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HEART RATE LOWERING THERAPY IMPROVES MYOCARDIAL CELLS SURVIVAL AFTER MYOCARDIAL INFARCTION

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Objective To study the effect of ivabradine and the β -blocker atenolol on tissue morphology and myocardiocyte survival within left ventricular infarct region of infarcted rats.

Methods Rats were divided into MI group, MI+IVA group and MI+ATEN group. All rats were induced to myocardial infarction by complete ligation of the left coronary artery. Medical Treatment started after the induced myocardial infarction immediately. On the seventh day and the 28th day after myocardial infarction, the infarcted rats from each group were sacrificed to get the left ventricle. Masson's staining was employed to distinguish the infarction and no-infarction region. The infarction area, thickness of the scar and the amount of survival cardiomyocytes four weeks post-infarction were measured by digitalising graphic technic.

Results Evident cell necrosis, degeneration and collagen deposition were seen in left ventricular infarct region. Though there was no difference in infarct size among the three groups, MI+IVA group and MI+ATEN group had greater thickness of scar and larger amount of surviving cardiomyocytes within infarcted region.

Conclusion Heart rate reduction by HR lowering agents can increase the amount of vital cardiomyocytes in the infarct region, and this may help limit infarct expansion and reduce the potential of ventricular rupture.