EPH -International Journal of Medical and Health Science
ISSN (Online): 2456-6063
Volume 06 Issue 02 June 2020

DOI: https://doi.org/10.53555/eijmhs.v6i2.136

ELECTROCLINICAL ASPECTS OF OCCIPITAL EPILEPSY SEEN IN THE NEUROSCIENCES AND MENTAL HEALTH LABORATORY ANTSAKAVIRO

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Abstract:-

***Introduction**: Occipital epilepsy occurs when the initial site of epileptic discharge involves part or all of the occipital lobe. Occipital epilepsy is the least common of the other types of epilepsy and is rarely described in the literature. However, the manifestation located initially in the occipital cortex, which is a functional zone of vision, leads to its protean aspect. It can be a source of diagnostic wandering. The purpose of this study is to describe the electroencephalographic clinical characteristics of patients seen for occipital epilepsy at the Laboratory of Neurosciences and Mental Health, Antsakaviro, Madagascar.*

***Methods**: This is a retrospective and descriptive study that took place over a one-year period (January 2016 to December 2016). Included in this study were all patients diagnosed with clinically and EEG-confirmed occipital epilepsy. A correlation between clinical manifestations and electroclinical data is sought.*

***Results**: We retained 66 patients with male predominance (sex ratio: 1.4). The age of the patients ranged from 3 to 55 years with a mean age of 13.77 years. Patients reside in urban areas and the majority are of non-school age. The clinical manifestations of occipital epilepsy are mainly paroxysmal visual hallucinations lasting on average 3 minutes and of variable frequency. EEG signs are predominantly paroxysmal activities with a predominant or occipital starting point.*

***Conclusion**: The clinical and electroencephalographic manifestations of occipital epilepsy deserve special attention in order to make a proper diagnosis.*

Key words:- *Partial epilepsy, occipital lobe*

INTRODUCTION

Epilepsy is a group of syndromes and diseases characterized by a predisposition of the brain to have epileptic seizures and by the neurobiological (cognitive, psychological and social) consequences that result. An epileptic seizure is a paroxysmal neurological manifestation caused by the sudden and transient hypersynchronization and hyperactivation of a group of brain neurons.[1] This paroxysmal hypersynchronization and hyperactivation of neuronal activity is the central pathophysiological element in epilepsy.

The clinical manifestations encountered during these seizures depend on the initial cerebral location of the discharge and its possible spread. [2] It can be generalized when it immediately affects the entire cerebral cortex and focal when it initially involves part of the brain.

Occipital epilepsy is a focal epileptic disorder in which the epileptic discharge initially affects part or all of the occipital lobe. Occipital epilepsy is the least common type of epilepsy and is rarely described in the literature. However, the manifestation located initially in the occipital cortex, which is a functional zone of vision, leads to its protean aspect. Indeed, several forms of epilepsy have been described, which differ both clinically and etiologically. [1,3] It can be a source of diagnostic wandering. Hence, this study aims to describe the electroclinical aspects of patients seen for occipital epilepsy at the Laboratory of Neurosciences and Mental Health, Antsakaviro,

METHODOLOGY

This is a retrospective and descriptive study that took place over a one-year period from January 2016 to December 2016. This study targeted all patients seen for a standby EEG examination in the laboratory. We included all patients diagnosed as having occipital epilepsy and whose electroencephalographic patterns showed an occipital and/or occipital starting point irritant focus with clinical manifestation(s) in favor. A good correlation between clinical manifestations and electroclinical data was sought. We excluded patients or parents (for minors) who refused to participate in the study, children under 3 years of age who might have difficulty communicating during the interview. This study is initially carried out through patient census on the results of successive EEG examinations followed by a complementary re-examination in search of a clinical occipital crisis with informed consent. We studied socio-demographic parameters, clinical and electroencephalographic characteristics.

RESULTS

During the study period, our laboratory recorded 7943 EEG examinations. Of these results, 173 patients have an occipital (unilateral or bilateral) irritant focus or occipital starting point. After applying the inclusion and exclusion criteria, we selected 66 patients.

The age of the patients ranges from 3 to 55 years with a mean age of 13.77 years. The male gender represented 58% (58 patients) while the female gender was 42% (28 patients) with a sex ratio of 1:4. Our patients were without any particular history in 36%, with a family history of epilepsy in parents and/or brothers in 33%, one, notion of fetal suffering during childbirth in 14%. Other history such as head trauma (11%) and hydrocephalus 6% were found. The majority of patients resided in urban areas (47%) and out-of-school school-aged children predominate in our study population (59% of patients).

The main clinical manifestations of occipital epilepsy were dominated by paroxysmal visual hallucinations in 68% of patients (n=48), illusions in 15% (n=10), flickering scotomas in 11% (n=7), and paroxysmal visual blurring in 6% (n=4). In 83% of patients (n=55), occipital epilepsy had other associated manifestations, in particular, which is an extension of the seizures into generalized seizures in 47% (n=23), an extension into the other lobes in 29% (n=16), occipital headaches in 24% (n=13), vomiting and/or nausea in 5% (n=3).

Concerning the electroencephalographic aspects, all patients presented basic physiological activities with pathological paroxysmal activities (point-wave, tip, polypoint-wave) with bilateral localization in 45% (n=30), which are sensitive to hyperpnea in 18% (n=12) and 35% (n=23) to intermittent light stimulation.

DISCUSSION

The objective of this study was to determine the clinical, electroencephalographic profile and characteristics of patients with occipital epilepsy. We retained 66 patients or 0.83% of all admissions in our Neuroscience and Mental Health Laboratory during the study period. Occipital epilepsy is arguably less common than other types of epilepsy. According to the literature, the data are variable. In a CAROLE study, it accounted for 1.8% of newly diagnosed epilepsy. Other studies described that occipital epilepsy accounted for 2-7% of epilepsy from all causes. [4, 5] The difference in our study could be explained by the fact that patients with electroencephalographic abnormalities could be excluded due to the absence of clinical manifestations correlated with occipital epilepsy. Admittedly, the EEG examination may show intercritical occipital discharges that are non-epileptic. [6]

The age of the patients ranges from 3 to 55 years with a mean age of 13.77 years. Like other types of epilepsy, occipital epilepsy predominates in children. According to the literature, the distribution is bimodal. Epilepsy predominates in children and the elderly, so about 50% of epilepsies begin before the age of 10 years [2, 5].

Males accounted for 58% (58 patients) and females 42% (28 patients) with a sex ratio of 1.4. All surveys, with rare exceptions, show a higher frequency in males. [4]

Our patients are without any particular history in 36%, family history of epilepsy in parents and/or brothers in 33%, notion of fetal suffering during childbirth in 14% and other antecedents such as head trauma (11%) and hydrocephalus (6%) were found. Occipital epilepsy can occur in the presence or absence of a history, but it also occurs in patients with histories or events that modify or alter the occipital cortex.
The majority of patients reside in urban areas (47%). This reflects the distribution of the global population due to rural exodus in our country, and the place of recruitment for this study is in urban areas. The predominance of patients from urban areas could be explained by the proximity of his residence and the study site. Also, access or transport of patients from rural areas is often difficult, which could explain the low proportion of patients.

Out-of-school school-age children predominate in our study population (59% of patients). Indeed, epilepsy leads to the non-enrolment of children, which is multifactorial, either because of school difficulties related to cerebral maturation, school absenteeism, or because of stopping or not attending school and other reasons. [7]

The main clinical manifestations of occipital epilepsy are dominated by paroxysmal visual hallucinations in 68% of patients (n=48), illusions in 15% (n=10), scotoma flickering in 11% (n=7) and paroxysmal visual blurring in 6% (n=4). In 83% of cases (n=55), occipital epilepsy presents other associated manifestations, in particular, which is an extension of the seizures into generalised seizures in 47% (n=23), an extension into the other lobes in 29% (n=16), occipital headaches in 24% (n=13), vomiting and/or nausea in 5% (n=3). Partial epilepsy with an occipital onset manifests itself in episodes, usually brief, involving visual illusion or hallucination, projecting into a hemicamp. Hallucinatory manifestations are often elementary in the form of points of light, spots of colour and imprecise shapes in movement, but they can be complex (perception of elaborate scenes, changes in the size or shape of objects). [8] Hemanopsia or blindness may occur during the seizure or in the postcritical phase. These visual manifestations may occur in isolation, but are sometimes accompanied by motor manifestations, such as a conjugated deviation of the head and eyes, nystagmus, tonic-clonic jerks on a hemicorps, other sensory manifestations, such as vertigo or auditory hallucinations, or absence, which the patient does not remember (the presence or absence defines a complex partial seizure, as opposed to a simple partial seizure). Headaches and sometimes vomiting are readily present in postmenopausal women, especially in children. [8, 9] These occipital seizures occur most often in benign childhood epilepsy with occipital paroxysms, an idiopathic form of epilepsy that regresses before adolescence [10]. However, when they occur in adolescents or adults, they are usually symptomatic of vascular tumours or malformations. An association on the scanner with parenchymal calcifications of the bioccipital seat can be observed in the case of celiac disease. 11] Associated manifestations are frequent, especially in relation to the spread of the crisis to the other lobes. The occipital lobes contain networks of interlobar, intralobar and other structures, in particular the splits, the lower longitudinal bundle, the lower fronto-occipital bundle and the posterior segment of the arcuate bundle. [12, 13]

Concerning the electroencephalographic aspects, all patients presented basic physiological activities with pathological paroxysmal activities (point-wave, tip, polypoint-wave) with bilateral localization in 45% (n=30), which are sensitive to hyperpnea in 18% (n=12) and 35% (n=23) to intermittent light stimulation. According to the literature, intercritical EEGs may be normal, but typically show a pattern of spiky, occipital, uni- or bilateral, high-voltage, and occipital topography that disappears when the eyes are opened. [8] Electroencephalographic analysis requires sufficient skill as there are non-epileptic abnormalities frequently encountered especially in children. [6]

CONCLUSION

Overall, occipital epilepsy presents polymorphic aspects in clinical and electroencephalographic studies. Clinical manifestations are mainly paroxysmal visual hallucinations and/or visual manifestations. These clinical manifestations are confirmed in EEG by pathological paroxysmal abnormalities. The clinical correlation revealed by the visual manifestation and the paroxysmal occipital or occipital starting point anomaly confirms the diagnosis but there are isolated clinical or electroencephalographic abnormalities that require attention.

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