Short communication

Application of magnetic resonance diffusion anisotropy imaging for the assessment neuroprotecting effects of MPEP, a selective mGluR5 antagonist, on the rat spinal cord injury in vivo

Tomasz Banasik¹, Andrzej Jasiński¹,4, Andrzej Pilc²,3, Katarzyna Majcher¹, Paweł Brzegowy³

¹H. Niewodnichszcz Institute of Nuclear Physics, Polish Academy of Sciences, Radzikowskiego 152, PL 31-342 Kraków, Poland
²Institute of Pharmacology, Polish Academy of Sciences, Służewska 12, PL 31-343 Kraków, Poland
³Jagiellonian University, Medical College, Kopernika 19, PL 31-601 Kraków, Poland
⁴Pedagogical University, Podchorążych 2, PL 30-084 Kraków, Poland

Correspondence: Andrzej Jasiński, e-mail: Andrzej.Jasiinski@uj.edu.pl

Abstract:
Magnetic resonance diffusion anisotropy imaging (DAI) of the rat spinal cord after contusion using weight-drop method was used to study the neuroprotecting effect of 2-methyl-6-(phenylethynyl)-pyridine (MPEP), an mGluR5 receptor antagonist. Eighteen rats were used, divided into 3 groups of 6 animals: a reference group without any operation, a control group with injury and a test group with injury and MPEP. DAI was performed at 4.7 T at 1 h, 24 h, 48 h and 7 day after the injury. Locomotor function was evaluated using Basso, Beattie and Bresnahan (BBB) open field locomotor activity test each day starting one day after the injury. DAI results confirm positive effect of MPEP on the limitation of secondary excitotoxic injury in the spinal cord.

Key words:
MRI, spinal cord injury, MPEP