



Fig.1. Time-course of sleep-wakefulness cycles registration in control (A), kindled rat (B) and kindled rat treated with pitolisant (C) registration. Data is presented during the third hour from the moment registration starts. DSWS – deep SWS, and SSWS – superficial slow wave sleep.

## Results

In control rats, the wake (W) state occupied 27.4% of the total time of observation, while paradoxal sleep (PS) – was 12.5%, and slow wave sleep (SWS) – was 60.1% (Fig.1, A). The number of full SW cycles was  $12.33 \pm 3.56$ . In kindled rats, W state occupied 21.8% ( $P > 0.05$ ), PS – 7.1% ( $P < 0.05$ ), and SWS – 71.1% ( $P > 0.05$ ) (Fig.1, C). The number of full SW cycles exceeded that one in control by 39.7% ( $P < 0.05$ ). In kindled rats treated with pitolisant W state occupied 29.0% ( $P > 0.05$ ), PS – 11.6% ( $P > 0.05$ ), and SWS – 71.0% ( $P > 0.05$ ). The number of cycles exceeded the control data by 17.2% ( $P > 0.05$ ).

## Conclusions

PTZ kindled SW disturbances – shortage of PS and its fragmentation are blocked with the pitolisant. **Financial support:** Ministry of Health Care of Ukraine (N0121U114510).

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## 121570

### Comparative effectiveness of niacin-oxietilyden-di-phosphonate germanat (MIGU-4) and diazepam upon neuronal loss in the retina of rats with pentylenetetrazol (PTZ)

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## Background and aims

Epilepsy is accompanied by neuronal loss, which is observed in the retina as well. **The work aimed** to study the density of neurons in retina layers of rats with pentylenetetrazol (PTZ)-kindled seizures and compare neuroprotective effects of niacin-oxethylene-di-phosphonate-germanate (MIGU-4) with diazepam.

## Methods

The fully kindled seizures were induced in Wistar rats by administration of PTZ at a dose of 35.0 mg/kg, i.p., for three weeks. Fully kindled rats were administered with MIGU-4 (25.0 mg/kg, i.p.), and diazepam (1.5 mg/kg, i.p.) for four weeks. After euthanasia, the morphology of the retina was examined.

## Results

Gained data revealed that the cell density in the ganglion layer in kindled rats was 2.14 times lower ( $P < 0.05$ ). It was 41.0% and 19.0% lower in the inner and outer nuclear layers, respectively ( $P < 0.05$ ) compared to the control. Under conditions of MIGU-4 treatment ganglion layer neurons, density exceeded the control value by 38.0% ( $P < 0.05$ ), while in diazepam-treated rats, density was higher by 29.5% ( $P < 0.05$ ). The density of cells in MIGU-4 treated rats in the inner nuclear layer exceeded that in control by 30.5% ( $P < 0.05$ ). Diazepam administration was also characterized by an increased density of neurons by 22.7% ( $P < 0.05$ ). In the outer nuclear layer density of neurons in kindled rats was not differ from the control group ( $P > 0.05$ ).

## Conclusions

The level of the neuroprotective effect of four weeks of administration of niacin-oxethylene-di-phosphonate-germanate (MIGU-4) in a dosage of 25.0 mg/kg corresponds to such one induced with diazepam in a dosage of 1.5 mg/kg.

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## 121571

### Synergy of antiseizure and anxiolytic action of rapamycin and histamine H<sub>3</sub> inverse agonist pitolisant on the PTZ-kindled seizures

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## Background and aims

Neuroinflammatory contribution is principal for developing chronic epileptic seizures. The work aimed to investigate chronic seizures and anxious behavior in pentylenetetrazole (PTZ)-kindled rats under combined treatment with the histamine H<sub>3</sub> blocker pitolisant and mTOR blocker rapamycin.

## Methods

Kindling was produced in Wistar male rats by administration of three-week PTZ (Sigma Aldrich, 35.0 mg/kg, i.p.). Rats with generalized seizures were chosen for observation. Treatment with rapamycin (Pfizer, 0.5 mg/kg, i.p.) and pitolisant (Selleck, 5.0 mg/kg, i.p.) was performed for ten days in fully kindled rats. Anxiety was investigated in the open field test.

## Results

Combined administration of rapamycin and pitolisant prevented generalized seizures in 7 out of 8 rats ( $P < 0.025$ ), while separate administrations failed to reduce seizures. The number of crossed central squares of the kindled animals was 4.1 times less, pertained to control ( $P < 0.01$ ). Combined treatment abolished the reduction, which did not differ from control ( $P > 0.05$ ), while under the condition of separate drug administration, the decline was 2.2 times for rapamycin ( $P < 0.01$ ) and 2.7 for pitolisant ( $P < 0.01$ ). The number of rearings was reduced in the kindled rats by 3.0 times compared to the control ( $P < 0.001$ ). The number of rearings remained less compared with the control by 2.2

times for rapamycin ( $P < 0.01$ ) and 2.5 times for pitolisant ( $P < 0.01$ ). The combined treatment prevented the reduction when compared with the control ( $P > 0.05$ ).

### Conclusions

The synergy of rapamycin's antiseizure and anxiolytic action is observed under conditions of blockade of  $H_3$  histamin receptors. **Financial support:** Ministry of Health Care of Ukraine (grant N0121U114510).

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## 121572

### Epilepsy and driving: An awareness study from India

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### Background and aims

In India, the Motor Vehicles Act 1939 prohibits persons with epilepsy (PWE) from driving, considering the risks of getting involved in road accidents. However, the awareness about the laws regulating driving and consequences of driving with epilepsy is low amongst PWE. The aim of this study was to evaluate the impact of educational intervention given to PWE on their awareness about epilepsy and driving.

### Methods

Consecutive PWE meeting the inclusion criteria were enrolled from the Neurology department of All India Institute of Medical Sciences, New Delhi, India. Participants received education about all aspects of driving and epilepsy. The knowledge and practice of PWE was assessed at baseline and after three months of educational intervention, using a pre-structured questionnaire.

### Results

Between June 2020 and October 2022, 355 PWE and 351 caregivers were recruited in the study and received educational intervention; 355 PWE completed 3-months' follow up. Post-educational intervention, we observed a significant improvement in the proportion of PWE who were aware that they should not drive (49.86% vs 93.52%,  $p < 0.001$ ). The PWE's reported awareness of law increased significantly (32.39% vs 81.69%,  $p < 0.001$ ). The proportion of PWE who knew the implications of driving with epilepsy increased significantly (64.23% vs 93.24%,  $p < 0.001$ ) after the educational intervention. At 3-months follow-up, the proportion of PWE who were driving reduced significantly (45.07% vs 24.51%,  $p < 0.001$ ).

### Conclusions

Our results suggest a considerable lack of awareness amongst PWE about the driving regulations and consequences of driving with epilepsy. Educating PWE about epilepsy and driving significantly improves their existing knowledge and practice.

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## 121573

### Prevalence of depression among epileptic patients attending Daoud Charity Clinic, Khartoum State, Sudan between November to December 2022

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### Background and aims

Epilepsy is having two or more unprovoked seizures; which are sudden, uncontrolled body movements.

Studies show that epilepsy can be associated with a variety of psychological disorders; the most common of which is a depressive disorder. Depression is a mental state of low mood and aversion to activity, and it's classified medically as a mental and behavioral disorder. It has certain criteria for diagnosis based on either DSM5 or (ICD) scale.

Unfortunately, there are not enough published papers about the psychiatric aspects of epilepsy in Sudan.

We aimed to measure depression prevalence and its severity among epileptic patients attending the clinic.

### Methods

This was a cross-sectional descriptive study among epileptic patients visiting Daoud Charity Clinic between the 4th of November to 16th December 2022. 100 patients were interviewed using a structured questionnaire assessing their Socio-demographic and epilepsy characteristics and the PHQ-9 to assess depression through 27 points divided into (9) questions in which participant's score must be at least (4) points to be considered as having depression.

### Results

Patients' ages ranged from 14 to 70 years (mean age 30.16). Most of them had generalized epilepsy (79.2%). (57.4%) of the sample was depressed, ranging from mild, moderate, moderately severe, to severe depression in (31.7%), (14.9%), (9.9%) and (1%) respectively.

### Conclusions

Depression was common among epileptic patients in this study. Our findings indicate the need for improved methods for early diagnosis and treatment of depression among epileptic patients, as well as to raise primary care physicians' knowledge about the co-morbid mood disorders among such patients.

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## 121574

### Nonseizure outcomes with cannabidiol (CBD) in pediatric versus adult patients with Lennox-Gastaut syndrome (LGS) or Dravet syndrome (DS): Subgroup analysis of become, a caregiver survey

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