

Behavioral Assessment of the Role of Brain 5-HT4 Receptors on the Memory and Cognitive Performance in a Rat Model of Alzheimer Disease

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Abstract : Introduction: Alzheimer's disease (AD) is a neurodegenerative disorder characterized by progressive memory and cognitive performance. Recently, an involvement of the serotonergic system and their receptors are suspected in the AD progression. In the present behavioral study, the effects of BIMU (selective 5-HT4 receptor agonist) on cognition and memory in the rat model of AD was investigated. Material and Methods: The animal model of the AD was induced by intracerebroventricular (Icv) injection of amyloid beta (A β) in adult male Wistar rats. Animals were divided into experimental groups included control, sham, A β , A β +BIMU groups. The treatment substances were icv injected (1 μ g/ μ L) for thirty consecutive days. Then, novel object recognition (NOR) and passive avoidance learning (PAL) tests were applied to investigate memory and cognitive performance. Results: A β decrease the discrimination index of NOR test. Also, it increases the time spent in the dark compartment during PAL test, as compared with sham and control groups. In addition, compared to A β groups, BIMU significantly increased the discrimination index of NOR test and decreased the time spent in the dark compartment of PAL test. Conclusion: These findings suggest that 5-HT4 receptor activation prevents progression of memory and cognitive impairment in a rat model of AD.

Keywords : Alzheimer disease, cognition, memory, serotonin receptors

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