Short communication

Effects of co-treatment with mirtazapine and low doses of risperidone on immobility time in the forced swimming test in mice

Zofia Rogóź

Department of Pharmacology, Institute of Pharmacology, Polish Academy of Sciences, Smeńna 12, PL 31-343 Kraków, Poland

Correspondence: Zofia Rogóź, e-mail: rogoz@f-par.krakow.pl

Abstract:
The aim of the present study was to examine the effect of mirtazapine (MIR) and risperidone (an atypical antipsychotic drug), given separately or jointly, on immobility time in the forced swimming test in male C57BL/6J mice. Fluoxetine (FLU) was used as a reference drug. MIR (2.5, 5 and 10 mg/kg) and FLU (5 and 10 mg/kg), or risperidone in low doses (0.05 and 0.1 mg/kg) given alone did not change the immobility time of mice in the forced swimming test. Joint administration of MIR (5 and 10 mg/kg) or FLU (10 mg/kg) and risperidone (0.1 mg/kg) produced antidepressant-like activity in the forced swimming test. WAY 100636 (a 5-HT1A receptor antagonist) inhibited, while yohimbine (an α2-adrenergic receptor antagonist) potentiated the antidepressant-like effect induced by co-administration of MIR and risperidone. Active behavior in that test did not reflect an increase in general activity, since combined administration of antidepressants and risperidone failed to enhance the locomotor activity of mice. The obtained results indicate that risperidone applied in a low dose enhances the antidepressant-like activity of MIR and that, among other mechanisms, 5-HT1A- and α2-adrenergic receptors may play a role in this effect.

Key words: mirtazapine, fluoxetine, risperidone, forced swimming test, mice