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Physically traumatic events in patients with epilepsy compared with non-epileptic subjects

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To determine the incidence of traumatic events among epileptic patients compared with non-epileptic individuals, we distributed a questionnaire on physically traumatic events occurring during the preceding three months to consecutive epileptic patients and to age- and sex-matched controls. There were 145 epileptic patients, 121 with seizures (age 36 ± 15 y, 60 males) and 24 who were seizure free during this period (age 39 ± 17 y, 13 males), and 145 controls (age 36 ± 15 y, 73 males). There was no significant difference in the duration of epilepsy between the two groups of patients with epilepsy. Traumatic events ($n = 27$, three of them unrelated to seizure) were most common in patients with seizures, followed by controls ($n = 20$), and absent in seizure-free patients ($P < 0.001$). Patients with epilepsy most commonly injured the head while the extremities were more usually involved in controls. Patients with epilepsy had significantly more traumatic events at home, whereas controls underwent most traumatic events at work and in public areas. There was no significant difference in the type and severity of trauma between the two groups. We conclude that physically traumatic events not related to seizures are fewer among patients with epilepsy with and without seizures compared with controls, probably because of increased cautiousness.

Key words: trauma; epilepsy.

INTRODUCTION

Patients with epilepsy can sustain injuries as a result of their seizures[1–3]. Therefore, although it is important to be aware of the potential hazards that seizures present, it is also prudent to alleviate unjustified anxieties surrounding epileptic seizures causing many epileptic patients to conduct an overprotective lifestyle. There is little information in the literature regarding the frequency and characteristics of physically traumatic events in patients with epilepsy compared with non-epileptic subjects.

PATIENTS AND METHODS

A questionnaire was presented by a physician (VC) on physically traumatic events which had occurred in the preceding three months to 145 consecutive patients with epilepsy who were being treated in our outpatient referral epilepsy clinic and to age- (±5 years) and sex-matched controls randomly selected from among the patients' relatives or visitors to the Department of Neurology. A physically traumatic event was defined as an event leading to any physical damage and related to daily living activities. All of our patients kept a diary regarding the frequency of seizures. The questionnaire specific to the epileptic patients included variables related to seizure type, frequency and duration of epilepsy. The questionnaire presented to both the patients with epilepsy and the controls (described in detail elsewhere[2]) included variables regarding the physically traumatic event, such as the type and severity of trauma, the part of the body injured and the place where the trauma had occurred, as well as the consequences of the injury. All the patients and controls completed the questionnaires. Statistical significance of differences was assessed using Student's *t*-chi-square, or univariate tests as appropriate.

RESULTS

The study included 145 patients with epilepsy and 145 controls (Table 1). Twenty-four patients were seizure-free and 121 patients experienced seizures. There was

no significant difference between patients with controlled or uncontrolled seizures in terms of the abnormal neurological status and the duration of epilepsy (Table 2). Patients who were seizure-free were taking significantly less anti-epileptic drugs compared with the patients with uncontrolled seizures (Table 2). Generalized from onset seizures were more frequent in seizure-free patients, and partial with and without secondary generalization were more frequent in patients with seizures (Table 2). In this study we disregarded the risk factors for seizure-related accidents as this issue was covered extensively in our previous paper[2]. During the three-month follow-up period of our study, physically traumatic events were most common in patients with seizures ($n = 27$, 24 seizures related) followed by controls ($n = 20$), and absent in seizure-free patients with epilepsy ($P < 0.001$: seizure-free patients vs. the other two groups). Physically traumatic events, unrelated to seizures ($n = 3$), were significantly less frequent among patients with seizures compared with controls ($n = 20$) ($P < 0.05$). The head was most commonly injured part of the body in patients with epilepsy ($P = 0.002$) while the extremities were more commonly involved in the controls ($P = 0.04$, Table 3). Patients with seizures experienced physically traumatic events mainly at home, whereas they occurred to the controls mostly at work and in public areas ($P < 0.05$, Table 4). Most of the physical injuries were minor. There was no significant difference regarding the type or severity of the trauma between the two groups. Only two patients and two controls required hospitalization following the traumatic event. Eight out of the 27 patients who had seizures and who experienced trauma were employed: three of them lost days of work following the trauma, as did three controls.

Table 1: Patients characteristics.

	Patients with seizures	Seizure-free patients	Controls
No.	121	24	145
M/F	60/61	13/11	73/72
Age (y)	36 ± 15	39 ± 17	36 ± 15
Range (y)	16–83	20–81	16–81

Table 2: Clinical variables comparing patients with epilepsy with seizures with patients with epilepsy who were seizure-free.

	Patients with seizures ($n = 121$)	Seizure-free patients ($n = 24$)
Abnormal neurological exam	33 (27%)	4 (21%)
Duration of epilepsy (y)	14.4 ± 12	11.3 ± 12.6
Frequency of seizures/mo	7.2 ± 12.2 (range 1–60)	
Partial	35 (29%)	4 (17%)[a]
Generalized	27 (22%)	13 (54%)[a]
Partial and secondarily generalized	59 (49%)	7 (29%)
Mean no. of AED[c]	1.68	1.0[b]

[a] $P < 0.002$; [b] $P = 0.0001$; [c] AED = Anti-epileptic drugs.

Table 3: Site of trauma.

	Patients with seizures ($n = 121$) (No. events = 27)	Controls ($n = 145$) (No. events = 20)
Head	18 (66%)	5 (25%)[a]
Arm & Leg	5 (19%)	15 (75%)[b]
Trunk	2 (7%)	0 (0%)
Others	2 (7%)	1 (5%)

[a] $P = 0.002$; [b] $P = 0.04$.

Table 4: Place where trauma occurred.

	Patients with seizures ($n = 121$) (No. events = 27)	Controls ($n = 145$) (No. events = 20)
Kitchen	1 (4%)	2 (10%)[a]
Bathroom	4 (15%)	0 (0%)[a]
Bedroom & living room	17 (63%)	3 (15%)[a]
Work	1 (4%)	8 (40%)[a]
Public area	4 (15%)	7 (35%)[a]

[a] $P < 0.05$.

DISCUSSION

It is well known that patients with seizures can sustain physical traumas during their seizures[1–3], as well as because of drug effects such as ataxia or drowsiness. In the present study, performed in a single centre, we showed that physically traumatic events related to seizures are more frequent among patients with epilepsy with seizures compared with controls or to patients with epilepsy with optimally controlled seizures. Interestingly, such events not related to seizures were fewer in patients with and without seizures compared with controls, probably because of their exercising increased cautiousness and refraining from potentially hazardous activities. Indeed, in studies estimating the risks of road traffic accidents in patients with epilepsy the overall risk of accidents in the population of drivers with a history of epilepsy was lower than that of normal controls[4,5].

Similarly, in the study of Beghi and Cornaggia, accidents and related events were reported in fairly similar proportion in patients with epilepsy and matched controls, although there was no differentiation between seizure-free patients and patients with seizures[6].

Adverse effects of drugs can affect metal alertness. Therefore, even patients without seizures may be at increased risk of accidents. The mean number of drugs taken by our seizure-free patients was significantly less than our non-seizure-free patients.

Previous retrospective studies of the incidence of trauma in patients with epilepsy frequently suffer from recall bias, a problem which is minimized by the present short-term study. Among our non-seizure-free patients, seizure-related physical traumas occurred in 20% of the patients. These results were comparable to those of our previous study[2] where about 30% of the patients in our study population reported having seizure-related injuries at any time in their past history. In both studies, most of the injuries were mild and did not even requiring hospitalization.

The frequency of physically traumatic events in patients has not been compared in depth to that of healthy subjects. In a preliminary report of a prospective study of patients with epilepsy and controls, accidents and related events were shown to occur in similar proportions in the two groups[6]. Studies such as these may influence the attitudes in the general population and have an impact on the patients' quality of life. They also underscore the policy that the advice given to a patient with epilepsy regarding daily activities should be made on an individual basis, and that only a very few activities are absolutely barred from them.

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