

Original Paper

Effect of ethanol on microvascular alterations in the brain cortex of epileptic mice treated by valporic acid

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Abstract

Background and Objective: Antiepileptic drugs can partially control or achieve the convulsion. There are controversial issues about the use and effect of ethanol to control epileptic convulsion seizures. This study was done to determine the effect of ethanol on microvascular alterations in the brain cortex of epileptic mice treated by valporic acid (VPA).

Materials and Methods: In this experimental study, 36 BALB/c mice were allocated randomly into six groups including: 1-PTZ (Pentylentetrazol), 2- Ethanol, 3- VPA+ PTZ, 4- ethanol + PTZ, 5-ethanol+ VPA+ PTZ and control groups. The animal brains were excluded and stained by Hematoxylin and eosin. Thirty-six optical microscopic field from each group were selected and microvascular count were determined. Immunohistochemical method was used for detection of injuries in the vascular brain tissue.

Results: Mean number of brain microvascular cortex significantly increased in PTZ+ethanol and PTZ+ethanol+VPA groups in compare to controls ($P<0.05$). Infiltration and thrombophlebitis were observed in vessels and cortical brain tissues in mice which received ethanol and PTZ. Proliferations in endothelial vascular cells were seen in PTZ and VPA+ethanol groups. Immunohistochemical method showed the endothelial cells of PTZ+ethanol groups were more stained in compare to the other experimental groups.

Conclusion: Ethanol + PTZ cause cellular infiltration and damage to the cortical brain vessels although VPA reduces histological alterations.

Keywords: Pentylentetrazol, Valporic acid, Ethanol, Microvascular, Brain

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