

SWIM STRESS-INDUCED ANXIETY IN THE ELEVATED-PLUS-MAZE (EPM) TEST

Rationale The elevated-plus-maze (EPM) test measures anxiety-related behavior in rodents⁽¹⁾. A previous exposure to a swim stress induces an anxiogenic-like effect in the EPM test^(2,3).

Method Animals (Sprague-Dawley male rats) are individually placed for a 5-min session on an EPM, made with two opposite open arms crossed at right angles by two arms enclosed by walls.

➔ *Indices of anxiety are the percentage of time and the percentage of entries in open arms. These two parameters are increased by anxiolytic drugs and are reduced by anxiogenic drugs.*

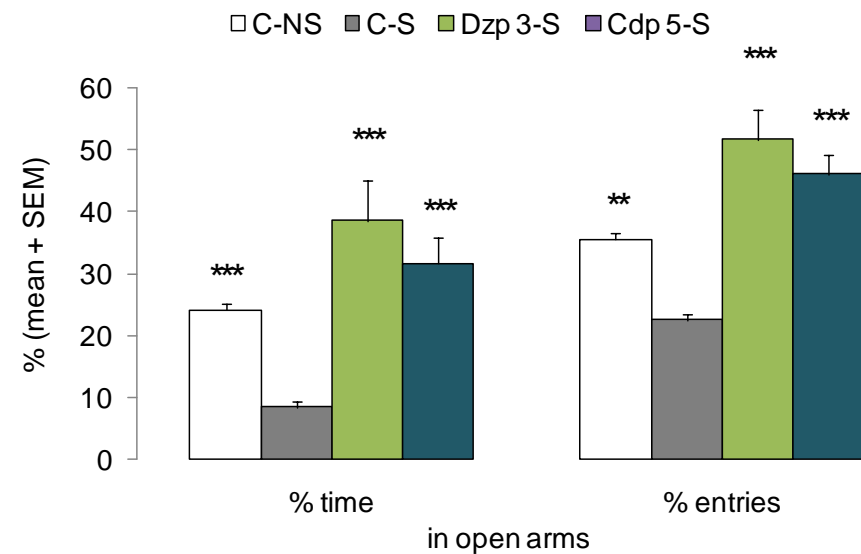
Animals of stressed groups are subjected to a 3-min forced swim stress 10 min before the EPM test.

➔ *Swim stress induces a decrease in the percentages of time and entries in open arms, i.e. an anxiogenic-like effect.*

Anti-stress drugs reduce the swim stress-induced decreases in the percentages of time and entries in open arms.

Results Fig. 1 shows that the swim stress reduces the percentage of time and the percentage of entries in open arms. These effects, which reveal an increase in anxiety induced by stress, are reduced by two anxiolytic drugs, the benzodiazepine receptors agonists diazepam and chlordiazepoxide.

*Fig.1 – Effects of diazepam (3 mg/kg) and of chlordiazepoxide (5 mg/kg) on the swim stress-induced decrease in the percentage of time and in the percentage of entries in open arms. Groups: C-NS= Control non-stressed; C-S= Control stressed; Dzp 3-S= diazepam (3 mg/kg) stressed; Cdp 5-S= Chlordiazepoxide (5 mg/kg) stressed. Differences vs C-S group: ** $p \leq 0.01$; *** $p \leq 0.001$.*



Conclusion These results indicate that **the test of swim stress-induced anxiety in the EPM allows to evaluate the potential anti-stress effect of a compound.**

References

1. Pellow S and File SE, Pharmacol Biochem Behav 24:525-529, 1986 2. Chaki S et al, Eur J Pharmacol 485 145- 158, 2004 3. Chaki S et al, J Pharmacol Exp Ther 313:831-839, 2005