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## Effects of chronic administration of memantine on okadaic acid induced spatial short-term memory impairment

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Alzheimer's Disease (AD) is a neurodegenerative disease that causes progressive cognitive and behavior impairment in the elderly. It is widely believed that changes in the cerebral activity of protein phosphatases have been implicated in the pathogenesis of AD. Okadaic acid (OA) is a potent and selective inhibitor of protein phosphatases. OA induced memory deficit and elevation of  $Ca^{2+}$  was found to be correlated with neurotoxicity and N-methyl-D-aspartate (NMDA) receptor emerged as a plausible link. According to available data, the NMDA receptor antagonists (including memantin) have the potential to perform neuroprotective role in neurodegenerative processes caused by  $Ca^{2+}$  ionotoxicity. In the present study, the possible beneficial effect of memantine on the Okadaic Acid (OA) induced spatial short-term memory impairment was examined in spatial alternation task. OA was dissolved in artificial cerebrospinal fluid (aCSF) and injected intracerebroventricularly (ICV) 200 ng in a volume of 10  $\mu$ l bilaterally. Vehicle control received aCSF ICV bilaterally. Control and OA injected rats were divided into 2 subgroups injected i.p. with saline or memantine (5 mg/kg.) Memantine or saline were given daily for 13 days starting from the day of OA injection. Behavioral study showed that bilateral ICV microinjection of OA induced impairment in spatial short-term memory and chronic administration of memantine effectively attenuated OA induced spatial short-term memory impairment. Therefore, ICV injection of OA can be used as an experimental model to study mechanisms of neurodegeneration and define novel therapeutics targets for AD pathology.

### Biography

Mariam Chighladze has completed her PhD from Saint Andrew the First-Called Georgian University of the Patriarchate of Georgia. She is working as a Laboratory Assistant at Ivane Beritashvili Center of Experimental Biomedicine-Laboratory of Behavior and Cognitive Functions. She has published more than 4 papers.

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