



Risk Factors And Outcome Of Febrile Seizures In Children With Epilepsy

¹A.T. Jurabekova

²F.S. Hamedova

³Sh.U. Boltaeva

EMAIL : a_jurabekova@mail.ru

Received 20th February 2021,

Accepted 27th February 2021,

Online 28th February 2021

^{1,2,3}Department of Neurology and
Neurosurgery Samarkand State
Medical Institute, Samarkand,
Republic of Uzbekistan

ABSTRACT: Febrile seizures are a common variant of paroxysmal states in pediatric practice. These are episodes of epileptic seizures that occur in preschool children with hyperthermia that is not associated with neuroinfection. Febrile seizures in most cases are transient in preschool children, but may also be part of the structure of individual epileptic syndromes. In everyday neurological practice, there is no unified approach to the diagnosis and statistical accounting of this pathology, which, in turn, makes it difficult to obtain reliable data on the level of prevalence of the disease in individual regions and in the country as a whole. [1,2,5]. The outcome of febrile seizures has long been the subject of conflicting opinions. According to epidemiological studies, febrile seizures are the most common manifestation of a predisposition to epilepsy in childhood, and in patients with epilepsy, febrile seizures in the anamnesis occur in 15-25%. Afebrile seizures following febrile seizures occur in 2-7% of patients. The percentage of transformation of febrile seizures into epilepsy is also small and does not exceed 2-10% among children with a history of febrile seizures. The risk of developing epilepsy after complex febrile seizures may be 10-20% [3,4]. Prognostic factors for epilepsy in children with febrile seizures are intensively studied. It is assumed that factors such as family burden of epilepsy, the complex nature of febrile seizures, prolonged seizures, disorders in neuropsychiatric development from birth, increase the risk of unprovoked seizures. The value of the established factors for subsequent epilepsy in children with febrile seizures requires further study [6,7].

Key words: neuroinfection, catamnestic studies, febrile seizures, epilepsies prevailed.

Objective

To identify risk factors for febrile seizures and their transformation in various forms of epilepsy.

Material research methods

To study the clinical features of febrile convulsions and the factors in the risk of recurrence of the analysis of observations of 40 children aged 3 months to 5 years at the pediatric ward and pediatric neurology 1 Clinic of Sammi. The average age of the children was 3.2 ± 0.12 . These children were included in the main group. The comparison group is children with epilepsy of the same age. Among the examined children with febrile seizures, there were more boys-64.2%, girls accounted for 35.8% of cases. Temperature is one of the main conditions for the occurrence of febrile seizures. We analyzed individual temperature characteristics associated with the onset of febrile seizures - the level of temperature during the onset of seizures, the presence of temperature before the onset of seizures, and the rate of temperature increase with the onset of seizures. When studying the factors of transformation of febrile seizures into epilepsy, the differences between the two groups were evaluated. A group of children with a history of febrile seizures with an outcome of epilepsy was taken as the main group. The comparison group was represented by children with a history of febrile seizures without a diagnosis of "epilepsy". Patients underwent electroencephalography, electroencephalographic examination was used to verify the nature of epileptic paroxysm.

The results of the study

Catamnestic studies of 84 children with a history of febrile seizures were conducted. Only 14.72% of patients had an outcome in epilepsy, and 85.28% of children had no further paroxysms of an epileptic nature, i.e., febrile seizures were clearly benign. The 1st group of children (with an outcome of epilepsy) was taken as the main group, the 2nd group (with a benign outcome of febrile seizures) as the comparison group. In the group of children with the outcome of epilepsy, generalized idiopathic epilepsies were diagnosed in isolated cases ($n=2$) - children's absentee epilepsy (1 patient), juvenile absentee epilepsy (1 patient). Among the focal and symptomatic epilepsies, temporal localization epilepsies prevailed, frontal epilepsies were in 7 patients, occipital epilepsies in 2 children. In patients with probably symptomatic temporal lobe epilepsy ($n=12$), more than half of the patients had dialeptic and auto - motor seizures, in the remaining cases secondary-generalized. The frequency of seizures was quite high - from several per day to several per month.

Table 1

Nosological distribution of patients with a history of febrile seizures ($n=84$)

Nosology	The number of patients (84)
----------	-----------------------------

Benign febrile seizures	85,3%
The outcome in epilepsy	14,7%
Epilepsy	100%
Generallinie form	12,5%
Children's absentee epilepsy	6,25%
Juvenile absentee epilepsy	6,25%
Symptomatic focal epilepsy	87,5%
frontal	29,2%
temporal	50%
occipital	8,3%

To solve the problem of the relationship between febrile seizures and epilepsy, the role of perinatal pathology was analyzed. In the analysis of perinatal pathology, the most significant risk factors were taken into account, including such as acute, chronic fetal hypoxia, their combination, acute asphyxia in childbirth, and premature birth.

Table 2

Perinatal pathology in children with a history of febrile seizures

Indicators	Children with a history of febrile seizures n =84	
	Main group (n= 14.72%)	Comparison group (n=85.28%)
The course of pregnancy		
Without pathology	37,5%	51,8%
With a pathology	62,5%	48,2%
- chronic fetal hypoxia	54,2%	36%
-acute fetal hypoxia	0%	2,9%
-acute asphyxia in childbirth	0%	2,2%
Childbirth		
Timely	70,8	74,8%
Premature	12,5%	12,9%

Planned caesarean section	12,5%	6.5%
Emergency caesarean section	4,2%	5,8%

A comparative analysis of the two groups showed that pregnancy with pathology occurred in both groups: in the main group in 62.5%, in the comparison group in 48.2% (Table 2). Of the pregnancy pathologies, the most frequent factor was chronic fetal hypoxia (the main group - 54.2% of cases, in the comparison group-36%). Preterm birth in the main group was registered in 12.5% of cases, in the comparison group-in 12.9% of cases. The revealed differences between the groups are not statistically significant, so these perinatal factors cannot be considered as risk factors for the development of epilepsy. Febrile seizures in relatives of probands were found both in the main group (29.2%) and in the comparison group (21%), more often in relatives of 1.2 degrees of kinship. There were no statistically significant differences between the groups. Epilepsy in relatives of probands was statistically significantly more common in the main group (29.2%) than in the comparison group (2.9%). Clinical data were analyzed as risk factors for the transformation of febrile seizures into epilepsy, such as age-onset of febrile seizures. In accordance with Table.3 age-the onset of febrile seizures varied from 3 months of life to 5 years: in children of the main group - 43.5%, in the comparison group-47.5% (on average-1.8 years $\pm$ 1.5 years). There were no statistically significant differences in the age of manifestation of febrile seizures between the groups.

Table 3.

Age-onset of febrile seizures in children with a history of febrile seizures

Indicators	Children with a history of febrile seizures n=84	
	Main group (n = 14.72 %)	Comparison group (n=85.28)
The age of the onset of FS		
3-6 month	17.4 %	8.6 %

6-12 month	26.1%	38.8%
1-3 years	43.5%	47.5%
3-5 years	13.0%	5.0%

According to the characteristics of seizures in the main group, generalized seizures with a focal component (78.3%) and focal seizures (8.7%) significantly prevailed, while in the comparison group, only generalized seizures occurred in 74.1% of cases. The study of the neurological status of children in the main group revealed significantly more changes (54.2%) than in the comparison group (25.4%). Cranial nerve lesions - III, IV, VI (in children with epilepsy-45.8%, without epilepsy-24.6%), motor disorders were found only in children with epilepsy (4.2%), cognitive disorders - in children with epilepsy (4.2%), without epilepsy. When analyzing the EEG results, changes in the wake EEG were significantly more common in the children of the main group (75%) than in the comparison group (2.2%) ($P < 0.001$). In the group of children with epilepsy, changes in the EEG were recorded in the form of a slowdown in background activity (8.35%), a regional slowdown (8.35%), and epileptiform activity (58.3%), while in the comparison group, a slowdown in background activity was found in 1.4%, and epileptiform activity only in 1 case.

Conclusion

The analysis of the outcomes of febrile seizures in children (according to the data of the catamnesis) showed that in 85.3% of cases febrile seizures had a benign age-limited outcome, and only in 14.7% there was a transformation into epilepsy, mainly into focal temporal lobe. Risk factors for the transformation of febrile seizures into epilepsy are hereditary burden of epilepsy, the focal nature of the febrile attack, and neurological disorders. Changes in the brain EEG are markers of an increased likelihood of epilepsy in children with febrile seizures.

LITERATURE:

1. Asatryan E. A. The significance of morphological changes in the brain in the diagnosis and surgical treatment of symptomatic epilepsy in children. Avtoref. dis. kand. med. nauk. SPb. 2016; 23 p.
2. Dolinina A. F., Gromoval. L., Mukhin K. Yu., "Febrile convulsions in children" Journal of Neurology and Psychiatry S. S. Korsakov 2017 Vol. 115 no. 3 st86-88
3. Kurbanova Sh. B., Sadykova G. K., Kudratov Sh. A. " Febrile convulsions in children. Theoretical and practical aspects " Preventive and clinical medicine 2018 No. 4 (57) S95-102

4. Vashura L. V., Savenkova M. S., Zavadenko N. N. " The role of herpesviruses in the genesis of convulsive states in children a modern view of the problem»
5. Puranam R.S., He X.P., Yao L., Disruption of Fgfl3 causes synaptic excitatory-inhibitory imbalance and genetic epilepsy and febrile seizuresplus. The Journal of Neuroscience. 2015;35 (23): 8866-8881
6. Hartmann C., von Spiczak S., Suls A. et. al. Investigating the genetic basis of fever-associated syndromic epilepsies using copy number variation analysis// Epilepsia.2015;56(3) e26-e32.doi: 10.1111/epi. 12920.
7. Nishiyama M., Nagase H., Tanaka T., et al. Demographics and outcomes of patients with pediatric febrile convulsive status epilepticus//Pediatric Neurology.2015;52(5):499-503
8. Niyazov Sh.T., Djurabekova A.T., Isanova Sh.T., Hamedova F.S., Muxtarova M.A. – Clinical and neurological syndromes of meningoencephalitis in children as a result of neuroinfection. // “Science and Education” Scientific Journal January 2021 / Volume 2 Issue 1, c. 29-38
9. Ikramov A., Djurabekova A., Igamova S., Khamedova F. – Clinical and instrumental features of the course of epilepsy with malformation in children. // №12 2020, Annali d’Italia, VOL. 1.P-30-33

CENTRAL ASIAN
STUDIES