Morris water maze

The Morris water navigation task, also known as the Morris water maze (should not be confused with water maze), is a behavioral procedure mostly used with rodents. It is widely used in behavioral neuroscience to study spatial learning and memory.

It enables learning, memory, and spatial working to be studied with great accuracy, and can also be used to assess damage to particular cortical regions of the brain.

It is used by neuroscientists to measure the effect of neurocognitive disorders on spatial learning and possible neural treatments, to test the effect of lesions to the brain in areas concerned with memory, and to study how age influences cognitive function and spatial learning.

The task is also used as a tool to study drug-abuse, neural systems, neurotransmitters, and brain development.

A study investigated the effects of a synthetic cannabinoid receptor agonist WIN55,212-2 (WIN) on vascular dementia (VaD), and molecular mechanisms of the effects. VaD model was induced by 2-vessel occlusion (2VO). Spatial reference learning was evaluated by the Morris water maze, and recognition memory was assessed using the novel object recognition test. Autophagy-related proteins [microtubule-associated protein 1 light chain 3 (LC-3) and Beclin-1] were examined by immunohistochemistry and Western blot. Caspase-3 was detected by Western blot. Inflammatory factors, tumor necrosis factor alpha (TNF- α) and interleukin 1 beta (IL-1 β), were estimated by reverse transcription-polymerase chain reaction (RT-PCR) and Western blot. VaD increased the levels of LC-3, Beclin-1, and inflammatory factors, which were reversed by chronic treatment with WIN. WIN decreased the expression of Caspase-3, and improved the learning and memory impairment of VaD rats. These data indicate that WIN exerts a neuroprotective effect on the cognitive deficits of VaD rats, which may be associated with the suppression of excessive autophagy and inflammation ¹⁾.

1)

Wang DP, Yin H, Kang K, Lin Q, Su SH, Hai J. The potential protective effects of cannabinoid receptor agonist WIN55,212-2 on cognitive dysfunction is associated with the suppression of autophagy and inflammation in an experimental model of vascular dementia. Psychiatry Res. 2018 Jun 14;267:281-288. doi: 10.1016/j.psychres.2018.06.012. [Epub ahead of print] PubMed PMID: 29945070.

From: https://neurosurgerywiki.com/wiki/ - **Neurosurgery Wiki**

Permanent link: https://neurosurgerywiki.com/wiki/doku.php?id=morris_water_maze

Last update: 2024/06/07 02:55

