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Research Article

Clinical Characteristics of Childhood Epilepsy at the Hospital General De Occiente from 2021-2023

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Abstract

Objective: To show the clinical characteristics of the pediatric population with the diagnosis of epilepsy at the Western General Hospital.

Methodology: Retrospective observational descriptive study of 145 children seen by outpatient clinic and hospital admissions with a diagnosis of epilepsy in the period from January 1, 2021 to December 31, 2023. The classification established by the International League Against Epilepsy (ILAE) was used.

Result: Male sex (55.8%) more frequent, in the age range of 1 to 5 years of age (33.1%). Within the classification of generalized type epilepsy (86.2%) Classification by etiology: the most frequent was idiopathic (43.1%), followed by structural (34.6%), the most associated structural cause is infantile cerebral palsy (66%). Remission rate : 2 patients with recurrence (1.3%) in the same period of time, so we can consider a very acceptable recurrence figure. 9 patients Epilepsy cure rate: 9 children (9.2%). Refractory rate: 7 children (4.8%) associated with some epileptic syndrome. The encephalogram is the main diagnostic tool, being abnormal in 66.2%, magnetic resonance imaging is the most used in 64.8%. The treatment most often provided in the institution is levetiracetam in 49.3% and valproate in 21.5%.

Conclusion: Our institution has the resources and multidisciplinary team necessary to complete an acceptable diagnostic approach that allows favorable control of the disease with a low rate of recurrence and refractoriness to epilepsy treatment.

Keywords: Epilepsy, Structural Seizure, Idiopathic, Focal, Generalized

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Objective

Show the clinical characteristics of the pediatric population with the diagnosis of epilepsy at the Western General Hospital, know the etiology and precipitating factors of the same type of seizure and epilepsy as well as the characteristics of the treatment.

Introduction

Epilepsy is one of the most frequently observed diseases in pediatric care, especially in emergency areas. Epilepsy is defined as the sudden and paroxysmal appearance of signs and symptoms secondary to abnormal, excessive and hypersynchronous neuronal activity in the brain. A patient is considered to have epilepsy when they present two unprovoked seizures 24 hours apart, or one unprovoked seizure with a high risk of recurrence. Statistically, according to the World Health Organization, 59 million people in the world have epilepsy, of which 62% are in Latin America, requiring assistance in second and third level care hospitals. In Mexico, a prevalence of 10.8 to 20 cases per thousand inhabitants is estimated, so it is important to know the triggering risk factors, age, sex, type of crisis and offer appropriate treatment for our children.

Methodology

Retrospective observational descriptive study of 145 children treated by outpatient clinic and hospital admissions with a diagnosis of epilepsy at the Western General Hospital in Guadalajara Jalisco captured in the period from January 1, 2021 to December 31, 2023.

The classification established by the International League Against Epilepsy (ILAE) was used.

Inclusion Criteria

The complete medical records of patients under 18 years of age with a diagnosis of epilepsy treated by the Pediatric Neurology service at the Western General Hospital were reviewed.

Exclusion Criteria

Patients without a confirmed diagnosis of epilepsy and patients with a diagnosis of febrile seizures. The database was created in the Microsoft Corporation Excel program.

Patients were classified according to the following parameters.

Classification of groups based on age range: under 1 year of age, 1 to 5 years of age, 6 to 10 years of age, 11 to 15 years of age, and over 15 years of age.

The classification based on etiology of epilepsy: structural, genetic, idiopathic, infectious, metabolic, immunological, unknown and epileptic syndromes.

Results

An analysis was carried out on 155 patients, of which 10 patients were excluded because they did not have a confirmatory diagnosis of epilepsy and a diagnosis of febrile seizures. The study population is 145 patients, 81 males (55.8%) and 64 females (44.1%). The average age range was 6.9 years of age, the highest presentation rate in the population aged 1 to 5 years of age (33.1%), leaving the range of 6 to 10 years of age in second place (28.3 %), and in third place 11-15 years of age (20%).

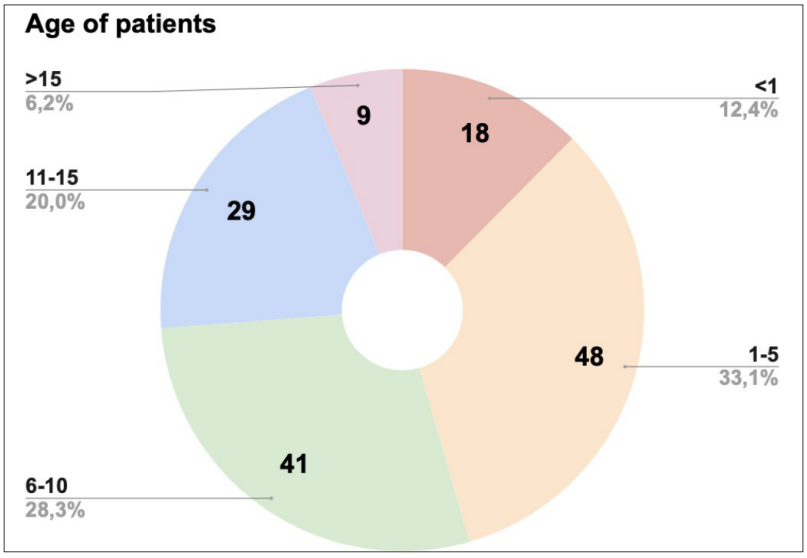

Figure 1. *Sectoral diagram that illustrates the age of the population studied.*

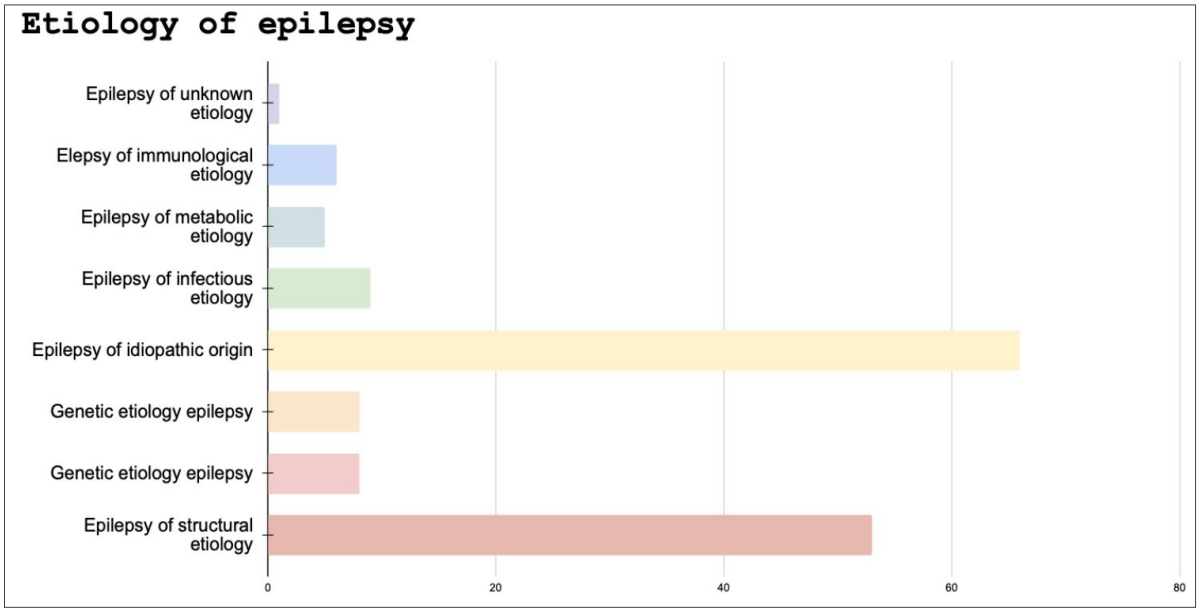

Figure 2. *The bar graph illustrates the number of patients in each of the etiologies.*

Regarding the classification of epilepsy and the type of seizure, the most frequent type was generalized (86.2%), with focal and mixed type having the same frequency: (6.89%).

The most frequent classification by presentation etiology was idiopathic (43.1%), followed by structural (34.6%), infectious (5.8%), and genetic (5.1%). Of the structural causes, the most associated causative factor is infantile cerebral palsy (52.8%), followed by hydrocephalus (26.4%), intraventricular hemorrhage (16.9%), and hypoxic ischemic encephalopathy (13.2%).

In the diagnostic approach, an electroencephalogram was performed (82%) of the studied population, which showed some alteration (66.2%), was reported normal (16.5%) and was not performed (17.2%) of the sample. Magnetic resonance imaging was performed (64.8%) of the patients, finding alterations in (35.8%), it was reported normal (28.9%) of the patients and was not performed (35.1%) of the studied population. Skull tomography is the least performed imaging study (28.9%), being abnormal in (12.4%), normal (16.5%) and not performed in the rest of the sample (71%).

Regarding the monotherapy treatment, the anti-seizure drug was levetiracetam (43.3%), and in second place was valproate (25.1%), following in frequency that of therapy in (11.3%) of the patients.

Discussion

Epilepsy is a brain disorder generated by a long-lasting predisposition to generate epileptic seizures, establishing that when presenting two unprovoked seizures with a 24-hour interval between the seizures or an unprovoked seizure with a 60% risk of suffering recurrence, remembering that a seizure Epilepsy is the transient appearance of signs and symptoms secondary to abnormal, excessive or hypersynchronous neuronal activity in the brain (1). For our research we take into account the classifications and definitions provided by ILAE, since it allows us to understand, classify and assess a prognosis in each of our patients(2).

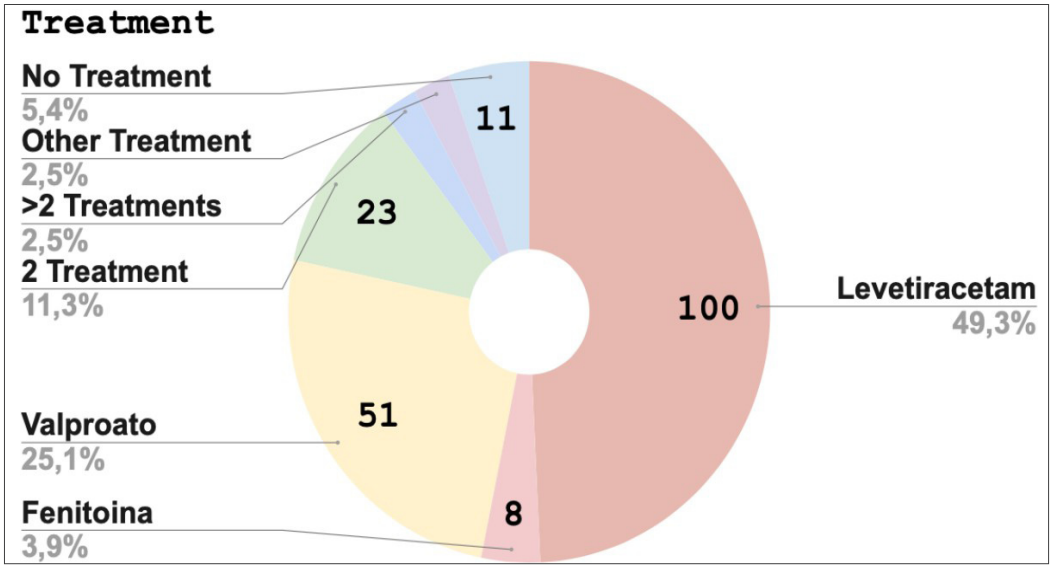

Figure 3. *Sector diagram illustrating treatments in percentage and quantity.*

When classifying epilepsies we can divide it by levels.

Type of seizure dividing focal, generalized or unknown onset, depending on the group, consciousness is considered conscious or impaired, motor or non-motor onset, tonic-clonic or unclassified (3).

Type of epilepsy divided into focal, generalized and unknown. Figure 4: ILAE 2017 Dr. Scheffer's Epilepsy Classification.

Epilepsy syndromes that are age-dependent for the onset or remission of seizures, electroencephalograms, seizure type, and more or less specific neuroimaging and developmental characteristics.

We established the diagnosis by a detailed clinical history, signs and symptoms of the patients, including studies such as electroencephalogram, neuroimaging and in some cases requiring laboratory tests in cases of metabolic or immunological etiology. The average age reported in the literature is 5.9 years, being one year different from our population, but covering the same age group, with preschoolers having the highest diagnosis rate. The most frequent type of seizure reported in the literature also coincides with the results of our study, which is a generalized onset of the tonic clonic type in 103 as a characteristic of 71%. As a structural etiological agent, our research differs from others mentioned in the literature since our precipitating factor is infantile cerebral palsy in 52.8%, leaving hypoxic ischemic encephalopathy in third place with presentation in 13.2% of patients, this being the most reported in previous research. 56.3% have an

etiology that triggers the seizures. The encephalogram is the main diagnostic tool, in our patients 66.2% were found abnormal, complemented by a neuroimaging study, with magnetic resonance being the most used in 64.8%(4).

When epilepsy is detected, medical treatment should be provided to control seizures, provide education about the condition, improve quality of life, school performance, social acceptance and reduce the risk of status epilepticus (5). According to our results, the treatment that is provided most in the institution is levetiracetam in 49.3% and valproate in 21.5%, in an article from Zaragoza Spain they comment that these two medications produce cerebral executive dysfunction, marking this as a key point for monitoring the neurodevelopment of our patients by monitoring side effects, attention, behavior and school performance (6).

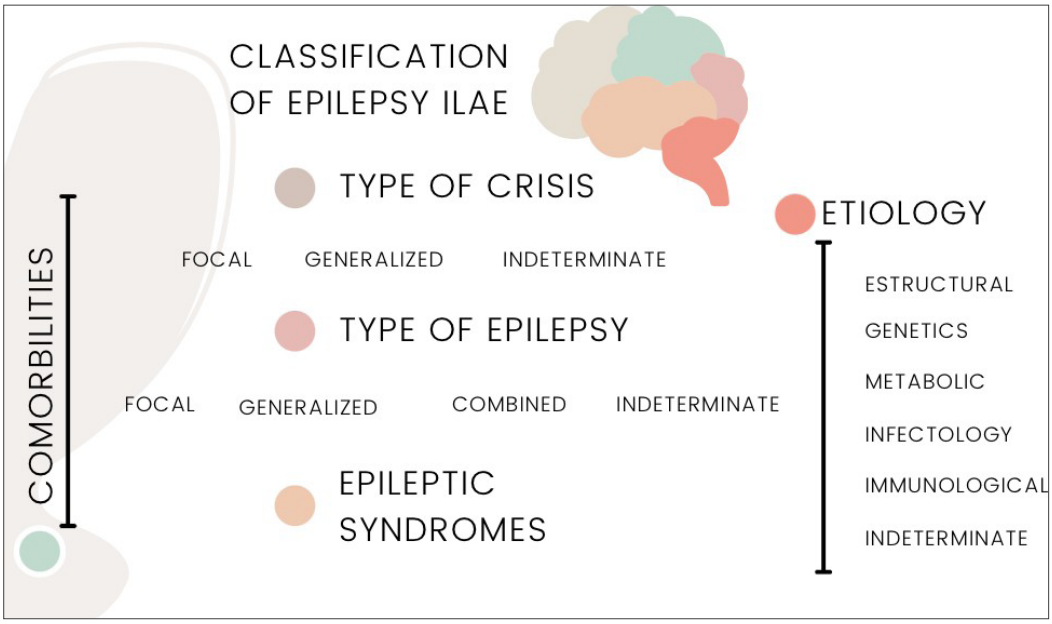

Figure 4. *ILAE 2017 Dr. Scheffer's Epilepsy Classification.*

Regarding remission, the ILAE definition includes patients without anti-seizure treatment for 5 years and without seizures. An ILAE article shows that the expected statistic is 6%. In the United Kingdom, a recurrence of 44% at 3 years, in our population we found only 2 patients with recurrence (1.3%) in the same period of time, so we can consider a very acceptable recurrence figure. 9 patients met the criteria for curing epilepsy (9.2%), which generates a favorable prognosis for our patients.

Refractoriness usually occurs in 20% of patients with epilepsy; in our population it occurred in 7 children (4.8%) associated with an epileptic syndrome whose refractoriness is typical of said syndrome. Epilepsy does not usually last a lifetime, it is considered resolved when there are no seizures in 10 years, with at least 5 years without treatment or when the person has outlived his or her age in an epilepsy syndrome.

Conclusion

Epilepsy is a very common disease due to the etiological factors found in our population and does not differ from other clinical characteristics shown in other studies. Our institution has the resources and multidisciplinary team necessary to complete an acceptable diagnostic approach that allows favorable control of the disease with a low rate of recurrence and refractoriness to treatment.

Conflicts of Interest: No conflict of interest

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