

论文

间硝苯地平对老龄肾性高血压大鼠心肌和脑微粒体Na⁺,K⁺-ATP酶,Ca²⁺-ATP酶和Mg²⁺-ATP酶活性的影响

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摘要:

间硝苯地平(*m*-Nif,ig20mg·kg⁻¹·d⁻¹持续给药9周)可显著降低老龄肾性高血压大鼠(RVHR)血压和左室重量(*P*<0.01),增高心、脑微粒体Na⁺,K⁺-ATP酶和Ca²⁺-ATP酶活性(*P*<0.01),降低Mg²⁺-ATP酶活性,体外量效关系研究发现,*m*-Nif在较高剂量(10~1000μmol·L⁻¹)时可增高RVHR心脑微粒体Na⁺,K⁺-ATP酶和Ca²⁺-ATP酶活性,且随剂量增加而增高。上述结果表明,*m*-Nif可改善老龄RVHR心脑微粒体Na⁺,K⁺泵和Ca²⁺泵功能。

关键词: 间硝苯地平 肾性高血压 ATP酶 钙

EFFECTS OF *m*-NIFEDIPINE ON ACTIVITIES OF NA⁺,K⁺-ATPase,Ca²⁺-ATPase AND MG²⁺-ATPase IN MYOCARDIUM AND BRAIN OF ELDERLY RENOVASCULAR HYPERTENSIVE RATS

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Abstract:

Clipping the left renal artery induced marked hypertension and hypertrophy of the left ventricle in elderly (24-month-old) rats. *m*-Nifedipine(*m*-Nif,ig20mg·kg⁻¹,qd×9wk)significantly decreased the systolic blood pressure and the weight of the left ventricle in the renovascular hypertensive rats(RVHR).In RVHR,the activities of Na⁺,K⁺-ATPase and Ca²⁺-ATPase in microsomes of the myocardium and brain were reduced significantly compared with those in sham-operated rats.*m*-Nif was found to increase the activities of these enzymes of the myocardium and brain in elderly RVHR(*P*>0.01).*m*-Nif 10~1000μmol·L⁻¹ *in vitro* elevated the activities of Na⁺,K⁺-ATPase and Ca²⁺-ATPase in the myocardium and brain of RVHR.On the contrary,the myocardial and cerebral Mg²⁺-ATPase activities were higher in RVHR than in sham-operated rats.*m*-Nif was shown to depress markedly this enzyme both *in vivo* and *in vitro*.These results indicate that *m*-Nif can improve the activities on Na⁺,K⁺-ATPase and Ca²⁺-ATPase in the myocardium and brain in elderly RVHR.

Keywords: Renovascular hypertension Adenosine triphosphatase Calcium *m*-Nifedipine

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