

The administration of Galanin N-Terminal fragment (1-15) induces depressant- and anxiogenic effects in rats.

Galanin (GAL) is involved in several functions including mood regulation. Converging evidence implicates GAL and GAL receptors in anxiety- and depression-related behaviours. Intracerebroventricular (icv) GAL in animals results in enhanced depression-like behaviour in the forced swim test and in anxiolytic-like effects under stress conditions in the elevated plus maze. The GAL N-terminal fragment (1-15) [GAL(1-15)] also participates at central level and a differential role of GAL(1-15) compared with GAL has been proposed. In this work we have analysed if GAL(1-15) contributes to depression- and anxiety -related behaviours using four tests: forced swimming test (FST), elevated plus maze (EPM), open field (OF) and passive avoidance task (PA).

In the first set of experiments four groups of rats (n=8-10) were treated three different times with icv GAL(1-15) 1, 3 and 6nmol or vehicle 15 minutes before the tests. Behavioural assessments were conducted with at least 1 week between tests. In the EPM the percentages of entries and time in open arms during 300 Sec were scored. In the OF test, the time and entries in the central square during 300 Sec were scored. The distance and spent were also determined. In the FST two sessions were conducted: a 15 min pre-test followed 24 h later by a 5 min test. The total duration of immobility and active climbing was recorded during the second, 5 min test.

In the second set the PA was performed. Rats (n=8-10) received icv GAL(1-15) 1, 3 and 6nmol or vehicle 15 minutes prior the training session. Retention latency was tested 24 h after training during 600 sec.

In the OF test the administration of GAL(1-15) 3 and 6nmol significantly decreased the number of entries ($p<0.01$) and time spent ($p<0.05$) in the central square by 42% and 39% respectively. However, in the EPM GAL(1-15) did not change any of the parameters analysed. Gal(1-15) didn't change the Locomotor Activity in any test. In the FST GAL(1-15) 3 and 6nmol significantly increased immobility ($p<0.01$) and decreased the climbing behaviour ($p<0.01$) by 44% and 46% respectively. In the PA GAL(1-15) 6nmol significantly decreased the retention latency ($p<0.05$).

These results indicate that GAL(1-15) produces anxiogenic-like effects in the OF and depression-like behaviour in the FST, GAL(1-15) may also have an effect on emotional memory in PA. These results may give the basis for the development of novel therapeutic drugs targeting GAL(1-15) system for treatment of depression and anxiety disorders. This study was supported by Junta de Andalucía CVI6476 and TV3- Marató 090130/31/32.