RAPID DOWN-REGULATION OF GABA<sub>A</sub> RECEPTORS AFTER PRETREATMENT OF MICE WITH PROGESTERONE

Agnieszka I. Członkowska¹, Paweł Krząścik¹, Halina Sienkiewicz-Jarosz², Marek Siemiątkowski³, Janusz Szyndler¹, Piotr Maciejak⁴, Andrzej Bidziński⁴, Adam Płaźnik⁴,

¹Department of Experimental and Clinical Pharmacology, Medical University, Krakowskie Przedmieście 26/28, PL 00-927 Warszawa, Poland; ²Department of Neurology, ³Department of Pharmacology and Physiology of the Nervous System, ⁴Department of Neurochemistry, Institute of Psychiatry and Neurology, Sobieskiego 1/9, PL 02-957 Warszawa, Poland


The effect of a single administration of a high dose of progesterone on brain [³H]muscimol binding, was examined in mice using quantitative autoradiography. It was found that progesterone given at the dose of 150 mg/kg ip (the ED₅₀ dose established previously in the model of picrotoxin seizures, Członkowska et al., Pharmacol. Biochem. Behav., 2000, 67, 345–353), significantly decreased the specific binding of [³H]muscimol to the nucleus caudatus and nucleus accumbens, as early as 1 h after injection. A similar tendency, close to the statistically significant level, was also present in the dentate gyrus of the hippocampus (p = 0.07). It is suggested that a high dose of progesterone and ensuing excessive stimulation of GABA<sub>A</sub> receptors by its metabolites, neurosteroids, could bring about rapid changes in the GABA<sub>A</sub> receptor number and/or affinity.

Key words: neurosteroids, progesterone, [³H]muscimol, autoradiography, mice

*correspondence; e-mail: adiplaz@yahoo.com*