Short communication

Effect of repeated co-treatment with imipramine and metyrapone on the behavioral reactivity of the central serotonin, dopamine and \( \alpha_1 \)-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 \( \alpha_1 \)-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 (5-OH-DPAT and (+)-DOI, respectively), or did no change the action of amphetamine and quinpirole (a dopamine D\(_{2/3}\) agonist) or phenylephrine (an \( \alpha_1 \)-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 \( \alpha_1 \)-adrenergic) receptors may also play some role in this effect.

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