



Pseudo-epileptic seizures in children are not associated with enhanced plasma level of allopregnanolone

Marek Kaciński², Monika Leśkiewicz¹, Lucylla Jaworska-Feil¹, Anna Zając², Alicja Kubik², Bogusława Budziszewska¹, Władysław Lasoń¹

¹Department of Experimental Neuroendocrinology, Institute of Pharmacology, Polish Academy of Science, Smętna 12, PL 31-343 Kraków, Poland

²Department of Pediatric Neurology, Jagiellonian University, Wielicka 265, PL 30-663 Kraków, Poland

Correspondence: Monika Leśkiewicz, e-mail: leskiew@if-pan.krakow.pl

Abstract:

Among neurosteroids, allopregnanolone is the most potent endogenous positive modulator of GABA_A receptors, and disturbances in its release may play a role in pathomechanism of some neurological and psychiatric disorders. In contrast to a large body of evidence on allopregnanolone involvement in pathogenesis of epilepsy, no data are available on its role in pseudoseizures. Therefore, the aim of the present study was to find out whether pseudoseizures are associated with changes in plasma allopregnanolone level in pediatric patients. This study was carried out on 45 children with video EEG-diagnosed pseudoseizures, divided into three groups according to results of placebo test i.e: (I) children with pseudoseizures attacks without antiepileptic drug treatment; (II) children with pseudoseizures attacks and treated with antiepileptic drugs; (III) children without pseudoseizures attacks and no treatment. Allopregnanolone level was estimated by radioimmunoassay in blood samples collected before and after provoking pseudoseizures by placebo. No significant changes have been found in allopregnanolone level between all experimental groups. This suggests that in contrast to epileptic seizures, during pseudoseizures no compensatory increase in the endogenous antiepileptic and anxiolytic neurosteroid release occurs. The low level of allopregnanolone may have a detrimental effect on GABAergic inhibitory system in the brain aggravating stress response and promoting pseudoseizure occurrence. On the other hand, the clinical value of allopregnanolone plasma level as a biomarker distinguishing between epileptic and pseudoseizures remains questionable due to its high inter-individual differences.

Key words:

pseudoseizures, allopregnanolone, neurosteroids, video EEG, radioimmunoassay, human
