

Spatial memory is often studied using spatial tasks originally developed for animals, such as the Morris water maze and the Carousel maze tasks. Both tasks have an important role in the process of identification of brain areas crucial for spatial memory, and also in pharmacological research of animal models of neuropsychiatric diseases. In recent years considerable attention has been devoted to the research and treatment of cognitive impairment in schizophrenia. Comparative research addressing cognitive abilities of both animals and patients in similar tasks, could therefore lead to verification of the predictive and face validity of animal models of this complex disorder. The aim of this study was to create virtual analogues of these tasks, which would allow this comparative approach. This thesis first describes the experiment testing the performance of an animal model of schizophrenia induced by the application of dizocilpine (MK-801) in reversal version of both mentioned spatial tasks, in order to assess mental flexibility and learning abilities affected in schizophrenia. Other two experiments present the findings of the two virtual analogues tested in the first episode of schizophrenia patients. Our results confirm the presence of deficits in spatial memory and mental flexibility, functions dependent on hippocampal and prefrontal areas. These results are discussed in context of previous studies in animal model of schizophrenia. Finally, the importance of assessment of spatial abilities is discussed in the context of quality of life and global functioning of schizophrenia patients.