

عنوان مقاله:

The Effect of Enalapril on Brain Edema and Cytokine Production Following Transient Focal Cerebral Ischemia in Mice

محل انتشار:

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خلاصه مقاله:

Introduction: Cytokines production as one of the inflammatory pathways in CNS is responsible for most brain damages following ischemia. On the other hand, during inflammation and brain ischemia, most of the renin-angiotensin components (RAS) increase locally. While it is established that blockade of RAS especially AT₁ receptors has a protective effect on ischemia, the interaction of cytokines and angiotensin II is not well understood. This study was designed to investigate the effect of angiotensin II inhibitor on cytokine production as well as brain edema. **Method:** Fifty-four male mice were randomly divided into 5 groups of normal, Sham operated, ischemia, Pretreatment with enalapril (high dose), and Pretreatment with enalapril (low dose) for the measurement of IL-1 β and TNF- α in the brain and blood serum by ELISA method. **Results:** Ischemia caused a significant increase in water content and neurological deficit scores as well as cytokine levels. Treatment with enalapril had paradoxical effect on ischemia. In high dose, 85% of the animals showed convulsion after reperfusion. The IL-1 β in serum and neurological deficit scores of this group were high, in accordance with clinical signs. In contrast, the low dose of enalapril, had protective effect on ischemia. It caused a significant reduction in brain concentration of both IL-1 β and TNF- α ($P < 0.05$) and improved significantly the neurological deficit scores and brain water content as well. ($P < 0.05$). **Conclusion:** Enalapril as an ACE inhibitor, has a dual effect on stroke. At low dose, it has a protective role at least in part by suppressing the local production of pro-inflammatory cytokines while, at high dose, it increases the inflammation by an unknown mechanism. K

کلمات کلیدی:

Ischemia, Cytokines, ACE inhibitors, Mice

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