Original Article

Management of Epilepsies at the Community Cottage Hospital Level in a Developing Environment

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Abstract

Background: The epilepsy problem in much of Africa is characterized by stigmatization and neglect. This article describes the efforts at a cottage hospital level to ameliorate the epilepsy problem in a resource-limited environment. **Methods:** A seizure clinic was started in a cottage hospital after targeted health talks. The International League against Epilepsy (ILEA)/World Health Organization (WHO)/International Bureau for Epilepsy (IBE) manual was adopted for the training of staff and to guide management. Patients were followed up in the clinic and with the use of simple information communication technology. **Results:** Forty-five patients with ages ranging from 3 months to 42 years (who had lived with epilepsy for periods ranging from 3 weeks to 32 years) were registered over 12 months period. The most common seizure type was generalized tonic clonic (21 or 46.67%) followed by generalized clonic (8 or 17.78%). Ten (22.22%) had comorbidities mainly cerebral palsy (4 or 8.89%) and attention-deficit hyperactivity disorder (3 or 6.67%). Most (98.15%) were placed on carbamazepine. Twenty-three (51.11%) had complete control of seizures, 21 (46.67%) had reduced frequencies of attacks, and all 8 children who had dropped out of school resumed schooling. **Conclusion:** The epilepsy challenge in the developing world can be demystified and effectively managed at the cottage hospital level. Targeted health education, affordable management regimes, and committed follow-up are keys. A training manual based on the ILEA/WHO/IBE document should be developed for Africa.

Keywords: Cottage hospital, developing environment, epilepsy, management

Introduction

Epilepsy is a global problem[1] affecting more than 50 million people.[2,3] Eighty percent of these live in low- and middle-income countries.[3] More than 70% of these do not receive appropriate treatment.[3]

Contributors to this state of affairs include misconceptions, stigmatization, dearth of qualified personnel,[4-7] and attitude.[8] Many die[9] or are injured at home.[10] The Obio Cottage Hospital (OCH), a cottage hospital, supported by the Shell Petroleum Development Company (SPDC) (Nigeria), established a seizure clinic in January 2016. This article describes the management and outcome of patients seen in the clinic over a 1-year period.

Methods

This was a prospective study of all patients treated with epilepsy in the Seizure Clinic of the OCH, Obio/Akpor LGA, a suburban community of Rivers State of Nigeria. OCH was started in 1978 as a primary health center by the Rivers State of Nigeria government. In 2008, SPDC started supporting the facility as part of its social infrastructure program, rehabilitating and upgrading the facility from a four-bed health center to a 56-bed cottage hospital. Annually, the SPDC engages the services of a pediatrician on sabbatical appointment to provide technical assistance to the facility.

In 2016, a seizure clinic was established to focus on the problem of epilepsy in the catchment communities and beyond. The clinic holds every Tuesday at 2.00 pm (when children would have been back from school) and is run by the sabbatical

Access this article online

Quick Response Code:

Website: www.nigeriamedj.com

DOI: 10.4103/nmj.NMJ_6_18

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Submission: 10-Jan-2018 **Revision:** 23-Jul-2019
Acceptance: 05-Sep-2019 **Publication:** 25-Nov-2019

How to cite this article: Ekanem EE, Fajola AO, Usman R, Ogbimi RN, Ikeagwu GO, Anidima TE, *et al*. Management of epilepsies at the community cottage hospital level in a developing environment. Niger Med J 2019;60:186-9.

pediatrician, a medical officer to understudy him and two nurses. The health records department of the hospital provides clerical support to the clinic. To begin services in the clinic, health education on the treatability and noncontagious nature of epilepsy were delivered for a number of weeks at various service points of the hospital including the infants' welfare clinic and antenatal clinics. Clients were urged to encourage any person with epilepsy known to them to present. Caregivers who could not come to the clinic for various reasons, including distance, were encouraged to make video records of typical attacks and send them to the clinic via WhatsApp application on mobile phones. Analyses and diagnoses of such videos were made and prescriptions sent back to the caregiver for review and transcription by the nearest qualified personnel. The pharmacy unit of the hospital was stocked with the likely drugs to be prescribed to avoid stock-out and frustration to the patients.

The manual jointly prepared by the International League Against Epilepsy (ILEA), World Health Organization (WHO), and International Bureau for Epilepsy (IBE) on management of epilepsy in Africa[11] was adopted for training of staff in the clinic and to provide guidance for treatment. To limit cost and encourage clients to use the services, investigations, including neurological investigations, were kept to the barest minimum and only when absolutely necessary and as much as possible, when patients could afford them. Children <18 years of age were monitored weekly, while older clients were monitored every 2 weeks, until satisfactory control was achieved after which reviews were done less frequently. Patients who missed their appointments were contacted by phone calls, text, and WhatsApp messages and reminded to come for review and their drugs the following day.

For the purpose of this review, information obtained for each patient included age, gender, type, duration, and frequency of seizure. Place and type of treatment prior to presentation and attendance at school and work were also documented. Response to management at OCH was also documented.

Data was entered into a spreadsheet, checked for completeness, and then transferred to Stata 12 (STATA corp., Texas, USA) and analyzed. Frequency table, simple proportions, and percentages were used to analyze the data.

Ethical issues

All information from the patients were treated in strict confidence. Ethical clearance was obtained from the Research Ethics Committee of the University of Uyo Teaching Hospital, Uyo, Akwa-Ibom State, Nigeria.

Results

Forty-five patients aged 3 weeks–42 years with various seizure disorders were registered and managed in the clinic in the period.

Twenty-seven (60.00%) were males and 18 (40.00%) were females giving a male: female ratio of 1.5:1.

One (2.22%) was a neonate, 5 (11.11%) were infants aged 1–<12 months, and 13 (28.89) were 1–<5 years. Twelve (26.67%) were aged 5–18 years. Fourteen (31.11%) were aged 19–42 years.

Types of seizures

Table 1 shows the distribution of seizure types among patients. The most common types were generalized seizures tonic–clonic type (22 or 48.89%), followed by focal motor seizure disorder (6 or 13.33%) and generalized seizure disorder clonic type (4 or 18.89%).

Duration of seizure and comorbidities

Duration of seizures not managed or unsatisfactorily managed before presentation ranged from 3 weeks to 32 years. Six patients had had uncontrolled seizures for 19, 20 (3), 22, and 32 years, respectively. The comorbidities are shown in Table 2, the most common being cerebral palsy.

Places and modalities of prepresentation treatment

Table 3 shows the places of management before presentation at OCH. Twenty-four or 53.33% of the patients had not presented to any place for management, while 4 (8.89%) had presented to traditional healers. Thirty (66.67%) of the patients were not on any medication at all, 17 (37.78%) were receiving treatment in private or public health facilities, 4 (8.89%) were on herbs, 3 (6.67%) on drugs of unknown names, 2 (4.44%) on inadequate doses of carbamazepine, and 1 (2.22%) each had phenobarbitone, sodium valproate, phenobarbitone plus sodium valproate, and phenobarbitone plus carbamazepine. One (42 years) had a cut on his back at a private clinic for the treatment of epilepsy.

Management and outcomes

Table 4 demonstrates the drug treatment at OCH. All but 1 (97.77%) were placed on carbamazepine. Twenty-three (51.11%) had complete control of seizures, 21 (46.67%) had reduced frequencies of attacks, while 1 (2.22%) was referred to a tertiary health facility. None had intractable seizures.

Discussion

The name "seizure clinic" was deliberately chosen for this clinic, and the word "epilepsy" or "neurology" avoided because of the stigma such words carry in this environment.[4-7] The clinic was initially planned for children, but it soon became obvious that it had to extend its services to include adults. One of our patients was aged 42 years, had uncontrolled seizures for 22 years, was not gainfully employed, developed aggressive behaviour and was given a cut in the back in a private health facility for the treatment of his seizures. Fortunately, the International League Against Epilepsy/WHO/IBE document on management of epilepsies in Africa[11] is easy to understand and provided guidance to all cadres of staff in the clinic for patients of all ages. Forty-five patients in 1 year at a cottage hospital reflect the magnitude of the problem in the community. Eyong *et al*.,[12] in a tertiary health facility in southern Nigeria, saw 107 children with epilepsy in a 1-year period. The large proportion of patients in

Table 1: Types of seizure disorders (*n*=45)

Seizure types	Frequency (%)
Generalized tonic clonic	21 (46.67)
Generalized clonic	8 (17.78)
Focal motor	6 (13.33)
Generalized tonic	5 (11.11)
Complex partial	3 (6.67)
Myoclonic	1 (2.22)
Neonatal seizures	1 (2.22)

Table 2: Comorbidities of patient with seizure disorders at Obio Cottage Hospital

Comorbidity	Frequency (%)
Cerebral palsy	4 (8.89)
Attention-deficit hyperactivity disorder	3 (6.67)
Panic attacks	1 (2.22)
Behavior disorder (aggressive behavior)	1 (2.22)
Down's syndrome + ventricular septal defect + talipes varus	1 (2.22)

Table 3: Places of prepresentation management of patients (*n*=45)

Place of management	Frequency (%)
Nil	24 (53.33)
Private health facility	9 (20.00)
Public health facility	8 (17.78)
Traditional practitioner	4 (8.89)

Table 4: Treatment of patients with seizure disorders at Obio Cottage Hospital

Drug	Frequency (%)
Carbamazepine	39 (86.68)
Carbamazepine/methylphenidate	2 (4.44)
Carbamazepine/amitryptiline	1 (2.22)
Carbamazepine/levetiracetam	1 (2.22)
Clonazepam	1 (2.22)
Referred	1 (2.22)

this study who had no form of treatment for long periods is not surprising and reflects the general belief in Africa that epilepsies are not treatable with orthodox medication.[4-7,12-14] This also most probably informed the choice of traditional herbalists by some of our patients prior to presentation to us. The inappropriate or clearly dubious treatment (cut in the back) given to some of those who attended orthodox facilities could only have reinforced this belief. Gangrene of the tongue has recently been reported in a 40-year-old Nigerian woman following repeated biting of the tongue from several attacks of epilepsy over 4 days. This woman, though a known epileptic, was not on any medication.[10]

Patients started attending the clinic after several weeks of epilepsy-related health talks at several service points of the hospital, the numbers rapidly building. Perhaps, concerted and targeted health education could encourage sufferers of epilepsy in Africa to make use of orthodox health services. It is important to note that during this period, no patient was lost to follow-up. This is unusual in this environment. The use of phone text messages to maintain contact with and remind patients for their appointments may have contributed to this. Simple information and communication technology have been shown to be effective in the diagnosis and management of epilepsies in resource-limited settings.[4] The improved conditions of the patients may have also encouraged them to attend the clinic. The wide age distribution of patients once again reflects delays or reluctance to use orthodox facilities. The oldest patient was aged 42 years and the youngest 3 weeks. The former had complete control of seizures and aggressive behavior disorder on carbamazepine and levetiracetam and returned to trading. The latter, obviously beyond the scope of a cottage hospital, was referred to a tertiary health facility.

Investigations were kept to the barest minimum and left to when the patients could afford them. Cost or perception of cost is a major reason for reluctance in using orthodox health facilities in this environment[15] where out-of-pocket-expenses remains the major modality of health-care financing.[16] Three patients (6.67%) each were able to do electroencephalography and computed tomography-scan and 1 (2.22%) each skull X-ray and serum calcium (the neonate). The child with complex partial seizures was able to return to have magnetic resonance imaging of the brain (which was normal) after several months and has since returned to school. Epilepsy at all ages can be accurately diagnosed with careful history and observation/reports of observers.[17] Perhaps, apart from base-line liver function tests for certain drugs, treatment should commence in most cases without these other investigations. Patients could undertake them when they are able.

The seizure types encountered, mainly generalized and focal motor disorders, is similar to that reported by Eyong *et al*.[12] also in southern Nigeria and elsewhere.[2,18] Carbamazepine was our drug of choice because of its effectiveness over a wide range of seizures, particularly in the types of seizures seen, relative safety profile,[11,19] the need for all personnel managing the patients to master a few drugs, and very importantly, cost. It was considered a major goal that the children who had dropped out of school resume school. Choice of drugs was therefore critical.

Comorbidities were diagnosed in ten (22.22%) of our patients. Eyong *et al*.[12] found comorbidities in 45.8% of their patients in the same region. The reason (s) for the difference are not clear. Perhaps, the limited investigations done in this cottage hospital level may not have allowed for detection of more comorbidities. However, the types of comorbidities found are similar, with cerebral palsy being the most common. This is a reflection of the types of neurological disorders seen in this part of the world.[20,21] It has been reported that up to 70% of children and adults with epilepsy can have complete seizure control with

antiepilepsy drugs.[2] Dragoumi *et al*.[22] reported that 70.3% of their children and adolescents with idiopathic epilepsy without any underlying aetiology or major comorbidities had "early remission" in the initial 12 months of follow-up in Thessaloniki Greece. Eyong *et al*.[12] reported that more than 75% of children in Calabar, Nigeria, with generalized form of epilepsy were controlled. In the present study, among all the patients, 51.11% had complete cessation of seizures for 6 months or more. Twenty-one (46.67%) had reduced frequencies of attacks. None had intractable seizures. Unlike Eyong *et al*.[12] and Dragoumi *et al*.,[22] our patients were over a wider age range and unlike Dragoumi *et al*.[22] had comorbidities. With further management and increased experience in this cottage hospital, the outcome should improve.

Conclusion

While epilepsies are a major health challenge and cause of much suffering in the developing countries including Nigeria, targeted health talks, affordable treatment regimes with minimal investigations, and close follow-up of patients including use of simple information communication technology, have proven to be effective management strategies even at a cottage hospital level. Epilepsy and its management can be demystified in our environment. This would appear to be the purpose of the collaborative efforts of the International League Against Epilepsy, IBE, and the WHO.[11] This manual should have much wider publicity than it appears to be having currently. In addition, it is recommended that a training manual based on the current manual be developed. Indications for referrals are not indicated in the current manual; these should be provided.

Acknowledgements

We are grateful to persons who helped spread the information about the presence of the clinic and encouraged patients to attend. We acknowledge the roles of the staff of the Records and Pharmacy Departments of the OCH.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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