

Poster presentation

Post-training nitric oxide synthase inhibition in the CA1 region of rat hippocampus does not impair spatial memory consolidation

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Background

The highest levels of Nitric oxide (NO) throughout the body are found in neurons, where NO functions as a neuromodulator and appears to be involved in a variety of different neuronal functions, including learning and memory [1]. A number of behavioral studies have provided evidence for the involvement of NO in the early stages of memory processing [2,3]. Considering the critical role of the hippocampus in the processing of spatial information [4], the present study was designed to determine if post-training NO synthase inhibition in the CA1 region of rat hippocampus could affect spatial memory consolidation.

Materials and methods

Adult male rats were implanted with bilateral intra CA1 guide cannulae and were trained in the standard hidden platform version of the Morris water maze and given immediate post-training infusions of vehicle (saline) or N-omega-nitro L-arginine methyl ester (L-NAME), an NO synthase inhibitor (50,100 and 200 microgram / 0.5 micro liter) through the cannulae. A probe trial was done 24 hours later to test memory for the platform location.

Results

All rats learned to find the platform on Day 1. But, there was no significant difference in spent time and traveled distance near the trained platform location and quadrant entries during the probe trial among the groups.

Conclusions

This work demonstrates that local NO synthase inhibition failed to affect performance in the rats that had previously acquired the task. Therefore it seems that NO synthesis in the CA1 hippocampal region is not crucial in consolidation of spatial memory in the Morris water maze learning task.

References

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