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The use of marginal donors in cardiac transplantation: effect of acute alcohol intoxication and cardiac death

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In a model of potential organ donor, cardiac death with a prolonged warm ischemic time shows a similar outcome in cardiac function after the heart transplantation compared with brain death. However in morphology and molecule level, big differ existed between brain death and cardiac death due to the different pathomechanisms of cardiac damage in both experimental groups. These changes included initial cardioprotection at the beginning and subsequent apoptosis after prolonged injury. In the present work we concluded that a certain cardiac damage to the graft was caused in both models. Even though the mechanisms show major differences at histologic and molecular levels, the important factor of cardiac function, which is the pivotal factor for postoperative outcome, shows no significant differences between the experimental groups. Therefore the topic of cardiac donation after cardiac death should also be critically reevaluated in a clinical context.

We demonstrated that after 1 hour ethanol induced myocardial contractile dysfunction and elevated plasma glucose concentration. Although these

parameters returned to near normal levels 6 hours and 24 hours after ethanol administration, morphological and molecular changes at the level of myocardium began to appear only at 24 hours. Moreover, diastolic dysfunction is also observed following acute ethanol administration and sustained during 24 hours. After heart transplantation in which donors received ethanol 6 hours or 24 hours prior to explantation, decreased myocardial contractility and relaxation were observed even though the global contractile function of the donor hearts recovers 6 hours after ethanol-administration. Oxidative stress, apoptosis, and mitochondrial dysfunction could predispose the donor hearts pump function in recipient to increased myocardial susceptibility to ischemia/reperfusion injury after transplantation. Further study is warranted to unveil the impact of acute-on-chronic alcohol ingestion on the outcome of ischemia/reperfusion injury after heart transplantation.