

Increase of cardiac M2-muscarinic receptor gene expression in type-1 but not in type-2 diabetic rats

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摘要

Abstract

Changes of cardiac M2-muscarinic receptor (M2-mAChR) gene expression was investigated in type-1 like diabetic rats induced by intravenous injection of streptozotocin (STZ) and type-2 like diabetic rats induced by fed with fructose-rich chow. Systolic blood pressure (SBP) in STZ-diabetic rats was significantly lower than that in age-matched non-diabetic rats, while the SBP in type-2 like diabetic rats was higher than in non-diabetic rats. Also, the mRNA or protein level of cardiac M2-mAChR in STZ-diabetic rats was markedly higher than non-diabetic rats, but it was not observed in type-2 like diabetic rats as compared to age-matched non-diabetic rats. Arecaidine propargyl ester (APE), the agonist of M2-mAChR, produced a marked reduction of heart rate in STZ-diabetic rats but made less influence on heart rate in fructose-fed rats or non-diabetic rats. The results suggest that cardiac M2-mAChR gene expression is raised in type-1 like diabetic rats but not in type-2 like diabetic rats, this difference mainly due to hyperglycemia, for the production of hypotension in diabetic disorders.