**EFFECTS OF DIFFERENT β-ADRENERGIC RECEPTORS ON CARDIAC FUNCTION IN HYPOXIC STRESS RATS**

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**Objective:** To explore the effect of different β-adrenergic receptors (β-AR) on the left and right ventricular systolic and diastolic functions in rats under acute hypoxic stress.

**Method:** The rats were randomly divided into 4 group (*n*=7): Control group, non-selected β-AR blocker Propranolol group, selected β1-AR blocker Atenolol group and selected β2-AR blocker ICI 118,551 group, and then treated with normoxia (20.9 % O2, 79.1 % N2) and hypoxia (15 % O2, 85 % N2) respectively at the altitude of 2260 m (Xining, China). The heart rate (HR), the left ventricular systolic blood pressure (LVSP), the right ventricular systolic blood pressure (RVSP), the maximum rate of left and right ventricular pressure (± dP/dtmax) were monitored, and the arterial blood gas in normoxia and hypoxia were compared to explore the effect of β-AR on the left and right ventricular systolic and diastolic functions in acute hypoxic stress rats. **Results:** Under normoxia condition, the LVSP, ±dP/dtmax of left ventricular were decreased in Propranolol group, Atenolol group and ICI 118,551 group, the RVSP, ±dP/dtmax of right ventricle were decreased in Propranolol group and Atenolol group (*P*<0.05). Under hypoxia condition, the PaO2, LVSP, ±dP/dtmax of left ventricle were decreased in all groups, and the ±dP/dtmax of right ventricle was increased in all groups (*P*<0.05), also the degree of index change in Control group was more obvious than that in Propranolol group and Atenolol group.

**Conclusion:** The activation of β1-AR is an important compensatory regulation for heart function during hypoxic stress. However, the compensatory enhancement of right heart function under acute hypoxia condition which through tonogenic dilation is more significant for maintaining the normal circulating blood flow.