THE PATTERN OF EPILEPSY ADMISSIONS AT KENYATTA NATIONAL HOSPITAL

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DECLARATION

I, JOHN MARK ALOO, hereby declare that this thesis is my original work and has not been presented for a degree in any other University.

March, 1977

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I, S.G.M. MWINZI, hereby declare that this thesis has been submitted for examination with my approval as the University Supervisor.

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LIST OF TABLES

I. SUMMARY

The records of 110 patients admitted from January 1974 to December 1976 have been studied. Presently a prospective study is being carried out in order to be more accurate about the pattern of admission of epileptics at Kenyatta National Hospital.

Epilepsy has been and still remains a challenging problem. It is the commonest neurological disorder. (The late Wilder Penfield spent his life time studying and looking after epileptics).

The incidence of the disease shows one in 200 cases have chronic epilepsy, while one in twenty have a seizure sometime during their life. In this study of 110 cases of epilepsy 70 were males and 40 were females. Tribal and racial distribution indicated that the Kikuyu's were the majority because of the proximity of Kenyatta National Hospital to Kikuyuland.

The causes of Epilepsy were found to be multiple and included:

1. Genetic
2. Birth injury
3. Idopathic (cause unknown)

4. Trauma including road traffic accidents
5. Infections such as measles, malaria, tuberculosis
6. Intracranial neoplasm

One case of epilepsy since childhood was found to have sarcoidosis with renal failure. In another case right sided parietal tuberculoma was confirmed on histology and in another case astrocytoma confirmed, histologically, was found to be the cause of right sided Jacksonian type of seizures. Measles coexisting with epilepsy still pauses questions, and so is the coexistence of measles with astrocytoma.

II. INTRODUCTION

According to Robb (1) epilepsy is a brief disorder of cerebral function, usually associated with a disturbance of consciousness and accompanied by sudden abnormal excessive, synchronous electrical discharges of neurones.

From the time that records have been made on the illness of man epilepsy has occupied a prominent part. The early history of "The falling sickness" as recorded by Temkin (2), Lennox (3), and others, is an interesting story, but contributed little to an understanding of the true nature of the disorder.

The theories of its origin were a mixture of magic and religious fantasy and according to Thomas Willis (4), the early approaches to treatment frequently did more harm than good.

In the Hippocratic collection of Medical Papers, written about 400 B.C. a physician hinted at the truth when he wrote of epilepsy, "Its origin is hereditary like that of other diseases" Lennox (3). He recognized that the seat of the trouble was in the brain and expressed the opinion that there were precipitating factors which changed the consistency of the brain. These cosmic phenomenon he considered divine and since they influenced all diseases, all diseases

were divine. At the same time they were human because of their physiological substratum. Epilepsy, therefore, should not be treated by magic, he suggested, but rather by diet and drugs.

The first ray of hope for the patient came in 1857 when Sir Charles Locock (5) reported the successful use of bromides in the treatment of Hystero-Epilepsy.

It was not until 1912 when Alfred Hauptman (6) published "Die Behandlung bei Epilepsie mit, Lumihal", that seizures were first treated with any degree of success and safety. In 1937 Merrit and Putman (7), while testing the ability of drugs to prevent electrically induced convulsions in cats, discovered diphenylhydantoin. The drug was effective with no serious side effects, and the following year these investigators reported its successful use in humans.

The first study of epilepsy in East Africa was by Harries (8). This has been followed by Mwinzi, Ruberti, and Stewart (9), who have highlighted further areas of study and suggested that there is a connection between measles and epilepsy. Oduori and Kungu (10) suggested like many others that there may be a connection between measles and subacute sclerosing panencephalitis in which myoclonic seizures occur.

Epidemiology of epilepsy is difficult to study especially at Kenyatta National Hospital. Five people per thousand is the accepted figure for the incidence of epilepsy all over the world (Miller (11), Williams (12)). For the majority of patients with epilepsy no cause can be found. However Serena Davidson, Murray A. Falconer (13) in a study of 40 children tirelessly followed up for 1 to 24 years found that previous history of febrile convulsions was important in 79% of cases of psychomotor epilepsy. Electroencephalographic (EEG) studies of epilepsy at Kenyatta National Hospital is still in its early development. Nevertheless EEG may not be very important as Osuntokun (14) found a poor correlation between the clinical type of epilepsy and EEG findings.

III. AIM OF STUDY

The present study tries to analyse admissions of adult patients with epilepsy at Kenyatta National Hospital from January 1974 to December 1976 with a view to finding out:

1. if there is any connection between epilepsy and common tropical infections or diseases such as measles and malaria as suggested by Mwinzi, Ruberti and Stewart (9) and Oduori and Kungu (10).

2. how successful management was.

CHAPTER 1

IV. MATERIALS AND METHODS

Files of 110 cases admitted to adult wards in Kenyatta National Hospital were personally studied on a restropective basis.

In the records department of Kenyatta National Hospital each illness admitted to hospital is coded. For example, every sixteen cases of epilepsy seen at Kenyatta National Hospital are coded on a single card. Therefore in future it will be easy to have epidemiological study on these cases.

These 110 cases have been analysed with respect to types of seizures, age sex, tribal and racial distribution, aetiology of seizures. Preventable and non-preventable causes of epilepsy were noted and burns cases resulting from epileptic fits were also looked at. The importance of investigations, like haemogram, radiological features, Echo studies, microbiological investigations electrocardiogram, echoencephalogram (Echo), immunological, histology and electroencephalographic (EEG) findings were analysed.

Reliance was put on records in the files when classifying the types of seizures. Where EEG were done the diagnosis was more certain than where it had not been done.

V. RESULTS

Table 1 gives the clinical types of epilepsy as recorded in this study. The age of patients admitted to Kenyatta National Hospital ranged from three to sixty years. The history of age of onset of seizures ranged from two weeks to sixty years. Table 2 shows number of cases of clinical types of seizures in various age groups. There were 70 males and 40 females, perhaps reflecting the unbalanced sex ratio in the city's population. For example the 1969 Nairobi census (Ref. 15) shows that there were 505,286 people, 206,069 being females and 309,219 males.

Table 3 gives the tribal and racial distribution of the epileptic cases admitted to the hospital.

Aetiology of Seizures

Two cases of seizures were associated with schizophrenia. There was one case of seizures associated with metabolic and electrolyte disturbance i.e. Toxophene poisoning, and another case associated with intracranial tumour. There was only one case of seizures due to hysteria and one case due to sarcoidosis. There was also one case each of seizures associated with atherosclerosis, cardiomyopathy, cerebrovascular accident, subdural haeamatoma,

TABLE 1

TABLE SHOWING CLINICAL TYPES OF EPILEPSY IN 110 CASES ADMITTED AT KENYA NATIONAL HOSPITAL

TYPES OF SEIZURES	NO.
Grand mal seizures	83
Psychomotor seizures	4
Focal seizures	11
Absence attacks (Petit mal)	2
Myoclonic seizures	4
Combined Petit mal and Grand mal seizures	2
Akinetic seizures	1
Status Epilepticus	1
Photic seizures	1
Hysterical seizures	1

TABLE 2

AGE INCIDENCE OF SEIZURES

Age	Type of seizures	No. of cases
0 - 5 years	Myoclonic	4
	Akinetic	1
	Petit Mal	1
	Combined Petit mal and Grand mal	1
5 - 9 years	Grand mal	12
10 - 20 years	Focal	4
	Grand mal	14
	Hysterical	1
20 and above	Grand mal	57
	Focal	7
	Photic	1
	Psychomotor	4
	Petit mal	1
	Petit mal and Grand mal	1
	Status Epilepticus	1

TABLE 3

TRIBAL AND RACIAL DISTRIBUTION OF EPILEPTICS ADMITTED AT KENYATTA NATIONAL HOSPITAL

JAN. 1974 - DEC. 1976

TRIBE	NO.
Kikuyu	63
Kamba	20
Luo	9
Luhya	7
Meru	6
Asian	2
Tanzanian	1
European	1
Ugandan	1

cerebral arteriovenous aneurysm, sickle cell diseases, birth injury.

Epilepsy Associated with Preventable Diseases

In this study only one case of epilepsy was related to birth trauma. With improved obstetric services birth trauma as a cause of epilepsy will become less important.

Trauma including road traffic accident was associated 17 cases of epilepsy in this study. With less incidences of trauma, assault, and hopefully fewer road traffic accidents trauma as a cause of epilepsy will become less important.

Measles

In this study 6 cases have been related to measles. As it has been observed by Oduori and Kungu (10) with widespread immunisation against measles fewer cases of measles will be associated with epilepsy, ancephalitis or subacute sclerosing panencepalitis.

Many patients who have malaria have been noted to have seizures which usually improve with treatment of malaria. In this study five cases of malaria were associated with seizures. With prevention

TABLE 4

CASES OF EPILEPSY AS RECORDED IN 110 CASES STUDIED AT KENYATTA HOSPITAL

CAUSE OF EPILEPSY	No. of cases
Idiopathic (unknown cause)	56
Trauma (Including Road traffic Accident)	17
Birth Injury	1
Genetic	3
Subdural Haematoma	1
Hypertension	3
Hysteria	2
Alcoholic	3
Toxophene Poisoning	1
Intracranial Tumor (astrocytoma)	1
Measles	6
Malaria	5
Febrile illness (non specific)	1
Tuberculoma	1
Cerebral arteriovenous Malformation	1
Reflex	3

TABLE 5 TOTAL MEDICAL ADMISSIONS COMPARED TO TOTAL EPILEPTIC ADMISSIONS AT KENYATTA NATIONAL HOSPITAL FROM JAN. 1974 - DEC. 1976

YEAR	MEDICAL ADMISSIONS IN WARDS	EPILEPSY ADMISSIONS	PERCENTAGE OF EPILEPSY ADMISSIONS	MEDICAL ADMISSIONS IN ADULT OBSERVATION WARD	EPILEPSY ADMISSIONS	PERCENTAGE OF EPILEPSY ADMISSIONS
1974	4348	122	2.8%	-	-	-
1975	3741	121	3.2%	3248	21	0.6%
1976	3250	143	4.4%	4822	45	0.9%

of malaria fever cases of fits associated with malaria will be noted.

In this study there was one lady with tuberculoma. She was treated with anti TB drugs and improved. With active BCG immunisation going on we hope this aetiology of seizures will be reduced.

The relationship between intestinal parasites, which mainly occur in the tropics, with epilepsy is difficult to prove since there was no direct link between these parasites with cerebral lesions such as calcification. In this study there were 4 cases of epilepsy with intestinal parasites. With early detection and treatment of hypertension, severe states such as hypertensive encephalopathy and ecclampsia will be reduced so will the associated seizures.

Other causes such as Toxophene poisoning causing seizures can be avoided provided the main reasons social, accident or others are solved.

Alcohol is not a frequent cause of seizures, the seizures usually occur because there is associated trauma or hypoglycaemia. Injuries such as subdural haematoma can be prevented, although the majority of causes are accidental.

Burns Associated with Epilepsy

The burns Unit at Kenyatta National Hospital is made up of nine beds and ten cots. From 2nd April 1975 when it was opened to 27th March, 1977, eleven patients were admitted with burns resulting from epileptic fits. Total admissions of patients with burns during this period was 433. Thus burns due to epileptic fits formed 2.5% of the total. The burns sustained during seizures can be very serious. In the present study they ranged from 8 - 30% of the surface areas of patients. The depth varied from superficial to third degree burns. One had ptosis of the left eye, and another had secondary scarring of both eyelids. It is because of this type of disfigurement that a study of burns associated with seizures is important especially in this country where home conditions are such that most epileptic patients are prone to this type of accident.

Routine Laboratory Investigations

Haemogram

Haemoglobin was recorded in all cases and this ranged from 7.4 to 17.6 gm%. Two cases had associated renal failure, and in one cerebrospinal

fluid (CSF) protein was 494 mg% and CSF sugar was 9 mg%. This last patient had a frontal bone fracture with meningitis.

Electrocardiagraphic Studies

Stamp (16) says that he has not seen any case of epilepsy developing coronary disease but in this study there were two cases with heart problems, one with hypertension associated with seizures showed sinus rhythm, first degree heart block, left axis deviation, severe left ventricular hypertrophy with Roller da Costa syndrome. Another case with cardiomyopathy had E.C.G. changes of atrial fibrillation, right axis deviation, digitalis effect, myocardial strain, diffuse disturbance of repolarisation and right ventricular hypertrophy. E.C.G. changes were investigated in only a few cases, where electrocardiograms were indicated.

Immunological Tests

Walker (17) suggested an immunological approach to seizures, because of the importance of such investigations in helping to diagnoze other diseases which may cause seizures. In these studies immunological tests were carried out in a few cases where they were indicated.

One case had positive Kveim test with hypercalcaemia, and lymphadenopathy. Before being admitted for epilepsy this patient had been treated for pulmonary tuberculosis before a diagnosis of sarcoidosis was made.

Histology Results

Only two cases out of 110 were investigated histologically. One case had a right parietal tumor removed. Histology showed infiltrating tuberculoma. Another 16 year old patient with persistent right sided Jacksonian type of seizures had a left lateral ventricle astrocytoma removed.

Electroencephalogram Findings

Out of 33 E.E.G. looked at, the results were as follows:- E.E.G.'s with normal finding, eight; E.E.G. suggestive of space occupying lesion, eight; E.E.G. suggestive of effect of drugs, one; in keeping with atherosclerosis, one. There were 19 E.E.G.'s suggestive of epileptic activity out of which two were stated to be confirmatory of grand mal seizures.

One E.E.G. suggested photic epileptic activity. Two cases had clinical and E.E.G. features in keeping with combined petit mal, grand mal seizures.

Radiological Investigation

The following radiological investigations were requested among the 110 cases: Xrays of skull, chest, abdomen, spine, barium meal intravenous pyelogram, carotid angiograms and pheumoencephalogram. Among these cases there were two with duodenal ulcers. In one Xray of the sinuses there was thickening of the right maxillary antrum. Three cases had radiological evidence of skull fractures, two had frontal bone fractures while one had left parietal bone fracture. In one case chest Xray showed right middle zone atelectasis the cause of which was thought to be pulmonary embolism and linear opacity of left lower zone. Two patients had thoracolumbar osteophytes. In one case the kidneys showed degenerative scars with calcification.

Echo studies

Features of Echo studies in two cases with epilepsy are analysed, one had Echo shift to the left of the third centricle. A second one had Echo shift to the left associated with clinical features of trunkal ataxia.

Microbiological

Sixteen cases had luetic tests done. All were negative except for one which was boderline positive. *Eschershia coli* was isolated from urine in four cases.

Two cases studied had positive measles antibody titre, one had CSF measles antibody titre of 1/64 (Normal Value 1/4 or above) and blood haemmaglutination titres of 1/1024 (Normal Value 1/256 or above). A second case had shown measles antibody titre of 1/256.

Intestinal Parasites

Among these cases with seizures Entamoeba coli in stool was noted in six cases, two cases had Endolinax nana, and two cases had Iodomoeba butschlii together with ova of hookworm in stool.

Management of Epilepsy at Kenyatta National Hospital

The management of epilepsy using drugs is very difficult especially in developing countries where follow up is very poor. Secondly anti-epileptic drugs act as substitute regulators which meet the needs of patients until a time that spontaneous recovery from fits takes place. Such a recovery takes place much more often than is generally supposed, according to Boshes and Gibbs (18).

The best time the overworked physician has a chance of observing the effect of the drug on the patient is in hospital admissions.

Table 6 shows the type of drugs and the number of patients using it. Among the 110 patients treated 59 improved. The majority of patients who improved were on epanutin and phenobarbitone.

Out of 83 cases with tonic, clonic seizures the drugs used were phenytoin, phenobarbitone and in some of them tegretol was added. Serum levels of phenytoin were not estimated in all the cases. The serum level required for phenytoin is 10 - 20 mg% (Micrograms per cent).

There were two cases of absence attacks. These were treated with enthosuximide (zarontin) in a dose of 1500 mg/day. Serum levels of ethosuximide were not done, since serum levels of these drugs cannot be done at Kenyatta National Hospital because of lack of qualified manpower.

There were two cases of combined petit mal and grand mal epilepsy who were treated with epanutin, ethosuximide and phenobarbitone. In one case of petit mal with grand mal sodium valproate (epilim) had to be added to the regime.

There were 10 cases of focal attacks. These were put on phenytoin. In four cases of temporal lobe seisures, the drugs used were tegretol, mysoline and sodium valproate.

TABLE 6

Table showing type of drug and number of patients managed on it.

Name of drugs	No. of patients
Epanutin and phenobarbitone	72
Phenobarbitone	2
Mysoline and epanutin	6
Tegretol and phenobarbitone	2
Tegretol and amphetamine	2
Epanutin	3
Zarontin (Ethosuximide)	4
Epilim (Sodium valproate)	1
Rivotril (Clonazepam)	1
Epanutin, phenobarbitone and nicotinamide	1
Paraldehyde	2
Herbs	1
Thiamine	1
Phenobarbitone and diamox	2
Phenobarbitone and valium	2
Tegretol, phenobarbitone and valium	1
Dilatin, phenobarbitone and multivitamin	1

Precipitating Factors of Seizures

As shown in Table 4, there are three patients in whom the onset of epilepsy was associated with the death of close relatives. The incidence of cases with triggered seizures has been reported to be 5 to 7 per cent, Lennox (3). These precipitated seizures are sometimes referred to as reflex epilepsy. Sensory modalities may be visual, auditory, somatic, and in some rare instances olfactory, gustatory, visceral, and vestibular.

The most common form of triggered epilepsy is photically induced epilepsy. This is said to be common among children. In this study there was only one case of photic induced epilepsy.

Petit mal and myoclonic seizures are clinical types of epilepsy which are often related to visual stimulation. It is difficult to explain how bereavement in a family can lead to precipitation of epilepsy. The number of 3 out of 110 is too small for definite conclusions to be derived.

CHAPTER 2

VI DISCUSSION

The number of persons admitted to Kenyatta National Hospital with epilepsy seems to be increasing when compared to total admissions to the medical wards which show a decrease. This may be because of more awareness of the value of hospital treatment whilst at the same time the adult observation ward has reduced the number of inpatient admissions.

Aetiology

All persons are genetically endowed with some degree of predisposition to epilepsy and can eventually be made to have epileptic seizures (Gastaut and Broughton (19)). This statement does not differ much from Robb's (1) that epilepsy is thought to be genetic in origin the inheritence of it being autosomal dorminant. In this study only three cases had positive genetic histories.

Idiopathic seizures (epilepsy of unknown cause) formed 56 out of 110 patients studied. Most chronic epileptic conditions are caused by organic disease. The organic disease might be in the silent area of the brain.

It is a well known fact that birth trauma can lead to epilepsy. The manner in which a child is delivered may cause foetal distress leading to diffuse cerebral hypoxia and cerebral ischaemia. Out of these cases studied there was a surprising figure of one case of epilepsy caused by birth trauma. This may be due to the fact that patients being studied were adults who may well have forgotten anything that happened at the time they were born. Perhaps analysis of causes of epilepsy in Paediatric wards would bring out this fact. Trauma including road traffic accidents was responsible for 17 cases. Among these 17 only three had positive histories of fractures of the skull. Two cases had frontal bone fracture while one had parietal bone fracture. An association has been suspected between epilepsy and head injury since Hippocratic times (Jennet (20), Aretaeus (21)). This number of 17 trauma cases is high and is a reflection of the high number of skull injuries in 1974, 1975, 1976. Number of head injuries attending Kenyatta National Hospital in those years was, 234, 324, 188 respectively, whereas road accidents in 1974, 1975, 1976, were 368, 406, 274, respectively. Bryan W. Jennet (20) thought that skull injuries played a significant role in causing epilepsy.

Penfield and Humphreys (22) suggested that the incidence of epilepsy is highest in cases of depressed fracture, meningocerebral laceration as well as drained and healed abscesses. Less than 10% of cases of blunt head injury develop epilepsy, (Jennet and Lennox (23)).

Usefulness of Various Investigations in Epilepsy

Investigations cannot take place of clinical diagnosis of epilepsy based on observations only. Haemogram is useful in epilepsy especially to show macrocytic anaemia that occurs in epilepsy after treatment with anticonvulsant drugs like epanutin. Electroencephalograms have been of value in supporting clinical diagnosis and in localising cerebral lesion causing epilepsy.

At the time when there is acute measles attack it is useful to take blood for measles haemagglutination titre (Igm). If this is repeated three weeks later measles is suggested by a four fold rise in haemagglutination titre. In subacute sclerosing Pan Encephalitis measles aetiology is suggested when blood haemagglutination titre is 1/256 or above. A blood level at which cerebrospinel fluid examination

for measles antibodies (IgG) is indicated. In cases of subacute sclerosing pan encephalitis cerebrospinal antibody titre (IgG) is 1/4 and above.

Radiological investigations like skull Xray, carotid angiograms, echoencephalograms and pheumoencephalogram, help in delineating the cause of epilepsy which can be confirmed on histology.

Immunological factors

In this study there are six cases of measles, five of malaria, one tuberculoma and one of sarcoidosis.

It has been stated by Etllinger (24), West, Hong and Hollan (25), Kanoh and Uchinoh (26) that seizures discharges could be the result of autoimmune response to either an antigen released during tissue destruction or an infective agent. The mechanism of causation may be blocking by transmitter receptor sites or reduction of synaptic transmission. Walker in 1959 (17) suggested an immunological approach to seizures. Alteration of electrical discharges confirming seizures may occur as an autoimmune response directed against

transmitter receptor sites. Synaptic transmission is reduced as in myasthenia gravis and an antigen may be a possible trigger. Golgi stain has been used to demonstrate cicatrisation in cases of long standing temporal lobe seizures. Whereas gradual onset type of seizue may be demonstrated by aluminium hydroxide.

Eosinophilia occurs in children with seizures as is reduced IgA antibodies. In gradual onset type of seizures there may be blocking or inhibition of transmitter receptor as in myasthenia gravis where there is reduced IgA antibodies.

Measles and Epilepsy

In this study there are six cases of measles out of 110 studied. In one case subacute sclerosing pan encephalitis was confirmed. Other studies in Kenyatta National Hospital have suggested a relationship between measles and sub-acute sclerosing pan encephalitis. Measles still pauses many questions in view of the fact that there may be a relationship between measles and astrocytoma. In this study two cases of astrocytoma have been mentioned.

Malaria

In this study five cases were noted to have seizures with malaria. Boshes and Gibbs (18) stated that seizures are rare complications of malaria. However, many children in the tropics have been noted to have seizures which usually improve with treatment of malaria. With early diagnosis and treatment of malaria, spraying houses with insecticides, regular taking of prophylactic and suppressive drugs when indicated and sleeping at night under mosquite nets, there will be protection against malaria and also against some of the seizures. Only one of febrile illnesses was associated with seizures.

Symptoms of Epilepsy

Symptoms of epilepsy usually depend on where the seizures originate. In this study generalised seizures, in which there is loss of conciousness accompanied by generalised abnormal symmetrical synchchronous excessive electroencephalographic discharges and which originate from deep central midline structures, there were 83 cases. Akinetic and petit mal seizures were three. Absence continuing status with EEG changes of classical spike and wave activity were two. Partial or focal fits were also recorded. In this type of seizures conciousness

may be retained, the discharge originating in a localised area of the brain and may or may not thereafter spread diffusely.

There were four cases of partial focal epilepsy arising deep in the temporal lobe. These presented themselves in the form of sensory auditory, visual and hallucinations.

The large number of 83 grand mal type seizures is really not representative of the true picture of epilepsy in the population. Since this is an analysis of ward records only more serious cases are likely to be recorded because these get admitted.

Management of Epilepsy at Kenyatta National Hospital

Aetiological treatment is more satisfactory than symptomatic treatment. For example the patient who had tuberculoma improved satisfactorily when she had streptomycin and thiazina, with excision of her tuberculoma. Her fits are now controlled on phenobarbitone and epanutin. Unfortunately such a therapeutic approach is applicable only in the minority of cases as the fundamental aetiology usually remains uncertain.

In this study there were only two cases with suspected metabolic epilepsies of note, one with hypocalcaemia and one with insulinoma. Harries (8) who had carried out his studies for five years reported two cases with hypocalcaemia and one case with insulinoma.

There were two cases due to obvious organic cause, one with left sided ventricular astrocytoma with right sided Jacksonian type of epilepsy who died a few months after the astrocytoma had been excised. One patient whose seizures were caused by cerebral arteriovenous malformation also died a few days after surgery. This shows how surgery as a form of treatment for epilepsy can be difficult. Surgery is usually chosen in a few cases when it is indicated for example in cases of tumours or tuberculoma.

When managing epileptic patients using drugs an ideal drug for treatment of epilepsy should be non sedative, with no side effects at therapeutic level, and it should be completely non toxic. Antiepileptic drugs act as a chemical "patch" to cover a weak spot in the brain (Boshes and Gibbs (18)).

The nearest drug to be ideal is penytoin which works to enhance the sodium pump. Penytoin is poorly tolerated in 20 per cent of patients (Gastaut and

Broughton (19)). When it is poorly tolerated side effects occur. In this study the most common side effect was painless gingival hypertrophy which occurred in four cases. The cause of painless gingival hypertrophy is thought to be due to ascorbic acid deficiency (Dawson (28)). Other recorded side effects of epanutin are gastritis, ataxia, vertigo, tremor, nystagmus, diplopia and hirsuitism which can be very bothersome. In this study 83 cases had tonic clonic (Grand Mal) seizures. Out of 110 cases 59 improved on treatment.

One lady and one young boy had combined petit mal and grand mal seizures, which were difficult to control. The drugs which were used to control these seizures were epanutin, ethosuximide, phenobarbitone and sodium valproate. Focal attacks were controlled with phenytoin. For control of grand mal seizures Chuke (29) has recommended the use of clonazepan which he has used on patients in Zambia and found the drug to be very promising.

Temporal lobe Seizures

In this study there were four cases of temporal lobe seizures. These were controlled on tegretol, mysoline, sodium valproate. The number of cases is too small for one to comment on regarding efficiency of therapy.

VII. CONCLUSION AND RECOMMENDATIONS

The study of epilepsy at Kenyatta National Hospital is very much in its infancy. The analysis of admissions is biased as only serious cases are admitted.

There is a link between malaria, measles and epilepsy but the analysis was based on too few cases for a definite conclusion to be made. Perhaps a long term study needs to be set up in which history of onset of epilepsy is carefully taken and at the same time all malaria and measles cases are followed up to see whether some of these would become epileptic. The problem of direct link between febrile fits and temporal lobe epilepsy cannot be questioned, although no useful data came from the present analysis.

The factors precipitating fits were found to be bereavement in the family and photic. It could also be that patients have environment and social taboos which precipitate their epilepsy. This is difficult to answer without social workers being involved in visiting patients at home, and analysing their problems.

In the tropics the management of epilepsy may be complicated by such factors as sickle cell disease, hydatid disease, malaria, measles, accidents and burns.

It also involves understanding the social background of the patient. An improvement rate of 59 out of 110 patients (or 53%) suggests that either better care or more effective drugs are required for epileptics at Kenyatta National Hospital. Epilepsy provides a physician with a challenge of management rarely seen in other diseases.

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