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Abstract

Some 50 million people worldwide are living with epilepsy. In sub-Saharan Africa, plagued by poverty and underdevelopment, the illness takes a significant toll on the 15 million inhabitants living with the condition. In Ghana, there are 270 000 people living with epilepsy; that is 1% of the population. There are several challenges to the management of epilepsy in the country. The limited healthcare system, unscientific understanding and mystical perception of the illness, poverty and insufficient education and sensitization, as well as etiological peculiarities are major concerns. These notwithstanding, political efforts, increased sensitization, research collaborations, the creation of opportunities for healthcare workers to better their skills are possible solutions to the challenges faced in epilepsy management in Ghana.

Keywords: Epilepsy, Ghana, Africa, challenges

Introduction

Epilepsy is one of the most frequent non contagious neurological conditions in the world. An estimated 50 million people are plagued by this condition, 80% of whom are known to be living in low-income countries [1]. The peculiarity of neurological conditions, especially epilepsy, is how spectacular their manifestations quite often are. In the case of epilepsy, especially in Africa known for poverty and under-development, the condition lends itself easily to mysticism; and in the particular case of sub-Saharan Africa where some 15 million people are said to be living with the condition, epilepsy finds fertile ground to wreck havoc in lives [2]. It is crucial then that we take a closer look at epilepsy in the African context. In this paper, we give an overview of the challenges, possibilities and future directions of epilepsy management and research in Ghana as a contribution to the broader subject of epilepsy in the African context.

Ghana is an English-speaking country in West Africa, rich for its history, its political and soccer stars, and its natural resources (Figure 1). With a population of 28.21 million inhabitants, a GDP estimated at 1700 USD and projected to reach 1950 USD in 2022, and a stable political atmosphere, Ghana is one of the thriving countries in the continent. The life expectancy in males is 62 years, and 64 years in females. The healthcare system in Ghana, like in most African countries, is faced with several challenges. This makes the management of illnesses very difficult. In Ghana, some 270 000 people, that is 1% of the population, live with epilepsy [2]. **(Figure 1)**



Figure 1: map of Africa indicating Ghana (courtesy of pinterest images)

Challenges

Healthcare system

Management of patients largely falls to the public sector. Despite the availability of basic care at the community level, a good number of patients indulge alternative medicine in the form of herbalists and religious healers. This is partly due to the fact that many of these patients come from disadvantaged areas and have limited means. These patients and their families might have to bear the cost of care if they have not registered for the National Health Insurance Scheme (NHIS).

The five-level system of health care provision implemented by the Ghana government has the advantage of reaching a large part of the population with basic health care. Patients in rural areas have immediate access to the healthcare system by way of Community-based Health Planning and Service (CHPS) compound **(Figure 2)**.



Figure 2: Nurse reaching out to a family (courtesy, x-mol)

Furthermore, there are health centers and clinics. At the district and regional levels, there are district and regional hospitals, respectively. Finally, there are tertiary hospitals. Patients with epilepsy generally consult at a primary health facility where they are initially seen by a nurse, physician assistant or a doctor. If a case proves challenging, the patient is referred to a secondary or tertiary facility where the patient is seen by a pediatrician or an internist depending on their age, and at times to a neurologist where one is available.

The treatment gap has been estimated to be 85% [3]. These patients are catered for by nurses and doctors. Most of these medical officers are in general practice. There are only 6 neurologists in Ghana at present, meaning a much lower neurologist-to-patient ratio than recommended. The majority of neurologists are found in the capital, Accra, and other major cities like Kumasi [4]. This means that most of the 16 regions of the country go without a neurologist [4]. Thus, few patients with epilepsy actually have access to specialist care. Epilepsy has been one of the important public health interests of the Ghana government. In 2012, a collaboration between the Ghana government and the WHO resulted in the implementation of the 5-year Ghana Fight Against Epilepsy Initiative (GFAEI). This project implemented across 5 regions comprised of 10 districts and 55 hospitals and clinics. It's 5-step approach involved developing a strategy for delivering epilepsy care; training primary health care workers and community volunteers; raising awareness and educating communities; engaging traditional and faith healers; and strengthening monitoring and evaluation within routine reporting systems [3].

The project was successful in increasing coverage from 15% to 38% in the implementing districts and more than 2700 people received treatment for the first time [5].

On the medical education front, there are 7 Medical Schools, 2 of which are private. Epilepsy is taught in Psychiatry, Pediatrics and Internal Medicine courses of medical school. Also, a number of researches have been carried out on the subject of epilepsy in Ghana.

Perception, attitudes, impact

One of the main challenges of epilepsy management in Ghana is beliefs and traditional practices pertaining to epilepsy. Research has shown a religious themed conception of seizures. People believe that epilepsy is caused by evil spirits and that patients are in fact possessed. This makes people living with epilepsy anathema, "untouchables" who require exorcism. While the staple of the spiritual basis remains unchanged, studies across the country reveal more extreme beliefs in the northern part of the country where development is least. Adjei et al., for example, showed how in the north, people believed seizures in males were caused by harboring anal worms, and that in women it was punishment for adultery. Also, in the north, it is believed that alternating hot with cold baths can be a cure for epilepsy [6, 7].

There exists a correlation between perceptions and the

term for epilepsy. It has been estimated that there are over 50 local languages in Ghana. The Twi word for epilepsy is "3twer3" literally meaning "cutting". In Ewe, epilepsy is termed "anyidzedor" meaning "the falling sickness". Other languages have terms suggestive of a spiritual phenomenon during a seizure or associating the condition to ghosts.

These beliefs and attitudes toward epilepsy and patients living with epilepsy result in the stigmatization and marginalization of patients. Patients are unable to integrate well into society. They tend not to be educated, they go unemployed, and therefore become financial burdens on their families. Most of patients are unable to go into stable relations to have families of their own.

Furthermore, the endemic spiritualist understanding of mishaps in general and epilepsy in particular makes it difficult for patients and their families to seek medical advice. This could explain the observation that many patients don't keep their appointments and the wide treatment gap. The foregoing underscores the need for more programs like the GFAEI which saw a contact coverage of 9.4% rise to 25.7% in 2016 in an urban area in the capital [2, 3].

Etiology, diagnosis, treatment

The causes of epilepsy in Ghana are dominated by antenatal and perinatal causes and brain infections [8]. In Ghana, many births still take place outside a medical setting. Most pregnancies do not get the required monitoring. Furthermore, as in many other sub-Saharan countries, parasitic infections are endemic. Access to clean water and the upholding of sanitary practices are widely unavailable. These together with illiteracy, traditional beliefs, and inadequate access to primary care, make these infections a serious public health issue in Ghana.

A multicenter study conducted by Kariuki et al. also pointed to a high frequency of head trauma and alcohol use as causes of epilepsy [9]. (Figure 3)

Figure 3: Proximate causes of active convulsive epilepsy [9]

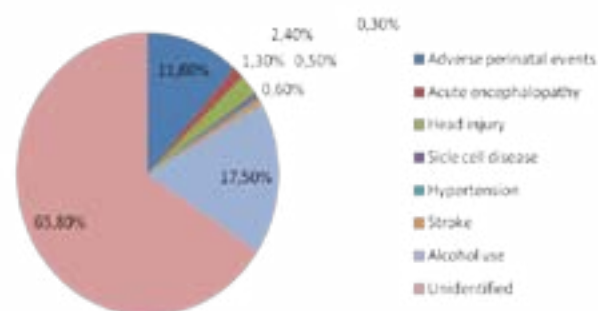


Figure 3: Proximate causes of active convulsive epilepsy [9]

The diagnosis of epilepsy is made by a primary care physician or by a specialist in a much larger medical center. Brain imaging studies as well as EEG are not performed in the vast majority of cases seeing as these are in short supply with excess demand in the country [4].

Treatment of epilepsy is covered by the NHIS. Phenobarbital, phenytoin, carbamazepine and sodium valproate are routinely prescribed in Ghana.

Poverty, Education

Epilepsy in Ghana is further faced with the challenge of poverty and low level of formal education. Poverty seems to be a universal phenomenon in Africa. The GDP/person in Ghana is \$1950 per year, compared to approximately \$62,794.60 in the United States. Ghana has seen a falling trend in relative health spending over the years. (Figure 4)



Figure 4 : Health-related spending 2006 to 2017 in Ghana(courtesy,Macrotrends)

Limited means is a factor that drives people to traditional alternatives to medical management of their health problems. Parents of a child with epilepsy might be satisfied with the mystic hypothesis of possession, and might be more open to exorcism if they have no mean to buy the necessary drugs to treat the illness. Poverty is also directly correlated to low formal education which in turn hampers the receptiveness of people to more scientific understandings of disease [10 – 12].

Furthermore, the challenge of education also includes the sensitization of the masses. This requires a general political interest. It requires the implication of the medical body and the willingness of people to change their ways.

Possibilities

Political efforts, increasing awareness

As discussed above, insufficient awareness of the populace remains a major hindrance to the advancement of the management of epilepsy. Thankfully, a number of initiatives by the government, and often in collaboration with international entities have been increasing the awareness of people [3]. On February 8, 2019, for example, the World Epilepsy day was commemorated Dr. Patrick Adjei of the University of Ghana [13]. The media and online platforms are being used to reach the general population in local languages. These efforts point to the possibilities that lay ahead in the struggle for a better management of epilepsy in Ghana.

Collaborations, research

Of note, is the increasing collaborations and research in the field of epilepsy. Several papers on the subject have sought to understand the perception of Ghanaians, as well as the challenges faced by the system in handling the illness. Kariuki et al, for example, conducted research in South Africa, Tanzania, Uganda, Kenya, and Ghana. Another paper by Cao

et al, was the first to investigate the application of the use of a ketogenic diet in a child with intractable epilepsy in Ghana [14].

Future directions

Epilepsy management in Ghana is still a field that requires massive input from political institutions, the medical corpus and the patients and their families. A lot has to be done to increase the doctor-to-patient ratio and train more specialists, especially neurologists. An important point is that while epilepsy which is the subject of this paper is a challenge in its own right, there seems to be a common pattern in which several other serious illnesses remain under-managed in the country. This means that in the near future, we'd have to see an increased political will and a more vigorous implication of the medical corpus. More has to be done to sensitize the populace.

Also, further research and fruitful collaborations are necessary if we are to better grasp the challenges of epilepsy management and of the health system as a whole. Research better informs us and indicates what paths to take toward the resolution of our problems.

Furthermore, collaborations could take the form of training of our doctors in more advanced countries so that Ghanaian doctors are better equipped to help their patients. Of note is the fact that functional surgery is not done in Ghana. Patients requiring such services are referred to centers in India or in South Africa. We, Ghanaians, have a saying that if you really want to help a hungry man, teach him to fish rather than give him money. There is little money in Ghana, but there is a lot of fish. And gold. And cocoa. And much more. Ghana has the potential of being a champion, not only of democracy in Africa or of soccer, but of health as well. There is so much of potential, many willing young people who are in search of opportunities to better serve their people. In the future therefore, we hope that collaborations would yield exchange of knowledge, and financial aid to resident doctors and to researchers. In the future, we hope indeed to be better equipped to better manage epilepsy and other health issues facing Ghanaians.

Conclusion

Epilepsy remains a major public health challenge in Ghana. Like in many sub-Saharan countries, perinatal and infectious causes are preponderant. The low socio-economic status of most patients, the limited access to healthcare, and erroneous beliefs are major issues facing epilepsy in Ghana. Stigmatizations remains an important point to tackle in efforts to increase awareness on the condition. While much has been done, thanks to collaborations with individuals and organization outside the country, there are still grounds to cover. Hopefully, in the near future, with present efforts, the treatment gap will dwindle and persons with epilepsy will get to live very productive lives. Interesting link: <https://youtube/AMObcLuqUug> (the story of Francesca who overcame stigma due to epilepsy to live a normal life)

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