SHORT COMMUNICATION

INTERACTION OF ZINC WITH ANTIDEPRESSANTS IN THE FORCED SWIMMING TEST IN MICE

Bernadeta Szewczyk, Piotr Brański, Joanna M. Wierońska, Agnieszka Pałucha, Andrzej Pilc, Gabriel Nowak

1Department of Neurobiology, Institute of Pharmacology, Polish Academy of Sciences, Smetna 12, PL 31-343, Kraków, Poland; 2Institute of Public Health, Collegium Medicum, Jagiellonian University, Mickiewicza 12, PL 31-126, Kraków, Poland; 3Department of Pharmacology, Collegium Medicum, Jagiellonian University, Modyczna 9, PL 30-088, Kraków, Poland


Recent preclinical data have suggested that glutamate NMDA receptor may be involved in the mechanism of action of antidepressant treatments. Functional antagonists of the NMDA receptor complex exhibit an antidepressant-like effect in animal tests that predict antidepressant activity and in animal models of depression. Zinc, a very potent inhibitor of the NMDA receptor, is active in the forced swimming test in rats and mice. The present study investigated the interaction of zinc with antidepressants in the forced swimming test in mice. Mice were injected with imipramine or citalopram alone and in combination with zinc. Low, ineffective per se doses of imipramine and citalopram administered together with low, ineffective doses of zinc were active in this test. The present data support the notion that inhibition of the NMDA receptor participates in an antidepressant action, and further demonstrate particular role of zinc in this activity.

Key words: zinc, NMDA receptor, antidepressants, forced swimming test, locomotor activity

*correspondence*