

عنوان مقاله:

The interferential role of neurosteroid and GABAA receptor in interaction of CA1 and Pre-Limbic (PL) regions on spatial learning and memory of adult male rat

محل انتشار: هشتمین کنگره علوم اعصاب و پایه و بالینی (سال: 1398)

تعداد صفحات اصل مقاله: 2

نویسندگان:

Azadeh Gholaminejad - Institute for Cognitive Science Studies (ICSS), Tehran, Iran

Nasser Naghdi - Department of Physiology & Pharmacology, Pasteur Institute of Iran

Mohammad Nasehi - Cognitive and Neuroscience Research Center (CNRC), Tehran Medical Sciences Branch, Islamic Azad University, Tehran, Iran

Hamid Gholamipour - Department of Physiology & Pharmacology, Pasteur Institute of Iran

خلاصه مقاله:

Background and Aim : The hippocampus and prefrontal cortex are necessary for the process of learning and memory formation in rats. The high density of the GABAA receptors in the CA1 region of the hippocampus and Pre-Limbic (PL) area of the prefrontal cortex shows that there must be a relationship between the GABAA receptors and the process of learning and memory. In addition, there are conflicting data about the effect of testosterone (agonist GABAA) on learning and memory. In the present study, we investigated the impact of testosterone and GABAA receptor present in CA1 and PL regions on spatial learning and memory in adult male rats. Methods : 48 adult male rats were divided randomly into six groups that include sham (three groups), testosterone + bicuculline (80 µg testosterone 2 µg bicuculline /0.5 µl DMSO /side) in CA1, testosterone + bicuculline (80 µg testosterone 2 µg bicuculline /0.5 µl DMSO /side) in PL and testosterone + bicuculline (80 µg testosterone 2 µg bicuculline /0.5 µl DMSO /side) in CA1 + PL. Cannulae were bilaterally implanted into the CA1 and PL regions of the brain of rats, and then the drugs were injected before the initiation of daily training of animals in Morris water maze (MWM). Animals were trained for four consecutive days and, the probe and visible tests were performed on day five. The data were analyzed by t-test. All results are shown as mean ± S.E.M., p<0.05 was considered statistically significant for all comparisons. Results : The results showed combination of testosterone 80 g + bicuculline 2 g into the CA1, PL and CA1+PL regions increased the escape latency and caused impairment in spatial learning. Regarding the probe test, there was no significant difference in the time spent in target quadrant between the groups receiving the drugs administered into the CA1 region, but there was a marked decrease in the time spent in target quadrant between the experimental groups when the drugs were injected in the PL and CA1+PL of brain areas. There was no significant difference of performance among the groups on the visible platform day for escape latency or for traveled distance.Conclusion : Our findings indicate that microinjection of bicuculline after testosterone in the PL and CA1+ PL regions did not alleviate the spatial learning and memory impairment induced by testosterone. Likewise, microinjection of bicuculline after testosterone in the CA1 area was not able to mitigate the spatial learning impairment induced by testosterone; however, the spatial ... memory was improved when animals receiving injection of testosterone and

لینک ثابت مقاله در پایگاه سیویلیکا:

https://civilica.com/doc/976619

