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论文

重组微纤维蛋白溶酶对大鼠急性脑梗死的治疗作用

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摘要：

研究了重组微纤维蛋白溶酶(recombinant microplasmin， μ-plasmin)对大鼠急性脑梗死的治疗作用及其安全性，并与目前临床应用的重组组织型纤溶酶原激活物(recombinant tissue plasminogen activator，rt-PA)进行比较。采用大鼠自体血栓注入脑中动脉法造大脑中动脉阻塞(middle cerebral artery occlusion，MCAO)模型及动脉导管法给药，12 h后对神经功能症状进行评分，计算脑梗死体积，测定出血时间(bleeding time，BT)，血清中纤维蛋白(原)降解产物(fibrin degradation product，FDP)含量，血浆中凝血酶时间(thrombin time，TT)、凝血酶原时间(prothrombin time，PT)及纤维蛋白原(fibrinogen，FIB)含量。另外， μ-plasmin可显著降低神经功能缺损评分和脑梗死体积；显著升高FDP含量；对BT、TT及PT均无显著影响；FIB含量与模型组比较有一定下降，而与假手术组比较无显著差异。结果提示， μ-plasmin对大鼠急性脑梗死有很好的治疗作用，对纤溶系统和凝血系统没有显著影响，提示μ-plasmin可能不会引起出血反应，其安全性可能优于rt-PA。

关键词： 重组微纤维蛋白溶酶 重组组织型纤溶酶原激活物 脑梗死 大脑中动脉阻塞 出血

Effect of recombinant microplasmin on acute cerebral infarction in rats

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Abstract:

The effect of recombinant microplasmin (μ-plasmin) on acute cerebral infarction was evaluated in rats, and compared with recombinant tissue plasminogen activator (rt-PA). After the model of middle cerebral artery occlusion (MCAO) was established by autologous blood clots, different doses of μ-plasmin (2.5, 5, and 10 mg·kg^{-1}) were administered into the thrombus intra-arterial. Twelve hours after administration of μ-plasmin, the neurological deficit score of rats was recorded and the infarct volumes were determined. Bleeding time (BT), fibrin degradation product (FDP) concentration in serum and thrombin time (TT), prothrombin time (PT) and fibrinogen (FIB) concentration in plasma were tested after administration. Intra-arterial administration of μ-plasmin could reduce significantly neurological deficit score and infarct volumes in MCAO rats. FDP concentration increased significantly as compared with model group. There were no significant differences in TT, PT and BT. FIB concentration reduced markedly as compared with model group, but had no significant difference as compared with sham group. The results suggest that μ-plasmin is effective in treatment of rat acute cerebral infarction, and has no significant influence on fibrinolytic system and blood clotting system, indicating that μ-plasmin may be useful for treatment of acute cerebral infarction, and not lead to hemorrhage. μ-Plasmin seems to be distinguished from clinical used rt-PA by its no hemorrhage effect.

Keywords: recombinant tissue plasminogen activator cerebral infarction middle cerebral artery occlusion hemorrhage recombinant microplasmin

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