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Full Length Research Paper

Examination of the characteristic, clinical manifestations and epileptic profile in Yemeni patients

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Epilepsy is one of the most common neurological disorders worldwide. More than 80% of people with epilepsy (PWE) live in tropical and subtropical areas with low income countries. Comparing to high income countries, the prevalence of epilepsy in low income countries amounted into ten times higher and the incidence rate was twice that of high income countries. The aim of the present study is to investigate and examine the characteristic, clinical manifestations and epileptic profile in Yemeni patients who were referred to the Neurological Center in Sana'a city. The clinical data of patients who were referred to the Neurological Center at Sana'a city with focal or generalized seizures were consecutively, systematically, and prospectively recorded in a database and reviewed by the investigators from January 2010 to December 2013. For all the patients, a pre-coded data form was completed to collect the demographic data relevant history, neurological examination, and EEG and CT findings. All the EEG records were read by the same electroencephalographic. A total of 500 patients with epilepsy were seen during the study period (266 males and 234 females). The age ranged from 1 year to 65 years. 99 patients were younger than 6 years, 184 (36.8%) aged between 6-15 years, while 129 (25.8%) are aged between 16-25 years. 115 patients with epilepsy have family history of epilepsy and 96 patients did not know about the epilepsy in his/her family. The most obvious association between epilepsy and risk factors were febrile convulsion which accounted for 13.6%, head trauma in 11.2% and CNS infections. The predominant seizure was classified as generalized in 355 patients (71%), as partial in 109 (21.8%) and unclassified in 36 (7.2%). This study threw light shadow on the importance of epilepsy in Yemen and further wide community studies are required to obtain comprehensive and accurate information on these disorders.

Key words: Epilepsy, pattern, clinical manifestation, Yemen.

INTRODUCTION

Epilepsy is one of the most common neurological disorders worldwide. More than 80% of people with epilepsy (PWE) live in Tropical and Subtropical areas with low income countries (Preux and Druet-Cabanac, 2005). The prevalence of epilepsy in low income countries amounted to be ten times higher than that of high income countries (Ngugi et al., 2010; Dumas and Preux, 2008). The prevalence of epilepsy in Africa is ranging from 2.91 per 1,000 to 11.2 per 1000 (Burton et al., 2012; Winkler et al., 2009). However, in rural areas in Africa, it reached to 57 per 1000 inhabitants (Senanayake and Roman, 1993). WHO estimates that eight people per 1000 inhabitants have epilepsy and about 50 million people live with epilepsy worldwide (WHO, 2004).

In a review of epilepsy in Arab countries, Benamer and Grosset (2009) found that an approximately 724,500 people with epilepsy live in the Arab world. Prevalence rate for active epilepsy in Saudi Arabia was found to be 6.54 per 1000 population (Al rajah et al., 2001).

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Table 1. Age and sex distribution of the patients with epilepsy.

Age group	Male		Female		Total	
	No.	%	No.	%	No.	%
≤ 5	54	54.5	45	46.5	99	19.8
6-15	89	48.4	95	51.6	184	36.8
16-25	69	53.5	60	46.5	129	25.8
26-35	35	63.6	20	37.4	55	11.0
36-45	12	60.0	8	40.0	20	04.4
45≥	7	53.8	6	42.2	13	02.6
Total	266	53.2	234	46.8	500	100

An incidence of 174 per 100,000 persons in 2001 was reported in a hospital-based study from Qatar (Al Hail et al., 2004). One important step towards reducing the burden of epilepsy is to assess its prevalence, causes and risk factors in low resource and poor countries.

The appropriate management of epileptic seizures, its outcome and prognosis are dependent on the type of seizure, the epileptic syndrome and the possible underlying cause. We rely primarily on the neurological history, clinical examination, and the electroencephalogram (EEG) to determine the causes and types of epilepsy (Chadwick, 1990; Menkes and Sankar, 1995; Porter, 1989). Diagnosis should not be based on the presence of single features (www.nice.org.uk/cg20). The seizure type(s) and epilepsy syndrome, aetiology, and co-morbidity should be determined, because failure to classify the epilepsy syndrome correctly can lead to inappropriate treatment and persistence of seizures (www.nice.org.uk/cg20). Electroencephalogram is a valuable test in the definition of epileptogenic areas beyond the structural lesion. The widespread use of EEG in clinical practice and its comparison with Neurological Pattern is a major development in the treatment of patients with specific syndromes, as well as with ill-defined spells thought to be epileptic in nature.

The aim of the present study is to examine the characteristic, clinical manifestations and epileptic profile in Yemeni patients who were referred to the Neurological centre in Sana'a city.

MATERIALS AND METHODS

The clinical data of patients who were referred to the Neurological centre in Sana'a city with focal or generalized seizures were sequentially recorded in a database. Every patients or relative of the patient were given informed consent and that the study protocol was approved by the University's committee on human research. We reviewed all data that were collected through January 2010 to December 2013. Specific form was designed to collect demographic data, relevant history, neurological examination, and EEG and CT findings. All EEG records were read by the same electroencephalographic to minimize inter- observer variability.

Statistical analysis

The data were entered into a standard database file using Personal computer and analyzed using the statistical package for Social Sciences Program. Frequency table, mean and standard deviation were calculated.

Definitions

We used the International League Against Epilepsy (ILAE, 1993) definitions and defined active epilepsy as two or more afebrile seizures, at least 24 h apart, unrelated to acute infection, metabolic disturbance, neurological disorders or drugs, in the last 5 years (Commission on Epidemiology and Prognosis, International League against Epilepsy, 1993). Epileptic seizures were classified according to the ILAE guidelines (ILAE, 1981). Seizure etiology was categorized as idiopathic or structural if there was sufficient evidence from history and examination to assess for an underlying cause for epilepsy and as undetermined if there were insufficient data (Commission on classification and terminology of the international league against epilepsy, 1981).

RESULTS

A total of 500 patients with epilepsy were seen during the study period (266 males, and 234 females); the male to female ratio was 1.14:1. The age ranged from 1 year to 65 years. Age and sex distribution of the patients is shown in Table 1. 99 patients were younger than 6 years, 184 (36.8%) aged between 6-15 years, while 129 (25.8%) aged between 16-25 years. After that, the frequency of epilepsy decreased with increasing ages.

Demographic characters of the patients are shown in Table 2. 284 of the patients were in moderate socioeconomic state, while low and high classes

Table 2. Demographic characteristics of the patients with epilepsy.

Item	No.	%
Inhabitants		
Rural	298	59.6
Urban	212	42.4
Socioeconomic state		
Low	284	56.8
Moderate	184	36.8
High	32	6.4
Consanguinity of the parents		
Present	146	29.2
Absent	324	64.8
Unknown	30	6
Family history of the epilepsy		
Absent	289	57.8
Present	115	23
Not known	96	19.2
Status epilepticus		
Absent	363	72.6
Present	137	27.4
Seizure frequency/month		
Mean	1.2	00

Table 3. Risk factors for epilepsy from patients' history and physical examination.

Risk factor	No. of patients	%
Perinatal event	17	3.4
Head trauma	56	11.2
Suspected CNS infection	36	7.2
Alcohol abuse	00	00
Hydrocephaly	30	6.0
Febrile convulsion	68	13.6
Negative history/No risk factor	359	71.8

represented for 184 and 32 of the patients respectively. Most of the patients 298 (59.6%) came from Rural while 212 (42.4%) patients came from urban area. The most frequent patients which came from governments of Sana'a, Taiz, Ibb, Thamar and Amran represented 129 (25.8%), 99 (19.8%), 45 (0.9%), 34 (6.8%), and 21 (4.2%) respectively. 115 patients (23%) with epilepsy have family history of epilepsy and 96 patients did not know about the epilepsy in his/her family. First class of consanguinity of the parents was ascertained in 146 (29.6%) patients, while 324 had no close relation between their parents. However, status epilepticus was ascertained in 27.4% of the patients.

The risk factor/s is shown in Table 3. The most obvious association between epilepsy and risk factors was febrile convulsion which accounted for 13.6%, followed by head trauma (11.2%) and the third frequent factor was CNS infection which accounted for 7.2% of the patients.

The seizures of all epilepsy patients diagnosed in this study over the study period were classified according to the criteria of the International League against Epilepsy (ILAE). The predominant seizure was classified as generalized in 355 patients (71%), as partial in 109 (21.8%) and unclassified in 36 (7.2%). The description of the EEG and CAT scan is subsequently presented in this paper.

DISCUSSION

The present study is the first study to report the initial findings of patients with clearly diagnosed epilepsy in Yemen. It provides essential data and health problem on the importance of epilepsy in Yemen. It may also enhance the health policy makers to develop strategies for preventing and managing epilepsy in the country. Children and young people composed the greater fraction in our patients; this coincides with the previous studies from other countries which found that majority of epilepsies occur during childhood (Commission on classification and terminology of the international league against epilepsy, 1981; Prischich et al., 2008; Eriksson and Koivikko, 1997; Kurtz et al., 1998; Aziz et al., 1997; Murat et al., 2012; Ngugi et al., 2013).

In this study, the overall ratio between males and females with epilepsy was 1.14:1. But in the young age group, the prevalence ratio is equal; this may be related to the stigma that may be associated with epilepsy if it occurs in females. However, similar result had been reported from neighbor countries (Al rajah et al., 2001; Al Hail et al., 2004). This male surplus in adult is presumed to reflect the contribution of etiologic factors such as head trauma that is known to be more frequent in males (Murat et al., 2012). The frequency of epilepsy among rural area was more frequent than urban inhabitants (Prischich et al., 2008). These differences may be related to low safety and ignorance of care in rural area than urban areas. In addition, the prevalence of CNS infection is more in rural areas due to poor personal hygiene and sanitation. The prevalence of epilepsy in elder people in this study accounted for only 2.6%. This may be related to controlled cases under anti-epilepsy treatment and they did not visit the center for follow up. The other reason may be related to the fact that most of the elderly people settled in rural areas, and the majority of them had difficulties to reach our center in the City.

Our study found an association between epilepsy and history of febrile convulsion and head trauma, though similar results have been reported from different localities (Ngugi et al., 2013; Attia-Romdhane et al., 1993; Kathryn et al., 2012). It is well known that epileptic seizure is one of the recognized complications of head trauma. There was no relation found in this study between perinatal events and epilepsy which is not correlated with other studies; this may be related to perinatal event which was based only upon maternal or relatives recall.

In this study, 30 patients (6%) were found to have encephalopathy. This figure was much lower than the 57% reported from Saudi Arabia (Al rajah et al., 2001), but is in accordance with the study reported from Tunisia [23]. The frequency of CNS infection in our cases was 7.2% similar to 4-10% reported from other countries (Al rajah et al., 2001; Aziz et al., 1997; Kathryn et al., 2012).

The present study found that generalized seizure was the most common type in symptomatic epilepsy and it accounted for 81.6%. These results were in accordance with the result reported in the other studies from Arabic countries (Al rajah et al., 2001; Murat et al., 2012; Attia-Romdhane et al., 1993). It was also found that symptomatic epilepsy was frequent in young adult and in low socioeconomic stat. Many studies have reported that epilepsy is affected by such social and economic factors as a low level of education, unemployment and low income (Attia-Romdhane et al., 1993; Kathryn et al., 2012). This is because most of our cases came from low socioeconomic stat and as such they were engaged with hard work and exposure to several risk factors of generalized seizure. The presence of epilepsy in family history has been reported to increase the risk of epilepsy. In our study, positive family history of epilepsy was found in 23% of the patients and it is not a significant risk factor.

In this study, the percentage (29.2%) of consanguinity in parents of the epileptic patients was significantly high, which signifies the importance of consanguinity as a potential risk factor for epilepsy. Consanguineous marriages are acceptable in Yemeni culture and common environmental or common inherited genetic influence may play a role in the occurrence of epilepsy.

Conclusion

This study showed that epilepsy is frequent ignorance of health problem among Yemeni children and young adults. Further, the wide community studies are required to obtain comprehensive and accurate information on these disorders and to plan effective management and preventive measure.

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