

论著

## 三乙酰莽草酸对局灶性脑缺血再灌注后脑组织损伤和血液流变学的作用

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收稿日期 2000-1-31 修回日期 网络版发布日期 2009-2-23 接受日期 2000-7-13

**摘要** 研究了三乙酰莽草酸(TSA)对局灶性脑缺血再灌注后脑组织损伤保护作用及对血液流变学变化的影响。线栓塞法阻断右侧大脑中动脉3 h, 然后将线抽出恢复血流。再灌注21 h后, 脑梗死范围达对侧半球的(36±8)%。脑缺血开始和缺血后60 min分别ig TSA 100 mg&#8226;kg<sup>-1</sup>, 可使脑梗死范围减少至对侧半球的(27±8)%(*P*<0.05), 并降低大鼠的神经症状评分。同样时间ig尼莫地平5 mg&#8226;kg<sup>-1</sup>也可减少脑梗死范围, 降低神经症状评分。24 h脑缺血再灌后红细胞变形能力下降, 红细胞聚集程度, 血液粘度及血浆粘度皆明显提高。TSA 100 mg&#8226;kg<sup>-1</sup>组红细胞聚集, 低切变率(5—1 s<sup>-1</sup>)下的血液粘度和血浆粘度基本降至正常对照组水平, 但红细胞变形能力仍有一定降低。尼莫地平组可见高切变率(200—30 s<sup>-1</sup>)下的全血粘度降低。结果表明, TSA对局灶性脑缺血再灌注引起的脑损伤有一定的保护作用, 并能改善血液流变学状态。

**关键词** [三乙酰莽草酸](#) [脑缺血](#) [脑梗死](#) [再灌注损伤](#) [红细胞变形性](#) [红细胞聚集](#) [血液粘度](#) [尼莫地平](#)

分类号 [R973+.2](#)

## Effects of triacetylshikimic acid on reperfusion-induced brain damage and blood rheological changes of rats subjected to focal cerebral ischemia

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### Abstract

Effects of triacetylshikimic acid (TSA) on brain damage and blood rheological changes after ischemia-reperfusion induced by inserting a monofilament suture into internal carotid artery to block the origin of middle cerebral artery and withdrawn of the suture were studied. The results indicated that infarct size of the brain was (36±8)% of contralateral hemisphere after 21 h reperfusion following 3 h cerebral ischemia. TSA(100 mg&#8226;kg<sup>-1</sup>, ig) immediately and 60 min again after the onset of ischemia, reduced the infarct size to (27±8)% of contralateral hemisphere, and decreased the neurological deficit scores. Nimodipine (5 mg&#8226;kg<sup>-1</sup> ig, the same time as TSA) was shown to reduce infarct size and neurological deficit scores. Focal cerebral ischemia-reperfusion induced a significant decrease in erythrocyte deformability, an increase in erythrocyte aggregation and blood viscosity. TSA inhibited the erythrocyte aggregation, decreased blood viscosity under low shear rate (5—1 s<sup>-1</sup>). Nimodipine decreased the blood viscosity under higher shear rate (200—30 s<sup>-1</sup>). The results suggest that TSA have protective effects on brain damage and improving effects on blood rheology after cerebral ischemia-reperfusion.

**Key words** [triacetylshikimic acid](#) [cerebral ischemia](#) [cerebral infarction](#) [reperfusion injury](#) [erythrocyte deformability](#) [erythrocyte aggregation](#) [blood viscosity](#) [nimodipine](#)

DOI:

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