

## **Comparative analysis of physical availability indicators of medicines for treatment of patients with epilepsy**

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**Introduction.** According to the WHO, epilepsy is a chronic non-infectious brain disease that can occur in people of all ages. It should be noted that only in 2014 the International Antiepileptic League recognized epilepsy not as a disorder but as a brain disease. The socio-economic consequences of epilepsy include early disability, high risk of complications, reduced quality of life of patients, the social stigmatization of patients by society, self-stigma. Providing medical and pharmaceutical care to patients with epilepsy involves a comprehensive, patient-centered approach consisting of pharmacotherapy, psychotherapy, and the patient's social support. The main group of drugs used in the pharmacotherapy of epilepsy is antiepileptic drugs (AEDs). Thus, about half of patients diagnosed with epilepsy become free of seizures after the first AEDs. One of the methods of counteracting the socio-economic consequences of epilepsy is to provide the population with affordable, effective, and high-quality AEDs.

WHO considers the availability of drugs in two aspects - economic and physical. Economic affordability of medicines involves forming appropriate conditions for the purchase of medicines by each citizen at their own expense or at the expense of the state budget. The appropriate level of economic availability of drugs ensures the quality of treatment and prevention of diseases of the population. It prevents the development of complications and chronic forms of the disease. At the same time, in addition to economic importance, physical accessibility is important, which determines the supply of quality drugs to the population in the required quantity and range, which is sold through its production of drugs, their import and sales system.

**Aim.** The study aimed to compare indicators of physical accessibility of AEDs in Ukraine, Poland, France, and Kazakhstan.

**Materials and methods.** To conduct the study, we used data from the State Registers of Medicines of Ukraine, Poland, France, and Kazakhstan (as of April 1, 2021), which provide information on drugs allowed for use in medical practice. The study was conducted using structural analysis, using logical and graphical methods. All statistics were processed using Microsoft Excel.

**Results** of the research. According to the analysis results, it was established that 14 AEDs under INN or 231 trade names were registered in Ukraine, taking into account the form of issue. In Poland, there are 20 AEDs for INN or 530 trade names of AEDs, in France - 19 AEDs in INNs or 418 trade names, and in Kazakhstan - 8 AEDs in INNs or 54 trade names. Thus, there is a significant difference in the quantitative ratio of registered AEDs in Ukraine, Poland, France, and Kazakhstan. In our opinion, due to the wide range of AED, there is a choice of both doctor and patient and a wider range of prices, which leads to competition in pricing policy, which in turn has a positive effect on the availability of AED.

Comparative analysis showed that Poland recorded six new generations AEDs that are not in the State Register of Ukraine, namely primidone, ethosuximide, rufinamide, vigabatrin, and tiagabine stiripentol. Meanwhile, France registered five new

generations AEDs, which are also absent in Ukraine. These include primidone, fosphenytoin, ethosuximide, rufinamide, stiripentol. The worst situation is observed in Kazakhstan, where there are no AEDs on 7 INN registered in Ukraine, namely, phenytoin, oxcarbazepine, eslicarbazepine, topiramate, gabapentin, and zonisamide lacosamide. In our opinion, the use of new generation AED increases the possibility of effective treatment of patients. Their absence in the State Register of Ukraine and Kazakhstan is a promising area for the development of pharmaceutical science and industry.

The main pharmacological effect AEDs have anticonvulsants and, therefore, a release form is crucial for patients, especially children. In an analysis of the forms AEDs issue we found that in these groups dominated solid dosage forms in solid dosage forms Ukraine AEDs are 95.68% of all registered drugs in Poland the figure is 93.99%, France 90.67 %, and in Kazakhstan 77.78%. Thus, the predominance of solid dosage forms is associated with the convenience of their use, taking into account the need for constant and daily monitoring of epileptic seizures and better transportation and storage. Medicines registered in Ukraine are presented in tablets, capsules, suspensions, syrups, solutions for injection, oral solutions, and concentrates for solutions for infusion. In Poland and France, the range of dosage forms has a wider range than in Ukraine, primarily due to the higher number of registered drugs. It should be noted that in Poland, such dosage forms are additionally presented as: solutions for infusions, powders, granules, and suppositories, which are not available in Ukraine. In France and the available forms of release in Ukraine, there are also solutions for infusions and powders. According to the State Register of Kazakhstan, we found the absence of suspensions, syrups, oral solutions, and concentrates for solutions for infusion, but the presence of solutions for infusions and powders, which are absent in Ukraine.

**Conclusions.** The analysis of registered medicines allowed us to determine that the State Register of Ukraine includes 14 AEDs for INN or 231 trade names. At the same time, in the register of Poland, there are 20 AED for INN or 530 trade names, in France 19 AED for INN or 418 trade names, and the smallest number in Kazakhstan - 8 AED for INN or 54 trade names. At the same time, there are mainly new-generation AED in the State Register of Poland and France, and in Kazakhstan and domestic - basic. Therefore, we believe that there is an opportunity for a deeper study of the feasibility of their use in Ukraine. Comparative analysis of AED according to the release forms showed that solid dosage forms predominate in different countries. In Ukraine, solid dosage forms account for 95.68% of the total number of registered drugs, in Poland - 93.99%, in France.