

Acoustic range magnetic stimulation improves learning and memory function in genetically prone to audiogenic seizure rats

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Deterioration of the cognitive function is associated with epilepsy. Antiepileptic drugs lead to memory damage. Therefore, we decided to study effects of acoustic range magnetic stimulation (MS) on learning and memory functions in genetically prone to audiogenic seizure rats (GEPRs) and inbred white rats (n=14) by the use of a multi-branch maze. For this task a part of GEPRs and a part of inbred rats were radiated with MS. MS – 10000 Hertz frequency, 1,5 m/Tesla, during 5 days, 20 min per day changed behavioral seizure manifestations in GEPRs. MS decreased the number of errors (getting in the deadlock branch) that the rat was making to reach the destination and the time needed for passing the maze in both groups, especially in GEPRs. The time needed to reach the destination was less in GEPRs ($p \leq 0.05$) compared to inbred ones. We assumed that MS decreases anxiety and enhances exploratory activity of the GEPRs. Audiogenic seizure rats have damaged memory. MS on these rats improve their memory and this may lead to a new treatment for memory improvement. In our study we showed the positive effects of MS on learning and memory functions. Therefore, acoustic range MS can apply partial or complete suppression of seizures and improvement of memory function. These results provide further insights for a better understanding of the fundamental neurobiology of memory. Research was supported by FR /257/7-270/14