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Short communication

Effect of repeated co-treatment with imipramine and metyrapone on the behavioral reactivity of the central serotonin, dopamine and α_1-adrenergic systems in rats

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Abstract:
The aim of the present study was to examine the effect of repeated co-treatment with imipramine and metyrapone on the development of adaptive changes in the function of central serotonin 5-HT_{1A} and 5-HT_{2A}, dopamine $D_{2/3}$ and α_1-adrenergic receptors in rats. The obtained results showed that repeated co-treatment with imipramine (5 or 10 mg/kg) and metyrapone (50 mg/kg) (twice daily for 14 days) either induced more potent inhibition of the behavioral syndrome evoked by 5-HT_{1A} and 5-HT_{2A} receptor agonists (8-OH-DPAT and (±)DOI, respectively), or did no change the action of amphetamine and quinpirole (a dopamine $D_{2/3}$ agonist) or phenylephrine (an α_1-adrenergic agonist) compared to treatment with either drug alone. The results described in the present paper support the hypothesis that repeated co-treatment with imipramine and metyrapone may possess more effective antidepressant activity than the treatment with imipramine alone, and that, among other mechanisms, 5-HT_{1A}- and 5-HT_{2A} (but not dopamine $D_{2/3}$- or α_1-adrenergic) receptors may also play some role in this effect.

Key words:
repeated treatment, imipramine, metyrapone, behavioral test, rats