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Review Article

Epidemiological and Progressive Aspects of Childhood Absence Epilepsy (EAE)

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ABSTRACT

Introduction: Childhood absence epilepsy is an epileptic syndrome described as generalized, frequent, of presumed genetic cause, characterized by the occurrence of typical absences. Childhood absence epilepsy generally affects healthy school-age children and is the most common form of pediatric epilepsy. In the majority of cases, it responds well to treatment with Ethosuximide, disappearing well before puberty in the majority of cases without after-effects, even if some cognitive disorders have been found in certain children. The objective of this study is to describe the epidemiological and progressive aspects of childhood absence epilepsy (EAE).

Patients and Methods: Retrospective study covering the files of children suffering from absence epilepsy and followed between 2012-2022 at the Pikine health center in Dakar, Senegal.

Results: Our study population consisted mainly of children aged 5 to 22 years. The average age was 13.06 years. The proportion of girls was in the majority (87.5%) compared to 12.5% for boys with a sex ratio of 7 in favor of girls and a frequency of 1.83%. The age of onset of the disease was 8.62 years with extremes ranging from 5 to 12 years. The average age at the first consultation was 8 years. Twelve (12) patients (75%) had no personal history while only one patient (6.2%) had a family history. CGTCs were found in 4 patients (25%). The neurological examination was normal in all our patients, the majority of whom came from Pikine (62.5%) and only 8 patients (50%) had consulted in the first two years. The others had consulted more than 5 years after the start of their attacks. In our series, two cases of dropout were found, i.e. 12.5%. The neurological examination was normal in all our patients. The EEG was characteristic in most cases with bilateral synchronous and symmetrical PO complex discharges rhythmic at 3Hz. Seven (7) children had a brain CT scan which came back normal. The response to treatment is good without side effects in 56.3% of cases. This response was clear for patients who were on VPA.

Conclusion: The diagnosis of absence epilepsy in children is essentially clinical and electrophysiological. It would be important to initiate appropriate treatment as early as possible and to listen to parents in order to detect possible psychosocial difficulties linked to the disease itself or to the treatment.

KEYWORDS

Epidemiology, Evolution, EAE, Pikine, Senegal.

Introduction

Childhood absence epilepsy is a generalized epilepsy that begins before puberty in children without a history associating very frequent absences with a characteristic EEG [1]. Its incidence corresponds to 8% of epilepsies in school-aged children [1,2]. It is more common in girls than in boys [3]. There is sometimes a family history of epilepsy. Absences usually begin between the ages of 3 and 12. They very rarely begin before 3 years [4]. They are sometimes preceded by hyperthermic convulsions. Absences are characterized by a sudden loss of contact with fixed gaze. The child may stop or continue his activities inappropriately. This disorder of consciousness can be isolated or is accompanied by facial myoclonus, a loss of tone and/or vegetative manifestations. They occur several times a day and can cause school problems. The EEG anomalies accompanying the absences are characteristic (interesting, in certain cases, of video EEG): bilateral, symmetrical and synchronous spike-waves at three cycles per second with abrupt beginning and end. Hyperpnea favors their occurrence. The diagnosis of typical absences is electro-clinical. Brain imaging is not necessary [3]. Valproate (Dépakine®) or ethosuximide (Zarontin®) are classically administered as first-line treatment with excellent results. In case of failure, their combination is also effective. On the other hand, carbamazepine (Tegretol®) worsens absence epilepsy.

The evolution of this epilepsy is usually favorable, but it can persist into adulthood. These absences are more frequently accompanied by automatisms. They are associated in 80% of cases with generalized tonic-clonic seizures and myoclonic attacks in 15 to 20% of cases [5].

In the Pikine department, a suburb of Dakar, the prevalence of epilepsy increased from 1983 to 2001 from 12/1000 to 14/1000. During this work, we will focus on absence epilepsy in children. The latter are part of the group of idiopathic generalized epilepsies in the 1989 classification. The main objective of this work is to determine the prevalence of absence epilepsies in children and their management at the Pikine health center.

To achieve this objective, we have undertaken to:

- Describe the sociodemographic characteristics of the population under study.
- Describe the methods of patient care.
- Appreciate the progress of patients under treatment.
- Study the impact of the disease on children's education and their social integration.

Patients and Methods

Study Setting

This study took place at the Baye Talla Diop ex Dominique de Pikine health center located in the suburbs of Dakar.

Population and Type of Study

This is a retrospective study, which consists of analyzing the files of children suffering from absence epilepsy and followed between 2002-2010 in this structure.

Inclusion Criteria

Onset between the ages of 4 to 12 years, Normal development, normal neurological status, Typical absences, EEG assessment compatible with the diagnosis of Epilepsy Absence of the child with PO of 3c/s.

Exclusion Criteria

Epilepsy other than Child Absence Epilepsy

The variables studied were: Sex, Age of onset of the illness (crisis), Personal and family history, the presence or absence of motor automatism, the association of CGTC with absences, the children's schooling, Response to treatment.

Data Processing

Data were processed with SPSS software version 16.0 for Windows.

Results

Sociodemographic characteristics: This study concerned 16 children followed for absence epilepsy at the Pikine health center out of 873 files of patients suffering from epilepsy, i.e. a frequency of 1.83%. The average age was 13.06 years with extremes ranging from 5 to 22 years. The age group of 10 to 14 years was the majority with 8 patients or 50%. All patients are divided into 14 girls (87.5%) versus 2 boys (12.5%) with a sex ratio of 7. The average age of onset of the disease was 8.62 years with extremes ranging from 5 to 12 years. The majority of patients came from Pikine 62.5% followed by Guédiawaye (12.5%).

In terms of history: 12 children (75%) had no particular history. We found 2 cases of meningitis in childhood (12.5%) and 2 cases of febrile convulsions (12.5%). One patient (6.2%) had a family history of epilepsy.

Clinically: 100% of children had typical absences. CGTC were found in 4 patients (25%) and one case of motor automatism (6.2%). 8 patients (50%) had consulted in the first 2 years after their first attack distributed as follows: 2 patients (12.5%) in the same year, 1 patient (6.25%) one year later, and 5 patients (31.25%) 2 years later. While the other 8 (50%) had consulted more than 5 years after their first attack. The neurological examination was normal in all 16 patients (100%).

Paraclinically: 7 patients (43.75%) received a brain scan which was normal. The EEG was characteristic with bilateral, synchronous and symmetrical discharges of rhythmic PO complexes at 3 Hz over normal background activity in all patients.

Therapeutically: 9 patients (56.3%) were on sodium valproate and 7 patients (43.7%) on Phenobarbital. The recovery is clear for patients who were on VPA. Patients on PHB had either improved or had their seizures stopped without being declared cured.

Case 1

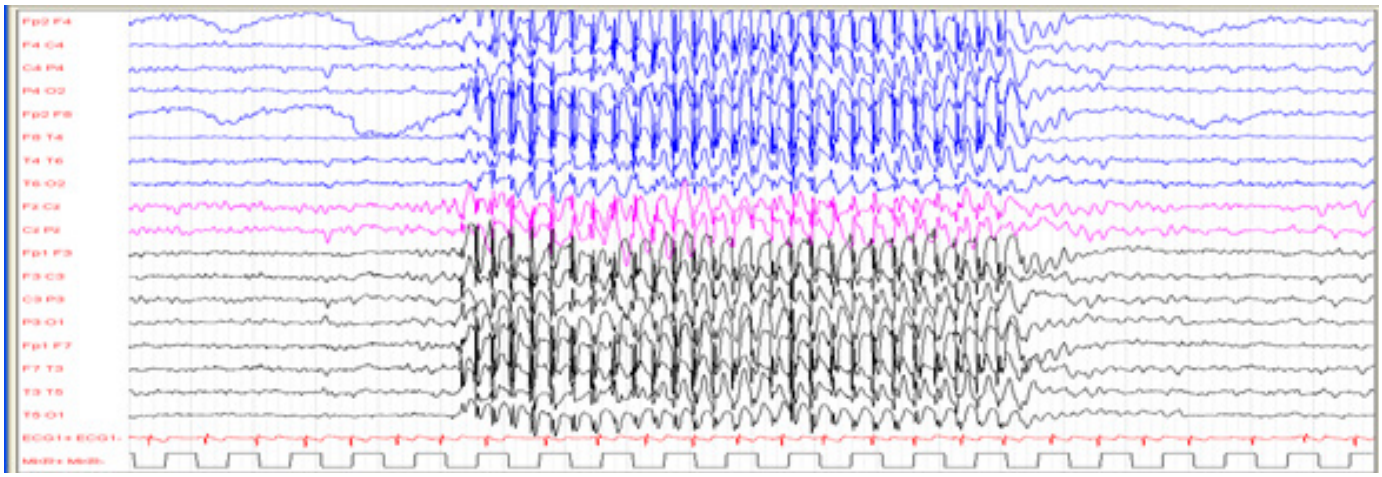

Figure 1: NDIAYE M child aged 7 years without ATCD and followed for absence epilepsy with generalized OP, synchronous at 3c/s. Favorable development under VPA.

Case 2

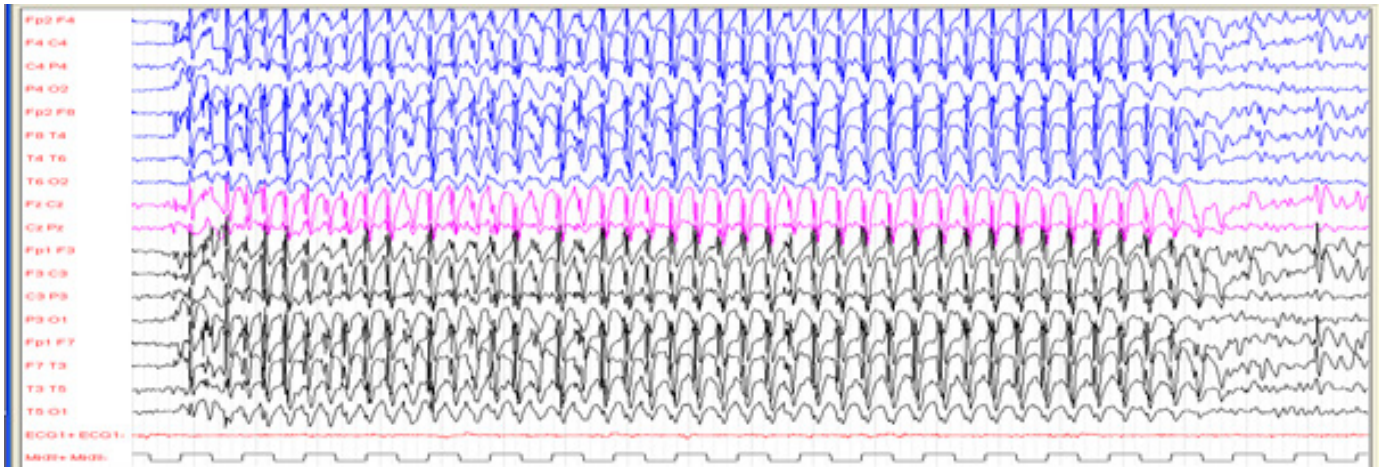

Figure 2: Child Aminata GUEYE, 9 years old ATCD of febrile convulsions followed by absence epilepsy. EEG: bilateral POs, synchronous at 3 Hz. Seizures stopped for 14 months under VPA.

In terms of evolution: The evolution was linked to the short consultation period and good therapeutic behavior. The 3 patients declared cured were on VPA and had consulted in the same year (2 cases) or even one year (1 case) after the start of their crisis. In our series, we found two cases of dropping out of school in a boy and a girl, i.e. 12.5%. We do not have precise information on the education of the 14 other patients.

Discussion

The sex ratio was 7. There was a female predominance, i.e. 87.5% versus 12.5%. In the French study by Luna et al., AEA is more common in girls than in boys; 60 to 70% of patients are girls [6,7]. The average age of onset of the disease was 8.62 years with a range of 5 to 22 years. A peak of 50% is found in the age group of 5 to 8 years. This is consistent with literature data and particularly with Loiseau [8] who reviewed this syndrome and concluded that absences usually begin between 3 and 12 years of age, with a peak at 6-7 years of age. Early onset is rare and absences that appear after 12 years of age are part of adolescent absence epilepsy. In our study, out of 16 children: 12 children (75%) had no particular personal history; 2 children (12.5%) had a history of febrile seizures and the other 2 (12.5%) had a history of Meningitis in childhood. These results tend towards those reported to Fann in Dakar who found that 92.85% of children had no particular personal history. This difference would be linked to the size of the population studied.

In our series, only one child (6.2%) had a family history of epilepsy. A family history of epilepsy has been reported in 15 to 44% of cases [7,9,10]. The notion of familial epilepsy must be interpreted: we go from 42.6 to 20.7% if we only consider cases occurring in parents or siblings [11]. Likewise, in two series, epilepsy in first-degree relatives was noted in 17% of EAEs. The risk of epilepsy in the offspring of subjects with EAE was estimated at 6.8% [12]. In our study, CGTCs were found in 4 children (25%). The coexistence of absence and generalized tonic-clonic seizures is not uncommon. A third of patients with absences also have generalized tonic-clonic

seizures from time to time and in the majority of cases begin between 10 and 15 years of age [9,13]. The neurological examination was normal in all our patients. A normal neurological state is one of the inclusion criteria [14]. On the other hand, fall's team in Dakar found a normal neurological state in 27 patients (96.43%), only one patient (3.57%) had a language delay [9]. However, EAE can appear in subjects with moderate idiopathic mental retardation [6].

The EEG was characteristic in most cases with bilateral synchronous and symmetrical discharges of rhythmic PO complex at 3 Hz on normal background activity in 13 children (81.25%); two children had diffuse PP and PPO for a duration of 3 s followed by paroxysmal discharge on a normal background trace and one child had a burst of diffuse P and PO, hypersynchronous to HPN [15,16]. 7 patients had a brain X-ray scan which was normal. Which is the rule.

The response to treatment was good without side effects in 56.3%% of cases. These data corroborate the literature data reporting that approximately 60 to 80% of patients achieve complete seizure control under Ethosuximide or VPA alone and this was confirmed by the Dakar team which found 89.28% of seizures. a good response to treatment [9]. This strong difference could be linked to good therapeutic conduct where patients were systematically on VPA or Ethosuximide as first-line treatment unlike our series.

Consultation time and evolution of crises. In our series, 50% of cases had consulted within the first 2 years. Those who had consulted between 0 and 1 year were declared cured. Therefore, early consultation with adequate treatment constitutes an important factor in the progression of the disease. In our series, we found two cases of dropping out of school in a boy and a girl, i.e. 12.5%. We do not have precise information on the education of the 14 other patients. This result is relatively similar to that found at the Fann neurological clinic in Dakar which was 12.2% of patients who had learning difficulties [9]. This difference would be linked to the size of the sample.

Conclusion

The diagnosis of childhood epilepsy is essentially clinical and electrophysiological. Its management requires effort on the part of parents, clinicians and teachers. Regular psychosocial monitoring of children with EAE allows their integration into social life. Our results confirm that the evolution of EAE is not always favorable, hence the importance of initiating adequate treatment as early as possible and of remaining attentive to parents in order to detect possible psychosocial difficulties linked to to the disease itself or to the treatment.

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