IMPAIRMENT OF OLFACTORY MEMORY IN AN ANIMAL ALZHEIMER MODEL


Physiology, Universidad Nacional Autónoma de México, México, Mexico

Introduction: Patients with Alzheimer disease present olfactory dysfunction in an early stage of the pathology. The aim of this study is to analyze the effect of intrahippocampal (HIPPO) injection of beta-AMY (25-35) on adult female Wistar rats evaluating their social recognition olfactory memory and spatial memory.

Methods: Adult ovariectomized Wistar Rats were injected in hippocampus (CA1). Rats were sacrificed and the brain extracted for immunohistochemistry or Western blot analysis.

Results: 24 h after betaAMY injection, animals showed impairment in the social recognition memory. The animals were unable to discriminate between familiar from the unfamiliar juvenile conspecific with a 60 min IEI. 15 days later, a complete recovery was observed. They showed impaired speed in locating a buried chocolate chip for 48 h post injection. Habituation test to different odors confirm that after HIPPO beta-amyloid injection, animals are unable to discriminate between two or more odors. They showed also impairment in a spatial memory task as long as 8 days after the injection. Lipoperoxidation was measured after beta-amyloid injection and found higher levels of lipoperoxidation. Western blot experiment confirms lipoperoxidation results. Immunohistochemistry showed neurodegeneration in CA1 hippocampus field

Conclusions: Our results show the role of HIPPO in the social recognition memory. Oxidative stress acts as the mechanism responsible of olfactory impairment in this model.

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