

Effects of the combination therapy with enalapril and alpha tocopherol on brain injury and neurological outcome following ischemia in experimental model of transient focal cerebral ischemia in male rats

Abstract

Background and objectives: Ischemic stroke has complex pathophysiology and its treatment with single neuroprotective drugs has so far failed. Combination therapy could produce amplified protective effects via different mechanisms. We examined the neuroprotective effects of enalapril and/or alpha tocopherol against sensorimotor dysfunctions of ischemic stroke.

Methods: Forty male Sprague-Dawley rats were randomly divided into five groups (n=8): sham, control ischemic, enalapril (0.03 mg/kg), alpha tocopherol (30mg/kg) and enalapril plus alpha tocopherol treated groups. Transient focal cerebral ischemia (90 min) was induced by occlusion of the left middle cerebral artery that followed by 24h reperfusion period. Infarct volumes were detected by TTC coloring technique and motor dysfunctions investigated by special neurological score.

Results: Induction of cerebral ischemia in the control group produced sever neurological deficits in conjunction with considerable cerebral infarctions. Compared with use of enalapril or alpha tocopherol alone, the combined treatment of them significantly reduced infarct volume ($P<0.05$).

Conclusion: Enalapril combined with alpha tocopherol can produce the augmented protection against ischemic brain injury following focal cerebral ischemia in rat.

Keywords: Stroke, enalapril, alpha tocopherol, rat.