

Original Paper

Effect of grape seed extract on improving memory and learning impairment induced by streptozotocin in male rat

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Abstract

Background and Objective: Alzheimer's disease is an age-related disease that is characterized by dementia and loss of neurons in the brain. It has been shown that brain oxidative stress plays an important role in aging and neurodegenerative disorders. This study was done to evaluate the effect of grape seed extract (GSE) on memory impairment induced by intracerebroventricular (ICV) injection of streptozotocin (STZ) in animal model of Alzheimer's disease.

Methods: In this experimental study, Eighty adult male Wistar rats were randomly allocated into control, sham, grape seed extract (100 mg/kg/bw, 30 days, orally) plus STZ and STZ plus grape seed extract. Animals memory were evaluated using Morris water maze, shuttle box and T maze tests.

Results: Intracerebroventricular injection of STZ caused memory corruption in all tests. Administration of GSE before and after of administration of intracerebroventricular STZ in the Morris water maze test, significantly reduced latency to get to the hidden platform compared to Alzheimer's group ($P < 0.05$). The latency to enter the dark compartment in passive avoidance memory test significantly increased in compare to animal model of Alzheimer's disease ($P < 0.05$). The selection of the right arm of the T-maze test in animals that received grape seed extract before and after of STZ injection significantly increased compared to animal model of Alzheimer's disease ($P < 0.05$).

Conclusion: Grape seed extract has important effect in prevention and improving memory impairment induced by intracerebroventricular injection of STZ.

Keywords: Alzheimer's disease, Grape seed, Streptozotocin, Rat

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