for 9 weeks. 4) A group of patiens with dyslipoproteinemia was investigated before and after 1 month therapy by diet or hypolipidemics. 5) Blood samples were collected from patiens with traumatic brain injury during hospitalization. MMPs were analysed by zymography, immunochemical method, and mRNA analysis. Methallothionein was determinated by electrochemical method. Furthermore, protein profiling of cardiac tissue was performed in experimental animals, analysis of ECM proteins or individual collagens. Basic biochemical parameters of lipid metabolism were investigated in patients with dyslipoproteinemia.