2,3-BUTANEDIONE MONOXIME (BDM) PROTECTS NEONATAL RAT CARDIOMYOCYTES IN CULTURE FROM OXIDATIVE STRESS INDUCED BY DIFFERENT AGENTS

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BDM (2,3-butanedione monoxime) is an agent which reversibly stops the action of the heart. The muscle cells of a heart detached from the coronary circulation still work thanks to the properties of pacemaker cells. Such work in hypoxic conditions causes injuries. Therefore, the action of a detached heart awaiting for the transplantation must be reversibly stopped. For this purpose, the heart is kept cold, and in solutions of high potassium and low calcium ion concentrations. Studies on BDM indicate that hearts stored in its presence (concentrations of 10-25 mM) are less injured after reperfusion. The protective role of BDM is only partially understood. Besides inhibiting myosine ATP-ase, it also inactivates L-calcium channels. It is known that the injuries occur during the reperfusion of the hypoxgenated tissue. The role of reactive oxygen species in this process has been proven. It is not known whether BDM can take part in protecting cells from reactive oxygen species induced injuries. Our preliminary studies suggest that BDM has a protective role in cultured neonatal rat cardiomyocytes.