Epilepsy & Behavior 48 (2015) 15–20

Contents lists available at ScienceDirect

Epilepsy & Behavior

journal homepage: www.elsevier.com/locate/yebeh

Can emotional stress trigger the onset of epilepsy?

Philippe Gélisse [a,b,*], Pierre Genton [c], Philippe Coubes [a,b], Ngoc Phuong Loc Tang [a,b], Arielle Crespel [a,b]

[a] Epilepsy Unit, Hôpital Gui de Chauliac, Montpellier, France
[b] Research Unit (URCMA: Unité de Recherche sur les Comportements et Mouvements Anormaux), INSERM U661, Montpellier, France
[c] Centre Saint Paul-H. Gastaut, Marseille, France

ARTICLE INFO

Article history:
Received 17 April 2015
Revised 5 May 2015
Accepted 5 May 2015
Available online 28 May 2015

Keywords:
Onset epilepsy
Stress
Significant life events
Death

ABSTRACT

Objective: The aim of this study was to investigate the potential role of an acute adverse stress as "trigger" for the onset of epilepsy.
Methods: Among 4618 consecutive patients, twenty-two reported a major life event within three months before the onset of epilepsy.
Results: All patients had focal epilepsy except one with idiopathic generalized epilepsy. The temporal lobe was involved in 90% of patients with focal epilepsy. More precisely, 13 patients (62% of patients with focal epilepsy) had medial temporal lobe epilepsy (MTLE), two had lateral temporal lobe epilepsy, four had temporo-parietooccipital junction epilepsy, and two patients had central lobe epilepsy. The mean age and the median age at onset of epilepsy for patients with MTLE were both 38 years (range: 9.5–65 years). Ten patients had right and three had left MTLE. Among patients with focal epilepsy, MRI was abnormal in 7 (33%) with hippocampal sclerosis in four, periventricular nodular heterotopia in two, and complex cortical dysgenesis in one. The mean age at onset of epilepsy for patients with brain lesions was 26 years (range: 9.5–49). Twelve patients (54%) reported a death as a triggering factor for the onset of their epilepsy. Seven patients (32%) reported that a relationship of trust had been broken. Three patients (14%) had been subjects of violence. No patient reported sexual abuse as a triggering factor.
Conclusion: This study provides evidence that some patients (5/1000 patients) began their seizures in the wake of significant life events. The average age at onset of epilepsy is quite late, around age 30, even in the presence of brain lesions. These patients are emotionally and affectively more prone to have consequences of a stressful life event. The recognition and management of such situations may bring significant relief with improvement of the control of epilepsy.

1. Introduction

Several studies have reported an association between stressful life events and exacerbation of epilepsy [1–4], but few studies implicated acute stress in the onset of the disease. Koutsogiannopoulos et al. used a phenomenological approach and interviewed 19 patients on the occurrence of significant life events in the year prior to the diagnosis of generalized or focal epilepsy [5]. They underlined the possible role of life stressors as triggers for the onset of epilepsy. We performed a longitudinal study over 11 years to investigate the potential role of acute adverse stress in precipitating epilepsy. All patients included in this study have spontaneously linked a prior emotional shock with the onset of their epilepsy.

2. Patients and methods

The study was undertaken among 4618 patients with epilepsy who were evaluated at least once between January 1, 2004 and December 31, 2014 at the epilepsy unit of Montpellier, which is a tertiary center for adolescents and adults. The diagnosis of epilepsy was ascertained by two senior epileptologists (PhG, AC). Patients who reported an emotional shock within three months before the onset of epilepsy were included in this study. They were interviewed during the following consultations to assess the time relationship between the emotional shock and the onset of the epilepsy, the type and severity of the emotional shock, and their opinion about the responsibility of the event for their epilepsy. We never looked actively into the occurrence of such events before the onset of seizures, which might have led to overestimation, and all events had been reported spontaneously by the patients. All patients had at least one video-EEG according to the international 10/20 system and one brain MRI (1.5 or 3 T).

* Corresponding author at: Epilepsy Unit, Hôpital Gui de Chauliac, 80 Avenue Fliche, 34295 Montpellier Cedex 05, France. Fax: +33 4 67 33 61 00.
E-mail address: p_gelisse@hotmail.com (P. Gélisse).

http://dx.doi.org/10.1016/j.yebeh.2015.05.010
1525-5050/

3. Results

A total of 22 patients (10 males, 12 females) (4,7/1000) reported a major life event preceding the onset of the epilepsy. Table 1 summarizes the demographic data, the epilepsy syndrome, the type of life event, and the response to drugs. Mean age of the patients at the time of inclusion in the study was 42 years (range: 15–7). The mean age and the median age at onset of epilepsy were 32 years (range: 9.5–65) and 29 years, respectively. Two patients (cases 13, 22) only had an awake video-EEG and six patients a nap video-EEG (cases 7, 8, 14, 20–22), five had a recording lasting 24 to 48 h (cases 11, 15, 17–19), and ten had presurgical assessment with EEG during 5 days (cases 1–6, 9, 10, 12, 16). Patient 6

Table 1
Demographic and clinical characteristics of the patients.

Patient	Sex	Onset of epilepsy (years)	Lat.	Age at referral (years)	Febrile seizures	MRI	Type of epilepsy	Circumstance	Evolution/severity of the epilepsy
1	M	16	R	36	No	Normal	L lateral temporal lobe	First seizure (focal evolving to GTCS) on the day his father was buried	Drug resistance then seizure-free after psychotherapy; low dose of CBZ
2	F	33	R	33	No	Normal	R temporoparietooccipital junction	One week after the murder of her sister by husband	Drug resistance
3	F	27	R	33	No	Cortical dysgenesis of the left parietal lobe	L centroparietal lobe	One week after the death of her brother (brain tumor); this patient still visits her brother's grave every week 10 years later	Drug resistance
4	F	21	R	33	No	Left nodular periventricular heterotopia (occipital horn)	L temporoparietooccipital junction	Three months after the death of her mother (breast cancer)	Drug resistance
5	F	16	R	35	No	3 T normal	R temporoparietooccipital junction	Two months after the death of her father	Drug resistance
6	M	45	R	48	No	3 T normal	L mesial temporal lobe	Two months after he found his brother-in-law dead due to suicide (head exploded by firearm)	Seizures only in condition of stress; no surgery was proposed for this patient because right-handed man with a normal hippocampus
7	F	52	R	62	No	Normal	R mesial temporal lobe	Two months after the death of her brother (cycling accident)	Spontaneous amelioration of the frequency of seizures when the psychological trauma was taken into account
8	F	65	R	71	No	Normal	R mesial temporal lobe	One month after the death of her husband	Drug sensitive; low dose of CBZ
9	F	16	R	33	No	R hippocampal sclerosis	R mesial temporal lobe	One month after the death of her father	Drug resistance; seizure-free since surgery; follow-up after surgery: 10 months
10	F	28	R	29	No	R nodular periventricular heterotopia (occipital horn)	R temporoparietooccipital junction	One week after the death of her father in her arms (massive myocardial infarction)	Drug resistance
11	M	18	R	29	No	Normal	R mesial temporal lobe	One month after the death of a good friend in a car accident; he should have been in the car but decided to drive home with someone else	Drug sensitive
12	F	11	L	24	No	Normal	L central lobe	Few days after witnessing a catastrophe (several deaths and panic provoked by fireworks)	Drug resistance
13	M	38	R	49	No	Normal	L mesial temporal lobe	One month after learning that his wife was having an affair (it ended up in divorce)	Drug sensitive
14	M	17	R	25	No	Normal	R mesial temporal lobe	One week after breaking off a sentimental relationship	Drug resistance
15	M	36	L	34	No	Normal	R mesial temporal lobe	One month after his divorce	Drug resistance
16	M	30	D	34	No	R hippocampal sclerosis	R mesial temporal lobe	Few days after his wife left suddenly with no explanation; frequent seizures in stressful condition	Seizures precipitant: emotion; seizure-free after surgery; follow-up of 3 years
17	M	49	R	65	No	R hippocampal sclerosis	R mesial temporal lobe	Two months after separation (it ended up in divorce), and his daughter does not want to speak to him	Drug sensitive
18	M	55	R	57	No	Normal	R mesial temporal lobe	Two months after his exclusion from the municipal team, which he resented as a great injustice	Drug sensitive
19	F	47	R	62	No	Normal	L lateral temporal lobe	Two days after being molested by her husband for the first time; no head trauma	Drug sensitive
20	F	59	R	63	No	Normal	R mesial temporal lobe	Three months after being molested by her husband for the first time; no head trauma	Drug sensitive; seizures precipitant: emotion
21	F	9.5	R	59	Yes	L hippocampal sclerosis	L mesial temporal lobe	One week after seeing her father with his mistress in the family home, as a child	Drug resistance
22	M	15	R	15	No	Normal	Idiopathic generalized epilepsy	One day after a severe aggression without help from bystanders; no head trauma	Died by drowning

Lat.: lateralization; CBZ: carbamazepine; R: right; L: left, T: tesla.