

EVALUATION OF THE RESULT OF MAGNETIC RESONANCE IMAGING IN CHILDREN AND ADOLESCENTS WITH EPILEPSY, EXAMINED IN OUTPATIENT AND POLYCLINIC CONDITIONS

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<https://doi.org/10.5281/zenodo.14955649>

Abstract. Epilepsy ranks 4th out of 220 diseases in terms of disability severity, where mortality in patients with epilepsy exceeds that of the general population by more than 3 times and ranks 25th in terms of sudden (emergency) death - SUDEN (Sudden Unexpected Death in Epilepsy). Clinical and pathogenetic study of epilepsy in children and adolescents: etiology, mechanism of formation, nature of epileptic seizures, transformation, complications, progression, polymorphism, hopelessness of epileptic disorders, drug resistance, all these issues, despite being comprehensively studied, require additional analysis, seem very important and relevant.

Keywords: epilepsy, clinic, adolescents, population, polymorphism.

ОЦЕНКА РЕЗУЛЬТАТА МАГНИТНО-РЕЗОНАНСНОЙ ТОМОГРАФИИ У ДЕТЕЙ И ПОДРОСТКОВ С ЭПИЛЕПСИЕЙ, РАССМОТРЕННЫХ В АМБУЛАТОРНО-ПОЛИКЛИНИЧЕСКИХ УСЛОВИЯХ

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Аннотация. Эпилепсия занимает 4 место из 220 заболеваний по тяжести инвалидизации, где летальность у больных с эпилепсией превосходит более чем в 3 раза из общей популяции и на 25 месте от внезапной (экстренной) смерти - SUDEN (Sudden Unexpected Death in Epilepsy). Клинико-патогенетическое изыскание эпилепсии у детей и подростков: этиология, механизм формирования, характер эпилептических приступов, преобразование, осложнения, прогрессирование, полиморфность, безысходность эпилептических нарушений, фармакорезистентность, все эти вопросы, не смотря на всестороннюю изученность, требуют дополнительного анализа, представляются очень важными и актуальными.

Ключевые слова: эпилепсия, поликлиника, подростки, популяция, полиморфность.

INTRODUCTION

Research presented in scientific literature sources reconnoiter huge promotion V sphere diagnostics And treatments pediatric patients with epilepsy, however, the issues of early diagnosis and treatment in outpatient settings remain unresolved, which is reflected in the structure of morbidity among the urban and rural population in the construction of an assumption about the future state of the problem in accordance with the analysis of real data. Maximum pre-hospital, namely outpatient and polyclinic examination with a level analysis of forecasting, optimization of further tactics of observation and treatment of children and adolescents with epilepsy is necessary for practical health care. Thus, a comprehensive approach to the study of medical and social problems allows us to propose a system of measures aimed at preventing and improving the organization of neurological care for children and adolescents suffering from epilepsy in outpatient settings.

The purpose of the study is to identify Features of neuroimaging structural indicators of the brain in children and adolescents with epilepsy studied in outpatient and polyclinic settings.

MATERIAL AND RESEARCH METHODS

Basic clinical and diagnostic examination of patients was carried out in Multidisciplinary Clinic of the Samarkand State Medical University (MK) Samara State Medical University), outpatient and polyclinic department (offices of a pediatric neurologist, offices of functional and neurophysiological diagnostics), for the period 2022-2024. During the reporting period, a total of 1204 children and adolescents with epilepsy, aged 0 to 18 years, were examined. Taking into account the set goal For the examination, children of the age categories from 5-9 years and from 14-18 years were selected, the total number of which was 163 patients. Of the total number of the sample contingent, children from 5 to 9 years old made up 39%, which was 64 patients, adolescents from 14 to 18 years old made up 61%, which is 99 patients. At the same time, the distribution in the gender aspect indicates a slight predominance of girls by 1.5%, where girls made up 51.5% of the total (83 patients), boys 48.5% (80 patients), respectively. The indicator for the duration of the disease varied from 1 to 17 years (according to age), averaging a limit of 4.5 years. IN accordance with the Classification epilepsy International antiepileptic leagues ILAE (revision and update 2017) and ICD-10 Classification. The diagnosis of epilepsy was based on a combination of clinical, electroencephalographic data, and neuroimaging methods . Based on the obtained, primary examinations and examinations in dynamics, diagnostic standard (traditional) examinations, children and adolescents are divided into groups by forms of the disease: idiopathic (1) and symptomatic (2). Thus, children of the main group from 5 to 9 years old (64 patients) are divided into: 1 group with idiopathic epilepsy 38% (24 patients), 2 group with symptomatic epilepsy 62% (40 patients), respectively. Adolescents from 14 to 18 years old (99 patients) are divided into 1 group with idiopathic epilepsy 80% (78 patients), 2 group with symptomatic epilepsy 20% (21 patients), How it is visible, from of this distributions, What among children up to 9 years, symptomatic epilepsy is most common, and in adolescents up to 18 years, idiopathic epilepsy prevails, which coincides with the scientific literature of recent years (Burd S.G., 2020). Visualization was carried out using 1.5-T MRI GE Signa Excited (2012–2016), 3-T MRI Philips Ingenia (preferred) And 1.5-T GE Signa Explorer MRI (2017–2020). The choice to use a 1.5 T or 3 T machine was based on availability. The following sequences were used: coronal T2 and FLAIR at 2 mm thickness and 1.5 mm interval; axial T1, T2, FLAIR, T2 sagittal, all at 4 mm thickness and 2 mm interval; diffusion-weighted imaging (DWI) at 4 mm thickness and 1 mm interval; and coronal T1-weighted volumetric sequence at 1.2 mm thickness, no interval. If contrast was considered necessary after review by the radiologist and treating neurologist, contrast (gadodiamide, Omniscan, GE Healthcare, at 0.2 mL/kg) was administered and post-contrast T1 was obtained in all planes. All MRI images were reviewed and communicated to the consulting radiologist. Next traditional by method studies of children and adolescents with epilepsy (widely used in practice) is the study of the features of the structural component of the brain, in connection with which all patients underwent neuroimaging on a magnetic resonance tomograph, a PHILIPS Panorama HFO 1.0 T device in T1, T2 modes. Statistical processing of the research results was carried out, Also, at help computer software IBM SPSS Statistics v. 14.0RU for Windows (USA) software. Data analysis included standard methods of descriptive statistics: calculation of average values, relative values, standard deviations, 95% confidence intervals, Student's criterion. Research results. Childhood and adolescent epilepsy complicates and aggravates the situation by the fact that it develops during a critical period of the body associated with the physical, psychosocial and mental growth and development of patients. It follows that an in-depth study of the etiopathogenesis and the definition (clarification) of the symptoms of epilepsy in children and

adolescents are important for prognosis and further treatment tactics, compliance with the rules of life.

Table 1. Analysis of the results of the neuroimaging study of patients in the main group (163)

Visualization results.	Frequency	Median age in months (interquartile range)
Normal results	193 (67.0%)	84 (36–144)
Encephalomalacia /chronic infarctions	18 (6.3%)	48 (12–156)
Brain atrophy	11 (3.8%)	12 (12–36)
Neuronal migration disorders	11 (3.8%)	84 (5–120)
Periventricular leukomalacia	9 (3.1%)	24 (12–36)
Hippocampal sclerosis	8 (2.8%)	66 (30–156)
Choroidal and arachnoid cysts	7 (2.4%)	60 (48–72) -
Hydrocephalus	4 (1.4%)	-
Other	27 (9.4%)	-

Neuroimaging by MRI significantly facilitates the process of making such a decision, obviously MRI is important for establishing the etiopathogenesis, prognosis and further observation of the patient, in addition, it is the result of the identifier of the anatomical nature of the pathology. So, the result of the study showed that of all children and adolescents (163) who underwent neuroimaging, 1/3 (52 patients) were found to have abnormal facts, often of which were reflected in the form of encephalomalacia, as a consequence of recurrent chronic infarctions; cerebral subatrophy; signs violations neuronal migration; less frequently, changes in the form of periventricular leukomalacia and sclerosis were detected hippocampus. The result of the violation of neuronal migration of neurons is presented in special forms: dysplasia of the cerebral cortex (incorrect formation); thickening of the convolutions; partial absence of convolutions; "double cortex" syndrome Result leukomalacia was noted only in three 4-year-old patients, while there were no clear consistent relationships between the neuroimaging results and the specific age category. In three examined patients of the main group, postictal - hippocampal transformation associated with hemiconvulsion was detected (Table 1).

Neurovisual indices of the brain in patients with epilepsy, in 42% of the total cohort, had normative signs (absence of organic disorders). In other cases, frequent changes in the images were noted diversification of the subarachnoid space, on average 16%; expansion of the ventricles and subconvexital space in 10%; in 12.4% of cases, combined symptoms (craniocortical and subarachnoid spaces) (Table 2).

Table 2. Analysis of the results of neuroimaging parameters according to MRI of the brain of the main group (163).

Sign	% MRI for children and adolescents (163)
diversification subarachnoid spaces	16
Ventriculomegaly	11
Extensions ventricles subconvenital spaces	2,3
Combined symptoms extensions sub .	13.1
Other malformations of the brain	26.6

Thus, it should be noted that there is a certain feature of epilepsy by types and level of the disease in children and adolescents. First of all, this is the transformation of the modification of attacks, attacks in the group of 4-9 years, characterized by syndrome "freezing" or reduced reaction, have changed from the onset of the debut into focal (in 73%) or generalized (27%) seizures, which makes it very difficult to establish a diagnosis and optimize therapy. In addition, there were cases of patients with the onset of focal or generalized seizures, to which attacks of the starring type or temporal absences were added, which again is very difficult diagnose, because of transformations seizures, That There is To in adolescence, the severity of the attack varies according to the level of progression, duration of the attack, and level of circadian rhythm . In addition, it is very important to analyze the onset of seizures from zonality, since more often the transformation of seizures is characteristic of seizures in the frontal region, where changes in generalized or focal epilepsy are clearly traced. Generalized epilepsy in childhood is found to be uncontrollable, especially later transformation or improper treatment. Unlike generalized seizures, focal seizures in the form of "freezing" (dialeptic) are more common at the age of 4-9 years, or paroxysms, myatonic type, in the context of 7-9 years . In the older category of children, adolescents, the nature of the course of seizures generally remained stable. All indicators of epileptiform activity are traced and correlated with EEG indicators, and the indicators of EEG video monitoring during long-term observation of patients are important.

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