

Scientists of Tomsk State University, together with the Institute of Higher Nervous Activities of the Russian Academy of Sciences, developed a system based on artificial intelligence (AI) for an automatic analysis of epileptic attacks in laboratory animals. Technology will help in studies of absence epilepsy – the form of the disease in which short-term loss of consciousness without cramps occurs.

The system analyzes the data of electrocorticograms (records of brain activity) and with high accuracy determines the phases of deep sleep, and also fixes episodes of epilepsy. For the operation of the algorithm, there is enough information from one electrode installed in the frontal lobe of the Rat brain.

According to the developers, a traditional analysis of such data requires a lot of time and effort of specialists. The new system processes time entries in just 15-25 seconds, reaching an accuracy of 82-84% even when using data from the electrodes of the opposite hemisphere of the brain.

Absence epilepsy is difficult for diagnosis, since its manifestations are easy to confuse with other conditions. According to WHO, about 50 million people in the world suffer from epilepsy. The developed technology will accelerate the research of the mechanisms of the disease and the search for new treatment methods.