

论著

当归总苯酐对大鼠脑缺血再灌注损伤的改善作用

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摘要 目的 研究当归总苯酐对脑缺血再灌注损伤的改善作用。方法 SD大鼠口服给予当归总苯酐0.05, 0.1和0.2 g·kg⁻¹, 每日1次, 连续7 d。第7天给药30 min后采用线栓法制备大鼠大脑中动脉阻断再灌注损伤模型, 于再灌注前、再灌注2和24 h进行神经功能评分, 计算脑梗死面积和脑水肿比例, 检测丙二醛(MDA)含量和超氧化物歧化酶(SOD)活性。另同样给予药物处理的大鼠于第7天股静脉注射10%高分子右旋糖酐5 ml·kg⁻¹, 检测脑膜微循环血流量。结果 与假手术组相比, 模型组神经功能评分增高, 脑梗死面积明显增加, 出现脑水肿, MDA含量增加, 同时SOD活性降低。与模型组比较, 当归总苯酐0.1和0.2 g·kg⁻¹组神经功能评分分别降低了20.4%和28.7% ($P < 0.05$); 再灌注2 h当归总苯酐0.05, 0.1和0.2 g·kg⁻¹可使神经功能评分分别降低15.5%, 28.7%和29.9% ($P < 0.01$); 再灌注24 h则分别降低11.9%, 25.3%和37.4% ($P < 0.01$), 脑梗死面积分别缩小9.8%, 41.7%和49.6% ($P < 0.05$); 脑水肿程度分别减轻9%, 42%和52% ($P < 0.01$); 同时使脑组织MDA含量降低, 最大降低幅度为62.0% ($P < 0.01$); SOD活性升高, 最大升高幅度为77.1% ($P < 0.01$)。与假手术组相比, 模型组脑血流量明显减少; 与模型组相比, 给予当归总苯酐可使大鼠脑血流量出现不同程度的回升 ($P < 0.05$), 但仍明显低于假手术组 ($P < 0.05$)。结论 当归总苯酐对大鼠脑缺血再灌注损伤具有明显的改善作用。

关键词 [当归](#) [当归总苯酐](#) [再灌注损伤](#), [脑](#) [脑膜微循环](#)

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Protective effect of *Angelica sinensis* total phthalide against cerebral ischemia/reperfusion injury in rats

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Abstract

OBJECTIVE To study *Angelica sinensis* total phthalide (ASTP) in terms of cerebral ischemia protection. **METHODS** SD rats were orally given ASTP 0.05, 0.1 and 0.2 g·kg⁻¹, once a day, for 7 d. On the 7th day, 30 min after administration, line occlusion was used to prepare middle cerebral artery occlusion before the reperfusion injury model was established. Before reperfusion, 2 and 24 h after reperfusion, the neural function score was calculated, the area of cerebral infarction and the cerebral edema ratio were measured before the content of MDA and the activity of SOD were detected. Also, the treated rats were injected with 10% molecular weight dextran 5 ml·kg⁻¹ through the femoral vein on the 7th day. The neurological function score was detected. **RESULTS** Compared with the sham operation group, the neurological function score of model group increased significantly, so did the area of cerebral infarction. Brain edema occurred at the same time. The increase of MDA content was accompanied by the decreased activity of SOD. Compared with model group, the neurological function score of ASTP 0.1 and 0.2 g·kg⁻¹ group decreased by 20.4% and 28.7% ($P < 0.05$). When reperfused for 2 h, the neurological function score of ASTP 0.05, 0.1 and 0.2 g·kg⁻¹ group decreased by 15.5%, 28.7% and 29.9% ($P < 0.01$), respectively. Twenty-four hours after reperfusion, the neurological function score of ASTP 0.05, 0.1 and 0.2 g·kg⁻¹ decreased by 11.9%, 25.3% and 37.4% ($P < 0.01$), respectively. The area of cerebral infarction was reduced by 9.8%, 41.7% and 49.6% ($P < 0.05$), respectively, and brain edema was reduced by 9%, 42% and 52%, respectively. At the same time, the content of MDA decreased, the largest decrease rate being 62%. The activity of SOD increased, and the maximum was 77.1%. Compared with sham group, the pial vascular blood flow of model group decreased significantly. Compared with model group, the pial vascular blood flow of ASTP groups improved significantly ($P < 0.01$), but still lower than that of sham group ($P < 0.05$). **CONCLUSION** ASTP has protective effect on cerebral ischemia-reperfusion in rats.

Key words [Angelica sinensis \(Oliv.\) Diels](#) [Angelica sinensis total phthalide](#) [reperfusion injury](#) [cerebral](#) [meningeal microcirculation](#)

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