

AEDs management in neurosurgical patients with pharmacoresistant epilepsy (PhRE).

Methods

In this retrospective study 60 neurosurgical patients with PhRE were examined in two gender groups: 1 - men (N 30) and 2 - women (N 30) at the PNI in 2020. The sex ratio was 1: 1. The anamnesis of AED management was evaluated for 3 generations: 1-old and traditional, 2-new, 3-the newer. The frequency of use of AEDs of different generations was calculated on average per patient in the groups.

Results

The use of old AES in group 1 averaged 1.8 per person, more often in the female group - 2,6. New AEDs were used in both groups - 2 per person, newer AEDs were increasingly used in group 1-2 per person, 1 - in group 2. Attention was drawn to the percentage prevalence of valproic acid use in both groups compared to the others: in group 1 in 19.3% of cases, in group 2 - in 15.8%.

Conclusions

The use of old-generation drugs in the anamnesis was noted in all patients. The predominance of the use of valproic acid to treat epilepsy in both sexes shows that despite the pronounced side effects affecting the female reproductive system the effectiveness in severe and prolonged epilepsy determines the widespread use of valproates in both men and women despite new drug development.

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Role of peroxisomal proliferator-activated γ -receptors in analgesia induced with cerebellar stimulations in kindled rats

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Background and aims

Background. Antiepileptic effects induced with cerebellar transcranial direct current stimulation (TDCS), and the role of peroxisomal proliferator-activated γ -receptors (PPAR γ) in its development have been shown (Godlevsky, Pervak, 2017; 2019). Aims. To investigate the pronouncement of pain behaviors in rats with anodal TDCS of cerebellum and modulation of PPAR γ activity.

Methods

Material and methods. Investigations were performed on rats with the kindling induced by pentylenetetrazol (PTZ) injections (30.0 mg/kg i.p., for three weeks). TDCS was performed with anode upon cerebellum (300 mcA for 10 min). BADGE (100.0 mg/kg, i.p.) was used for blockade PPAR γ and pioglitazone (100.0 mg/kg, i.p.) for their activation. For the pain test formalin (50 μ L; SC; 2%) was injected into either the glabrous skin of the hind limb and the severity of pain reactions was estimated in three points score (Erami, E. et al., 2017). False TDCS was used as a control.

Results

Results. The maximal level of pain behaviors was achieved at 21-27th min from the moment of formalin administration (2.32 ± 0.30 points). TDCS induced a decrease of pain behaviors by 25.7% ($P <$

0.05). After blockading PPAR γ with BADGE the pronouncement of pain behaviors was 2.13 ± 0.21 points and after pioglitazone 1.94 ± 0.41 points ($P > 0.05$). TDCS performed after pioglitazone administration caused the decrease of painful behaviors by 43,6% ($P < 0.05$), while after BADGE the diminishment was at 16,3% ($P > 0,05$).

Conclusions

Conclusions. Anodal cerebellar TDCS is effective against the second phase of formalin-induced pain in rats. Analgesic effects of cerebellar anodal TDCS were intensified with the agonist PPAR γ receptors administration and abolished with their blockade.

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Dynamics of interhemispheric coherence in changing functional states in adults with localization-related epilepsy

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Background and aims

Study of the dynamics of interhemispheric coherence in patients with localization-related epilepsy with different responses to anticonvulsants in the physiological state (FS) of active, relaxed wakefulness and sleep.

Methods

Research methods: 150 patients with symptomatic epilepsy of frontal-temporal localization aged 16 to 65 years with a disease duration of at least 2 years (group A - 78 individuals with a resistant form of the disease, group B - 78 individuals with controlled seizures) were monitored with the EEG in the interictal period in physiological states of wakefulness and physiological sleep in the daytime. Night sleep deprivation was used as a load. For coherent analysis, we used EEG regions devoid of artifacts during the period of relaxed wakefulness, active wakefulness, and during the 2nd-3rd stage of the slow-wave sleep phase immediately before the onset of Δ -sleep. Hyperventilation load and cognitive activation were used as stress tests in FS AB, which was performed by the method of cognitive evoked potentials P300 using auditory stimuli.

Results

In groups A and B, there was an increase in interhemispheric coherence in the β -rhythm range during cognitive activation. Group B showed an increase in interhemispheric coherence in the Δ -rhythm range during hyperventilation and a decrease in the β -rhythm range during cognitive activation. The dynamics of interhemispheric coherence was observed in the frontal zones, which are most dependent on the coordinating influences of the median structures of the brain.

Conclusions

In patients with seizures, regardless of frequency, similar neurodynamic rearrangements were observed, manifested by unidirectional dynamics of coherence indicators.

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