Full Length Research Paper

Pseudoepilepsy among adult Sudanese epileptic patients

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This non interventional descriptive study was conducted at El shaab Teaching Hospital during the period of Feb 2004 to Aug 2008, 720 adult Sudanese epileptic patients were included in the study, during the period of the study, 40 non epileptic patients (NES) were seen in the outpatient clinic with abnormal movement and were diagnosed as pseudoepilepsy. Forty (10 M; 30 F) patients with NES, 720 (390 M; 330 F) patients with epilepsy and 40 (15 M; 25 F) control subjects were recruited. Our preliminary results confirm previous researches showing that NES typically manifest between 20 and 30 years of age and that approximately three-quarters of all patients were women. The incidence of childhood sexual abuse varies considerably (10%), likewise the incidence of cerebral pathology (5%), the sexual coloring of the attack (4%); the frequency of psychogenic seizures combined with epilepsy (50%), the number of patients with pseudoepilepsy who remain on anticonvulsive medication (50%). All patients with pseudoepilepsy had normal EEG (electroencephalogram) and normal serum prolactin level. Pseudoepilepsy is not uncommon among adult Sudanese epileptic patients.

Key words: Pseudoepilepsy, Sudanese epileptic patient.

INTRODUCTION

Epilepsy is a relatively common condition characterized by a tendency to recurrent seizures (Berkovic et al., 1996; Koestner and Rehfeld, 1968). Epilepsy is either; idiopathic when there is no underlying cause or secondary if there is an underlying cause (Jaggy et al., 1998; Placencia et al., 1994). Pseudoseizures or nonepileptic seizures (NES) are termed "nonepileptic psychogenic seizures". Pseudoseizures can be defined as "psychogenically determined clinical events that resemble epileptic attacks," which are not associated with physiologic central nervous system dysfunction (Sander et al., 1997; Sander and Shorvon, 1987; Bazil, 1994). Non epileptic attacks are not uncommon and can be very frightening both to the patients and their families (Niedermeyer, 1983; Desai et al., 1983; Dreifus, 1986). These seizures are often misdiagnosed as true epilepsy, resulting in inappropriate, ineffective and costly treatment of many patients (French, 1988; Gates, 1985).

The prevalence of pseudo epilepsy in the study area is not known, where they represent 20 - 30% of referral cases of epilepsy in the developed countries (French, 1988; Gates, 1985).

Objective

To study the prevalence of pseudoepilepsy among adult Sudanese epileptic patients.
### Table 1. Criteria for distinction of epilepsy from pseudo seizures.

<table>
<thead>
<tr>
<th></th>
<th>Generalized tonic-clonic seizures</th>
<th>Complex partial seizures</th>
<th>Simple partial seizures</th>
<th>Pseudoseizures</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aura</strong></td>
<td>Short</td>
<td>Short</td>
<td>Short</td>
<td>May be complex, prolonged</td>
</tr>
<tr>
<td><strong>Ictal duration</strong></td>
<td>1 min</td>
<td>2 min</td>
<td>Less than 1 min</td>
<td>Variable, often long, range of elaborate behavior; may include coordinated activity or prolonged unresponsiveness</td>
</tr>
<tr>
<td><strong>Behavior</strong></td>
<td>Little variation; stereotyped events; tonic, clonic phases; autonomic changes</td>
<td>Most common; features well described &quot;disenabled&quot; motor activity</td>
<td>Sensory-motor symptoms; psychic, autonomic</td>
<td></td>
</tr>
<tr>
<td><strong>Postictal stage</strong></td>
<td>Exhaustion</td>
<td>Confusion; may sleep</td>
<td>Mild, if at all; &quot;Todd's paralysis,&quot; if focal motor</td>
<td>Difficult to differentiate; clear postictal stage</td>
</tr>
<tr>
<td><strong>Ictal EEG</strong></td>
<td>Usually abnormal</td>
<td>Usually abnormal</td>
<td>May be abnormal</td>
<td>Usually normal; should not be clearly epileptic</td>
</tr>
<tr>
<td><strong>Response to antiepileptic drugs</strong></td>
<td>Often good; seizures increase on withdrawal</td>
<td>Variable; usually at least transiently helpful; seizures increase on withdrawal</td>
<td>Less responsive; focal motor seizures may be helpful</td>
<td>None, except placebo effect</td>
</tr>
</tbody>
</table>

### METHODS

#### Study area

Subjects with pseudo seizures and epileptic seizures had been randomly recruited from Sheik Mohammad Khier Neurological Referral Clinic and El shaab Teaching Hospital (a 240 bedded hospital). The study population included 720 epileptic patients referred to the hospital from February 2004 to June 2008. The study was a descriptive cross sectional hospital based study. We evaluated three samples: Patients with NES, patients with epilepsy and a control sample.

At first, 780 patients were included in the study, but 60 patients were dropped due to difficulty of follow up, the rest of the patients were followed by the authors until the end of the study period. During the period of the study, 40 non epileptic patients were seen in the outpatient clinic with abnormal movement and diagnosed as pseudoepilepsy and they were included in the study in addition to the control group (45).

#### Inclusion criteria

All the patients were Sudanese; and patients that were 18 years of age or above were included in the study.

#### Exclusion criteria

Non Sudanese patients specifically those below 18 years of age were excluded. All gave their verbal consent to participate in the study; the study was approved by the ethics committee. Pseudoseizures can usually be distinguished from true epileptic seizures, although this is not always the case, true epileptic seizures and pseudoseizures may coexist in the same patient (Table 1) (Gumnit and Gates, 1986). Symptoms experienced during non epileptics attacks include loss of or altered awareness, breathing difficulties, prolong unresponsiveness, eye flickering, side to side movement of the head, increased heart rate, rapid and shallow breathing (Kanner, 1990).

To determine whether the attack is true or pseudo, it is very important to take a full detailed medical and personal history including the following factors-psychological (personality and behavior), social (home, school and education), medical (psychiatry, learning disability and, physical symptoms and illness), work, personal environment and information on any traumatic life events (eg. loss, bereavement) (Kanner, 1990).

Reliable witness accounts are very important for clear and concise descriptions of the period before, during and after an attack, followed by physical and neurological examinations, and then EEG (electroencephalogram) monitoring, which determine characteristic patterns in an epileptic seizure that are not present in an NEA. Also ambulatory EEG and Video Telemetry can accurately record the attacks (Lancman, 1994; Lesser et al., 1983; McKeever and Holmes, 1986), while serum prolactin was done for those who had pseudo epilepsy.

#### Data collection

Data was collected by self-administered questionnaire composed of personal data, full detailed history and examination.
Table 2. The aetiology of epilepsy among the studied group.

<table>
<thead>
<tr>
<th>Aetiology</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No cause</td>
<td>484</td>
<td>67</td>
</tr>
<tr>
<td>Cerebrovascular accident</td>
<td>72</td>
<td>11</td>
</tr>
<tr>
<td>infection (meningitis encephalitis)</td>
<td>42</td>
<td>6</td>
</tr>
<tr>
<td>Trauma</td>
<td>30</td>
<td>4</td>
</tr>
<tr>
<td>Brain tumors</td>
<td>30</td>
<td>4</td>
</tr>
<tr>
<td>Consumption of alcohol</td>
<td>30</td>
<td>4</td>
</tr>
<tr>
<td>Degenerative diseases</td>
<td>18</td>
<td>2.5</td>
</tr>
<tr>
<td>Mental retardation</td>
<td>18</td>
<td>2.5</td>
</tr>
</tbody>
</table>

Table 3. Some observations among our studied group.

<table>
<thead>
<tr>
<th>Observations</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>History of epilepsy</td>
<td>20</td>
<td>50</td>
</tr>
<tr>
<td>History of frequent hospital admissions</td>
<td>15</td>
<td>37.5</td>
</tr>
<tr>
<td>History of social problems</td>
<td>15</td>
<td>37.5</td>
</tr>
<tr>
<td>Current or past history of psychiatric disorder</td>
<td>5</td>
<td>12.5</td>
</tr>
<tr>
<td>History of attempted suicide</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Sexual maladjustment</td>
<td>4</td>
<td>+</td>
</tr>
<tr>
<td>History of childhood abuse</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>Organic brain disease</td>
<td>2</td>
<td>5</td>
</tr>
</tbody>
</table>

Data analysis

All collected data was finally entered into the computer using statistical package program for social science (SPSS) to analyze the data using simple descriptive statistics.

RESULTS

Out of 720 epileptic patients, 390 were male (54.15%) and 330 patients were female (45.85%). Age distribution of our epileptic patients range between 18 and 80 years. Table 2 shows the aetiology of epilepsy among the studied group.

Out of 720 Epileptic patients, 144 (20%) had a family history of Epilepsy. Out of 720 Epileptic patients, 618 (86.4) had generalized Epilepsy, while 102 patients (13.6%) had focal Epilepsy. Out of 40 patients with pseudoepilepsy, 30 (75%) were female. Age distribution of patients with pseudoepilepsy range between 18 and 63 years, but two third of them were age between 18 - 25 year. Out of 40 patients with pseudoepilepsy, 20 were known to have epilepsy (no cause was observed in 18 patients while 2 patients had organic cause).

Table 3 shows some observations among the studied group. One patient with pseudoepilepsy had urine incontinence and one patient had injury of the tongue. Postictal neurological signs were not detected in any patients with pseudoepilepsy. All patients with pseudoepilepsy had normal EEG and normal serum prolactin level.

DISCUSSION

Epilepsy is a clinical syndrome characterized by increase electrical excitability of cortical neurons with or without loss of consciousness.

The term pseudoseizure is used to describe "nonepileptic attacks of psychological origin, which mimic epileptic seizures. These seizures are often misdiagnosed as true epilepsy, resulting in inappropriate, ineffective and costly treatment of many patients (Meierkord, 1991). As mentioned in the literature, this study showed that non-epileptic seizures typically manifest between 18 and 25 years of age (Monday and Jankovic, 1993). As observed, most of our patients had idiopathic epilepsy, while stroke was the commonest cause of epilepsy followed by infection, brain tumors and brain trauma (Monday and Jankovic, 1993). It was found that pseudo epilepsy was more common among patients with idiopathic epilepsy. Approximately three-quarters of all patients were women; this is similar to what was reported by Milton Rosenbaum in New Mexico and also to that of Rowan and Gates in their book, Non-Epileptic Seizures which showed that 84% of these cases were women (Rowan and Gates, 1993). It seems that psychogenic seizures in women express rage, fear, and helplessness. It is believed that currently, much of the behavior of
women defined as pseudo epilepsy is the product of cultural pressures. History of frequent hospital admissions and history of social problems were observed among our studied group similar to what was reported by other researchers (Rowan and Gates, 1993). Sexual maladjustment and history of childhood abuse was observed in a considerable number of our patients (10 and 10% respectively), several studies showed a relationship between pseudo-epileptic attacks and sexual abuse (Rowan and Gates, 1993). Like what was reported by other researchers, it was found that suicide risk was especially high for people who have both epilepsy and another psychiatric condition (Pakalnis, 1991). Knowledge about the pathogenesis and phenomenology is still scarce. Like what was reported by researcher word wide, this study showed that 50% of our patients had true epilepsy, the coexistent of pseudoepilepsy on the top of true epileptic attacks make the diagnosis of pseudo-epilepsy so difficult and therefore, the diagnosis of pseudoepilepsy requires careful observation of the patient behaviors both during and between the attacks, also psychiatric history if present, may support the diagnosis of pseudoepilepsy (Owan and Gates, 1993; Pakalnis, 1991).

In most of our patients, the attacks were characterized by atypical, often bizarre, motor activity, which disorganized and lack the serotype characteristic of genuine tonic clonic convolution. Hypersalivation, injury of the tongue and urinary incontinence may occur rarely with pseudoseizures, so, it is very important to secure an accurate diagnosis to ensure appropriate treatment. Since well trained observers may fail to identify pseudoseizures in up to 20% of cases, therefore, it is important to attempt to obtain an EEG during the attack to confirm the diagnosis of pseudoseizures, also the distinction between epileptic attacks originating from the frontal lobes and non-epileptic attacks may be especially difficult and may required videotelemetry with prolong EEG recordings.

The prevalence of pseudoepilepsy among the studied group is less than that reported worldwide, this is due to lack of facilities to support the diagnosis of pseudoepilepsy like monitoring EEG and video camera. On like what was reported by other researchers, the incidence of childhood sexual abuse in the studied group was less, this is due to the fact that people in our society do not like to discuss sexual problems (Shen, 1990). The normal EEG and normal serum prolactin among patients, support the diagnosis of pseudoseizures, is similar to what was reported by Shen (1990), Wylie et al. (1991) and Reuber et al. (2002). Patients who had both epileptic seizures and non-epileptic attacks are candidate for antiepileptic drugs as well as treatment relevant to Pseudoseizures e.g. psychotherapy and/or counseling. In general the therapist should always consider the possibility of psychogenic factors in children and adolescents who suffer from seizures (Markus and Christian, 2003; Laura, 2004; Goldstein, 2004).

Limitation of the study
Lack of combines Video and EEG monitoring during the attacks in our Hospital setting, make it easier to miss cases of pseudo epilepsy.

CONCLUSION AND RECOMMENDATIONS
Pseudo seizures are not uncommon among epileptic patients. Further studies are required to evaluate the clinical features and prognosis of pseudoseizures using video-EEG telemetry. We are on need to improve our knowledge regarding psychopathology of Pseudo seizures.

REFERENCES
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