

عنوان مقاله:

Protective Effects of Captopril and Valsartan on Memory Function and Gene Expression of Brain-Derived Neurotrophic Factor (BDNF) in Experimental Model of Alzheimer's Disease in Rats

محل انتشار:

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نویسندگان:

یاسمن ارجمند عباسی - *Dept. of Biology, Science and Research Branch, Islamic Azad University, Tehran, Iran*

محمد تقی محمدی - *Dept. of Physiology and Biophysics, Faculty of Medicine, Baqiyatallah University of Medical Sciences, Tehran, Iran*

اکرم عیدی - *Dept. of Biology, Science and Research Branch, Islamic Azad University, Tehran, Iran*

خلاصه مقاله:

Background and Objective: The use of AT₁ and ACE inhibitors, as antihypertensive drugs, improves memory function in the elderly people with hypertension and vulnerable to Alzheimer's disease (AD). Therefore, the aim of this study was to evaluate effects of oral administration of Captopril and Valsartan on memory function and expression of brain-derived neurotrophic factor (BDNF) in experimental model of AD in rats. **Materials and Methods:** Forty adult male Wistar rats were assigned to five groups Control, Vehicle, Alzheimer, Captopril and Valsartan treated groups. AD in the Alzheimer and treated groups was induced using bilateral i.c.v. injection of streptozotocin (3mg/kg) in days one and three. Treated groups received captopril (50mg/kg) and valsartan (30mg/kg) orally for 25 days. At the end of the experiment, memory function was tested using T-Maze and gene expression of BDNF was assessed by RT-PCR technique. Finally, histopathological damages were evaluated using H&E and toluidine blue staining methods. **Results:** Time of latency and error number for food searching was 73.4 ± 15.5 Sec and 11.8 ± 1.2 in the control group respectively, induction of AD significantly increased these issues (216.2 ± 57.9 Sec, 16.2 ± 2.9). Histopathological damages (necrotic neurons and tissue vacuolization) along with reduction of BDNF mRNA were obviously observed in rats of the Alzheimer group. Captopril and valsartan treatment led to a decrease in the time of latency (46 and 86%) and error number (31 and 43%) and improved histopathological damages and increased BDNF mRNA. **Conclusion:** Our findings indicated that inhibition of central renin-angiotensin improves memory function and neuronal damages during AD disease. It appears that activation of this system inhibits gene expression of BDNF.

کلمات کلیدی:

Key words: Renin-angiotensin System, Captopril, Valsartan, BDNF, Alzheimer's Disease

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