

Animal models are used in experimental works since deep brain structures are actively involved into pathological activity. In this study epileptic discharges in animals are caused by the administration of low dose of pentylenetetrazole (PTZ) - 30mg/kg.

It is traditionally accepted that in all absence epilepsy animal models, including PTZ-rats and genetic models of WAG/Rij and GAERS strains, the discharges in the right and left cerebral cortexes are the same. Therefore, very often recording are taken from only one hemisphere to be able to target more brain regions. The objective of this work is to compare activity in different hemispheres, looking for asymmetry. To solve this problem an algorithm for automatic detection of discharges from brain local field potentials is constructed. We aim to test the hypothesis that spike-wave discharges caused by PTZ are always symmetric in their number and duration.

Here we analyze duration of spike-wave discharges in rats with PTZ-caused absences in right and left hemispheres separately. To solve this problem we propose and realize a simple seizure detection algorithm and test its specificity and sensitivity, which occurs to be high enough.

We show that distributions of seizure duration is different in five of nine analyzed animals and same in other four rats. For the animals with different distributions there are both symmetric bilateral discharges, asymmetric discharges and discharges localized in only one hemisphere.