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Neurovisualization patterns of neuronal-glial tumors associated with focal epilepsy in children

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Introduction: The number of brain tumors found in pediatric patients, may not have typical neuroradiological signs of volume lesions, and combined with severe pharmacoresistant focal epilepsy, which require surgical treatment in most cases.

Aim: The aim of the study is to study the neurovisualization patterns of neuronal-glial tumors associated with focal epilepsy in children

Subjects & Methods: We analyzed MR-images of 33 epileptic children with neuronal-glial tumors hospitalized in RCCH during 2007-2016 years with 1-8 years catamnesis. High resolution MRI was done before and after surgery on the GE Signa infinity 1.5 Tesla device.

Results: Dysembryoplastic neuroepithelial tumor (DNET) was observed in 18 patients and ganglioglioma (GG) in 15. A combination with FCDIIIb revealed in 4 patients and the presence of histological signs of BNET and GG in one tumor substrate in two patients. In one case, combination of diffuse lissencephaly and GG, its recurrence and malignancy in GraIII was observed. Twelve patients with DNET and 9 with GG revealed the specific characteristics of neuronal-glial tumors such as cortical localization, triangular configuration, "comet tail" symptom and "soap bubble" pattern. On DTI tractography in 3 patients with BNET and 4 with GG revealed displacement of paths without compromising the integrity of the fibers and infiltration. The presence of 3 or more specific patterns was present in 7 patients with DNET and in 5 with GG. Peritumoral violation of gray-white matter differentiation and cortical organization suggested FCD–associates in 9 patients which were confirmed by histology in 6.

Conclusion: MRI-patterns described in the literature as specific for DNET could also occur with high probability in GG and some other tumors, as well as in various pathological conditions of the brain. We were able to assume neuronal-glial tumors in 21 patients according to MRI based on a specific pattern, but conclusively differentiation between DNET/GG/FCD IIb type on the results of standard MRI is not possible even in the presence of the above-described characteristics.

Biography

Khava Gazdieva studies the clinic, EEG data, as well as neuroimaging data, in assessing analysis of the specificity of MRI patterns are noted during visualization of neuronal-glial tumors associated with epilepsy in children. MP system in visualizing structural brain lesions in children with symptomatic focal forms of epilepsy. She deals with the study of patients in the hospital, as well as in the department of neurovisualization. This technique combined with the results of clinical examination and neurophysiological studies makes it possible to identify with epilepsy.

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