TECHNICAL REPORT

CONVULSIVE DISORDERS IN TANZANIA

NEUROLOGICAL SECTION

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INTRODUCTION

The astute observations of Louise-Jilek-Aall provided one of the first documented reports on the high prevalence of epilepsy in Africa (at least in certain areas). With a 2% prevalence it was for many years an absolute topper until reports from Liberia[2] and Nigeria[3] found prevalence rates between 3 and 4 per cent of the local population. A more recent study in random cluster sample of 18,000 people in Ulanga district[4], where Louise Jilek observed the high prevalence of epilepsy, confirmed her observation, which revealed the prevalence of active epilepsy of 1.21% with variation of prevalence among villages ranging from 0.58 to 3.7 per cent. One of the area with highest prevalence was Mahenge were Dr. Jilek-Aall had initially observed. In 1979 Jilek-Aall commented "The hereto familial pattern of occurrence appears compatible with a genetic hypothesis of autosomal recessive inheritance but it could also be indicative of a transmittable slow infection with a virus like agent possibly interacting with genetic mechanism of susceptible hosts".

The community survey[4] in Ulanga district where epilepsy as classified on clinical grounds by neurologist in the field and revealed that Generalized Tonic Clonic accounted for 68% of cases and partial seizure for 31.9% whereas 10.1% were unclassifiable. Possible or associated factor where identifiable only in 25.3% patients. Less than 20 per cent of individuals with epilepsy received any regular anti-convulsant drug therapy.

The reasons for the high prevalence of epilepsy in Mahenge is obscure. In order to answer such a question as in depth study was conducted into the possible aetiological factors and the size of the problem was reassessed with modern epidemiological tools and including a field Electroencephalogram. This in depth study was sponsored by International Development Research Centre, Ottawa, Canada.

A: CROSS-SECTIONAL STUDY

METHOD

Survey

A house to house survey was conducted by a 8 member team who had underwent a 1 week orientation course to the survey questionnaire and standardized interview technique. This team consisted of local medical staff working at Mahenge headed by a Neurologist and Medical Officer, and included 3 Assistant Medical Officers and 3 registered nurses with extra training or

experience in psychiatry and neurology. The same team had taken part in 1989-1990 Ulanga District Epilepsy Survey. The initial survey was to used to determine the population on study. During the survey each head of the household presented every member of his family. This enumeration was counterchecked against the census record. Each individual was then screened for epilepsy by use of the three questions in the WHO screening questionnaire for neurological disease[6] to which a fourth question was added. "Have you ever had any episodes of falling or dropping down without any obvious cause or which you could not recall". A total 727 (35.81%) patients were identified in a total population of 20284 (See Appendix 1). By simple random selection 195 identified cases were studied in depth. All cases during the screening were registered and a matched control for sex, age and tribe was obtained from the population for in the depth study of putative causes of epilepsy and clinical characteristics.

Case ascertainment definition and diagnostic criteria

A total 179 individual identified and a matched control group were subject to further interview, and a physical examination carried out by a team of 2 neurologists, had a full psychiatric assessment by 2 psychiatrist, familial aggregation and genetic blood samples were analysed by 2 genetists and one neurologist assisted by 2 technologist performed Electroencephalogram EEG in the field.

Epilepsy was defined as two or more non-febrile seizures unrelated to any acute medical disorder or to withdrawal of alcohol or drugs. The diagnosis of epilepsy was confirmed on clinical grounds and classification undertaken on clinical and EEG findings. Possible aetilogical factors were determined after a thorough history and physical examination.

RESULTS

Epilepsy was confirmed in 174 individuals from 195 randomly selected cases and a matched control of 171 individuals were analysed.

Age and Sex distribution (table 1) revealed that the majority of individuals with epilepsy were below 30 years of age (684%) with age range of 2 to 60 years with a mean of 23.7 years. The mean of the controls was 28.7 years because of excess of individual above 40 years of age this was, nonetheless, statistically not significant. There were slightly an excess of children under 10 years with epilepsy than controls. This difference was also not significant. The sex ratios were not significantly different between individual with epilepsy and controls.

Tribe:

The Wapogoro were a dominant tribe in the identified individuals with epilepsy and controls accounting for 154 (88.5%) of the cases and 147 (86%) of the controls.

Level of Education attained is shown on table 2. A significant number of cases with epilepsy 32 (18.4%) did not attend school in comparison to 9 (5.3%) of the controls. X2 P: 0.0002. This difference remained significant even when all children (below 15 years) are excluded; that is leading 18 (15.1%) of patients in comparison to 4 (3.1%) of controls X2 P: 0.0056.

Age of onset (table 3). The onset of epilepsy was in the first 2 decades of life in the majority of patients (87.4%) and was rare after the age of 40 years in 4 (2.3%) patients. Mean age of onset was 14.8 years (range 2 months - 58 years).

Marital Status (table 4). The majority of cases with epilepsy were single 77 (44.3%) in comparison to 44 (25.7%) of controls. Conversely 69 (38.6%) of controls were married compared to 23 (12.1%) of patients. These difference was significant X^2 P: 0.001.0 of those who had married 11(6.3%) divorced in comparison to 5 (2.9%) of controls X2 P: 0.0000.

Age of onset of epilepsy before second decade was significantly associated with being single 68 (88%) patients X2 P: 0.0001.

Types of Seizures: Table 5

Using the clinical descriptions classification of the International League Against Epilepsy 84 (48.3%) of patients had partial seizures, 58 (38.3%) generalised Tonic - Clonic, absences 8 (4.6%) and a miscellaneous of generalised seizures 5 (4.6%). Thus all generalised type of seizures accounted for 82 (47.1%). Unclassifiable seizures accounted for 16 (9.20%) of patients. Generalised seizures occurred at night alone in 13 (17.6%) of all generalised seizures in comparison to 9 (10.7%) of all partial seizures. This was not statistically significant. Most seizures occurred during the day and night in all types of seizures.

Putative risk factors: Table 6

Four major risk factors were identified. Of these family history was present 80 (46.20%) against 32 (19.6%) of the controls. With a statistically significant Odds ratio OR of 3.52 (951 confidence interval of 2.16 - 5.74) $P < 0.0000$. A past medical history of febrile convulsion was encountered in 76 (43.9%) of patients as against 40 (24.5%) of controls, with OR of 2.4 (95%) confidence

interval of 1.5 - 3.8 was highly significant $P < 0.000$. Of the 76 patients with previous febrile convulsions 52 (68.4%) had more than one febrile convulsion whereas only 4 (10%) of the controls. A history of intrapartum and/or Neonatal complications was reported 21 (12.1%) patients against 3 (1.8%) of the controls. This was also significant with OR of 7.3 (95% confidence interval of 2.15 - 25.2). A past medical history of C.N.S. infection which was commonly meningitis or cerebral malaria was rarely, it was reported by 8 (4.6%) of patients gave this history in comparison to 2 (1.2%) of controls. Fifty one (29.5%) patients had more than one risk factor in comparison to 13 (8%) of the controls and this difference was significant $X2 < P < 0.000$. Logistic regression was used to model the influence of the four prevalent factors for epilepsy (Family history, Febrile convulsions, Neonatal/Intrapartum, CNS infection) on a multivariate analysis. The odds ratios for the four risk factors where each is adjusted for all others was: Family history OR 3.34 (95% C.I.2.00 - 5.58) history of Neonatal/Intrapartum 4.51 (1.26 - 16.1),and a past history Febrile convulsion 2.9 (1.6 - 6.2) history of CNS infection 3.76 (0.72 - 19.6).

Number of Seizures this year: Table 7

The number of patients who had no seizure in the last year was 39 (22.7%), 27 (15.7%) had 1 or 2 per year, 18 (10.5%) had 3 to 4 per year, 25 (14.5%) had 5 to 11 per year. Others 38 (22.1%) 1 to 4 per month, 15 (8.7%) had 2 per week to 1 per day and 10 (5.8%) had more than 2 per day. There was no significant difference between the number of seizures in this year and the associated factors for epilepsy.

Physical complications:

Forty five patients (25.9%) had physical complications against none of the 171 controls. The majority of these 27 (15.5%) had burns with scars, 12 (6.9%) burns and trauma and 6 (3.4%) had other complication which included facial bruises, weakness of limbs and ulcers.

Time since last seizure:

Information about the time elapsed since the last seizure was obtained on 172 patients. Of these 136 patients (79%) had experienced seizures during the last year and the majority of these 120 (69%) had a seizure within the preceding 3 months before the study period. A total of 36 (20.9%) had seizure within the preceding year and 21 (12.2%) had experienced last seizure more than 5 years before the study period. There was no significant difference in the number of seizures experienced in the last year and type of seizure. Of the 7 (87.5%) with absence seizures had experienced attack within 3 months before the study in comparison to 65 (77.4%) of 84 partial seizures and 32 (55.2%) of 58

generalised tonic-clonic seizures. Also, there was no significant difference in the number of seizure in last year and associated risk factors.

Level of Intelligence

Intelligence was judged to be probably normal in 135 (82.3%) of 164 assessed patients against 163 (98.2%) of controls. Fourteen (8.5%) were probably mildly mentally handicapped and 15 (9.10%) were moderately definitely mentally handicapped against 3 (9.10%) of controls being judged as mildly handicapped. This difference was significant X^2 $P < 0.000$. There was no significant difference in intelligence with type of seizures or EEG classification. Of those judged to have mild mental handicap 6 had one or more risk factors and 7 of 15 with definite mental handicap had one or more risk factor. It would seem that mental handicap is highly associated with risk factors although the numbers were too small for statistical analysis.

Consultation for advice outside the family (Table 8)

An average of seven months (range one month to 18 years) elapsed before somebody outside the family was consulted. One hundred and ten (63.2%) had sought consultation within one year, 14 (8%) after one to two years and 32 (18.4%) after 2 years of the onset of seizures. Nine patients did not seek consultation. The most frequently consulted persons were traditional healers, (46%), relatives (25.9%) and medical personnel (20.7%). Table 8 - Of the 57 patients with generalised tonic seizures 40 (68.4%) had sought advice within a year against 62 (76.5%) of 81 with partial seizures. This difference was, however, not statistically significant.

Consultation for Modern Medical Treatment

During the course of their illness 149 (85.6%) patients received treatment in modern medical facility. Of these 96 (64.4%) received treatment within one year, 56 (37.6%) after one to four years, 22 (14.7%) after five to nine years and 10 (6.7%) after 10 years or more of their illness. The health facility attended was Government hospital 97 (65.1%), Mission Dispensary 44 (29.4%) and Private Dispensary 8 (5.4%) of cases.

Of the 149 patient who went to a health facility 139 (93.2%), received treatment specific for epilepsy. At the time of the survey only 85 (56.4%) were on antiepileptic treatment. Even this treatment was being taken irregularly due to lack of drugs. The treatment given was Phenobarbitone, and Phenytoin Sodium. Table 9.

Consultation with Traditional Healers

During the course of the illness 134 (90%) patients had consulted on average of 2.1 (range one to ten) traditional healers each. Sixty percent of cases consulted more than one healer. The treatment offered consistence of herbal drinks 146 (98%), topical application 75 (50.3%), charms 22 (14.8%), rituals 2 (1.3%) and fumes inhalation 2 (1.3%). Over 10 patients were given more than one type of treatment.

Effect of Medical Versus Traditional Treatment

Of the 134 patients who had taken traditional treatment 68 (50.7%) said they had improved, 49 (36.6%) said they had no improvement and 17 (12.3%) said their illness was worse. On the other hand out of 139 who received modern medical treatment 100 (72.4%) said had improved 19 (13.7%) received no improvement and 20 (14.3%) said they were worse. Medical treatment gave significantly more subjective benefit compared to traditional treatment X^2 test $P = 0.0005$.

Patients ideas on the prognosis of Epilepsy

Most of the patients 121 (68.5%) and controls 122 (71.3%) said they did not know the prognosis of epilepsy. A small proportion of the patients 23 (13.8%) and controls 22 (12.9%) thought epilepsy could be cured. The hope of being cured or getting better was influenced by the number of seizure in the previous year or so. There was no significant difference between the patients ideas on the prognosis of their illness against the controls (Table 10).

APPENDIX 1

RESULTS OF PRELIMINARY SCREENING FOR EPILEPSY AND CENSUS CARRIED OUT IN VIGOI (MAHENGE) DIVISION (APRIL-MAY 1992)

Subdivision	Village	Total population	Epilepsy patients	Prevalence per 1000
	Makanga	1602	85	53.0
	Mbagula	1093	36	32.9
	Vigoi	1781	33	18.5
	Epanko	1519	21	13.8
Vigoi	Nawenge	1476	42	28.5
	Kisewe	777	26	33.5
	Total	8248	243	29.5
Mahenge Town	All areas	4763	52	10.9
	Isongo	2536	39	14.6
Isongo	Uponera	1115	38	34.1
	Total	3651	75	20.5
	Majengo	543	41	75.5
	Chikuti	660	73	11.1
Msogezi	Msogezi	1657	207	124.9
	Mdindo	762	36	47.2
	Total	3622	357	98.6
Total for whole division		20284	727	35.8

Table 1: **AGE AND SEX DISTRIBUTION**

AGE	PATIENTS		CONTROLS		TOTAL (%)
	MALE	FEMALE	MALE	FEMALE	
0 - 9	14	12	8	6	40(11.6)
10 - 19	30	28	27	22	107(31.01)
20 - 29	20	15	10	20	65(18.6)
30 - 39	15	11	18	12	56(16.2)
40 - 49	6	8	9	13	36(10.1)
50 - 59	3	8	9	10	30(8.7)
60 >	1	3	3	4	11(3.2)
	89(25.8)	85(24.6)	84(24.4)	87(25.2)	345(100)

Age range 2 - 60 Rage 1 - 62

Mean age 23.7 Mean 28.7

Table 2: **LEVEL OF EDUCATION**

LEVEL OF EDUCATION	PATIENTS	CONTROLS	TOTAL(%)
None	32	9	41(11.9)
Below school age	21	10	31(9.0)
Primary Education	117	147	264(76.5)
Secondary Education	3	5	8(2.3)
Higher Education	1	-	1(0.3)
	174(50.4)	171(49.6)	345(100)

Table 3 : AGE OF ONSET

AGE OF ONSET	CASES (%)
0 - 9	61 (35.1)
10 - 19	91 (52.3)
20 - 29	13 (7.4)
30 - 39	5 (2.7)
40 - 49	3 (1.7)
50 > above	1 (0.6)
	174(100)

Table 5: SEIZURE TYPE

CLASSIFICATION	PATIENTS (N) 174	%
Partial	84	(48.3)
Generalised Tonic - Clonic	58	(38.3)
Absence	8	(4.6)
Others Generalised	8	(4.6)
Unclassifiable	16	(9.2)

Table 6: RISK FACTOR

RISK FACTOR	PATIENTS N =173(%)	CONTROLS 163%	ODD'S RATIOS	95% CONFIDENCE INTERVAL	P
Family history	80 (46.2)	32 (19.6)	3.34	2.14, 5.74	0.000
Febrile convulsion (at least one episode)	76 (43.9)	40 (24.5)	2.4	1.5, 3.84	0.0001
Neonatal/Intrapartum complications	21 (12.1)	3 (1.8)	7.3	2.15, 25.2	0.0002
CNS Infection	8 (4.6)	2 (1.2)	2.4	1.5, 3.84	0.06
Cerebral Vascular disease	3	3	-	-	NS
Head injury	2	2	-	-	NS
Brain Neoplasm	1	-	-	-	NS
No associated factor	42 (24.3)	97 (39.5)			

Table 7: NUMBER OF SEIZURES THIS YEAR

	Patients (%)
None	39 (22.7)
1 - 2 per year	27 (15.7)
3 - 4 per year	18 (10.5)
5 to 11 per year	25 (14.5)
1 to 4 per month	38 (22.1)
2 per week to 1 per day	15 (8.7)
More 1 day	10 (5.8)
	172 (100)

Table 8: INITIAL CONSULTATION MADE OUTSIDE THE FAMILY

PERSON CONSULTED	NO	%
None	9	5.1
Relative	45	25.9
Friend	3	2.3
Healer	80	46
Medical person	36	20.7
Priest	1	0.6

Table 9: TREATMENT OFFERED TO 149 PATIENTS WHO CONSULTED A MODERN HEALTH FACILITY

DRUG	DURING COURSE OF ILLNESS NUMBER (%)	AT THE TIME OF STUDY NUMBER (%)
Phenobarbitone	102 (68.5)	76 (51)
Phenytoin	7 (4.7)	5 (3.3)
Other unspecified anticonvulsant	30 (20.1)	4 (2.7)
None	10 (6.7)	46 (42.9)
TOTAL	149 (100)	149 (100)

Table 10: IDEAS ON THE PROGNOSIS OF EPILEPSY

PROGNOSIS	PATIENTS n (%)	CONTROLS n (%)
Don't know	121 (68.5)	122 (71.3)
Cured	23 (13.8)	22 (12.9)
Get better but no cure	24 (13.8)	18 (10.5)
Remain the same	3 (1.7)	2 (1.2)
Get worse	3 (1.7)	7 (4.1)
TOTAL	174 (100)	171 (100)

B. FOLLOW UP STUDY

METHODOLOGY

Nearly all patients were allocated to a treatment with Phenobarbitone n = 135 except for a few number of patients who were allocated to limited supply of Phenytoin = n = 32. Another seven children diagnosed to have absence or atypical absence seizures were allocated to sodium valpoarate. Phenobarbitone was started at small dose of 30 mg. then increased fortnightly until maintenance dose was reached whereas Phenytoin was started at 50 mg. increased to maintenance dose with age group of patients (Table 11). Patients were reviewed at the District Hospital psychiatric unit outpatient by health workers fortnightly for two months, then monthly. Dosage was increased when seizures occurred more than three weeks after the last increment otherwise the change was not done. If seizures occurred and patients also had side effects, the dosage was either reduced to previous dosage levels or if side effects were severe enough the drug would be withdrawn. Patients who did not attend the clinic were visited at home by a health worker. At every visit the health worker recorded, seizure numbers since last visit and adjusted drug therapy as necessary. The District Medical Officer was available for consultation at any time. The patients were also seen at six months, twelve months and twenty four months by the research team of two neurologist and psychiatrist to review clinical status seizure number, therapy and side effects and to assess the health workers activities. Blood samples for drug concentration were not done.

Of the 135 patient on Phenobab (male 75, females 60) 66 had partial seizures, 46 generated tonic-clonic and 11 unclassifiable seizures, whereas 32 phenytoin (male 17, female 15) 18 had partial seizures, 20 had tonic clonic seizures and five unclassifiable. Seven children with absences or atypical absence received sodium valpoerate. The severity of disorder varied widely. Follow up continued until patient had been in therapy for two years.

RESULTS

A total of 112 (64.4%) completed the 24 month follow up, 38 (21.8%) patients dropped out of follow up because of migration 19 patients opted for traditional medicine 3 patients refused treatment7 patients because of side effects 4 patients and non-compliance or unknown reason 3 patients. Table 12

During the 24 months follow up 15 (8.6%) patients died. Of these 10 were males of age range of 7 to 30 years (mean 14.3) and 5 females with age range of 4 to 60 years (mean 25.4). Only 2 (1.2%)

of deaths was directly attributable to the effect of epilepsy (one drowned while crossing a river and one child died of status epilepticus). Seven patients died from Nutritional related Anaemia and 5 from infectious diseases. Table 13.

Of the 112 patients who completed the period of the study 77 (68.75%) were seizure - free during the 12 month to 24 month of follow up period (Table 14). There was a significant improvement in seizure control when compared to only 39 (22.7%) patients who were seizure free for last 12 months at beginning of study were seizure on Table 7 X^2 P 0.0005. Another 22 (19.6%) had at least 50% fewer seizures than in the baseline period. The two drugs seemed equally effective although the number of these who were started an Phenytoin was too small for comparison. Nonetheless at the end 12 months 77(70.6%) of 109 patients initially on Phenobarb received a maintenance dose of Phenytoin because Phenobarbitone was incidentally out of stock and almost all patients who had been seizures free by that period (66.7%) patients) continued to be seizure-free of these only 4 patients reported worsening of seizure frequency and this was a temporary phenomena. Length history of epilepsy (5 years or more) before the period of study did not influence the effect of therapy (Table 15). Nor did the lifetime number of seizures before therapy, of the 163 patients for whom lifetime seizure number could be estimated 48 of 83 patients with more than 100 seizures in comparison to in 71 of 80 with less than 100 seizures.

Adverse experiences were monitored by a check list and direct inquiry throughout the study, only 4 (withdrew from the study) because of side effect Table 12. Of the 112 patients who completed the study period 41 patients reported 68 adverse experiences. Although the numbers of patients on Phenobarbitone to those on Phenytoin were uncomparable more reports of adverse effects were reported in the Phenobarb group. On the other hand those who experienced more serious adverse effects warranting drug withdrawal were from the Phenytoin group.

Table 11: MAINTENANCE DOSE AND DOSE INCREMENT OF DIFFERENT AGE GROUPS

	6 - 10		11 - 16		16 and Over	
	PB	PHT	PB	PHT	PB	PHT
1ST MAINTENANCE DOSE	30	50	45	100	60	200
DOSE INCREMENT	15	50	30	100	30	100

PB = Phenobarbitone

PHT = Phenytoin

Table 12: REASONS FOR DROP OUT

REASONS	PHENOBARBITONE (n)	PHENYTOIN (n)
Migration from District	15	4
Refused treatment*	5	0
Opted for traditional therapy	2	3
Non-compliance or unknown reason	2	1
Side effects**	-	4
	24	12

NOTE: *2 patients on sodium valprate were refused treatment by their parents

**Severe side effects included 3 patients with abaxia and one patient with severe gum hypesoplasia.

Table 13: CAUSES OF DEATH

CAUSE	NUMBER (% OF 174)
Nutritional related Anaemia	7 (4.0)
Infectious disease (TB and Malaria)	5 (2.9)
Unestablished (old age)+	1 (0.5)
Seizures**	2 (1.1)
	15 (8.6)

+ One lady aged 60 and above died at home from no obvious cause.

**One patient drowned while crossing a river and a child of 10 yrstd had status epilepticus.

Table 14: SEIZURE FREQUENCY DURING THE 12 MONTHS OF TRIAL

Seizures Activity during therapy	Phenobarb n = 109	Phenytoin n = 13
Seizure free	70 (64.2)	7 (53.8)
Decreased frequency	20 (18.3)	2 (15.4)
No change	17 (15.6)	3 (3.9)
Increased frequency	2 (1.8)	1 (7.6)

COMMENT

A: CROSS SECTIONAL STUDY

This study has reaffirmed the findings of high prevalence of epilepsy in Mahenge with variation in the prevalence ratios from 10.9 to 124.9 per 1,000 population. The high prevalence in some of the villages agrees with the estimated figure by Jilek and Jilek-Aall[1] and in more a recent study in Ulanga District[4].

Like most previous studies, most of the individuals studied had their first seizure early in life 165 (94.8%) before age 30 years[7,8,9].

The present study like previous studies revealed that individual with epilepsy never attended school (18.4%) in comparison to only 5.3% of the controls regardless of intellectual ability of patients. This challenge has been highlighted in a number of studies[9,10,11]

This study confirms previous observation[9,12,13] that persons with epilepsy were less likely to marry and if married were likely to divorce. It also confirms recent observation in non-controlled survey in Ulanga, that the age of onset of seizures before marital age is significantly associated with being single or divorsed[9].

By using a check list of elementary symptoms in the classification and closely asking what the patient experienced and/or a close relative noticed, it was possible to categorize the type of seizure using the International league. Against epilepsy recommendation as carried out in a previous study in same area[4,9]. In this study unlike in previous study Partial seizures (48.3%) exceeding generalised tonic-clonic seizures (38.3%). This finding of an excess partial seizures was also reported in Nigeria although the population in our study population was rural in contrast. to suburban population in Nigerian study[3]. Secondary generalised seizures were the most frequent among partial seizures as has been reported in other studies[8,9,14]. Correlation of EEG and seizure type will be reported by the University of British Columbia Group.

Risks of developing epilepsy was increased in 4 associated risk factors. The greatest risk was with a past history of more than one complicated febrile convulsions. Others were a positive family history in first degree relatives, intrapartum complications and past history of CNS infections. The high prevalence in some of the villages is not wholly explained by the above risk factors. More studies are required to exclude infections like onchocerciasis which is also highly prevalent in Mahenge area.

Seizure frequency was found to be 1 to 2 per year in 15% of patients 62% one per month to one a year and 14.5% had seizures more than one per month for all types of seizure. This is roughly similar to estimated figure in developed countries[15].

The time elapsed since last seizure revealed that 12.2% had spontaneous a 2 and 5 year remission. Because of the lack of treatment, most of patients (82%) had active epilepsy with most of them having had experienced a seizure recently within the preceeding 3 months. This is similar to seizure activity reported in the Ulanga District study[9].

Burns were the most frequent complication in the patients with none in the control group. This observation has been reported in several previous studies in Africa[9,16,17].

Level of intelligence was rated as definite moderate mental handicap in 9.1% of patients against 1.8% of controls. This factor affects schooling, hence it poses as a challenge in providing special school facilities appropriate for those with mental handicap in the area of study and other parts of the country. The traditional healer was the person most frequently consulted. The kind of treatment offered by traditional healers was in the form of herbs taken internally consistent with previous experience in the area[1,20].

It was observed in the study that 149(85.6%) patients received treatment in health facility and the majority of these 139 (93.2%) received specific antiepileptic drugs. Nonetheless, only 56% were still an antiepileptic treatment at the time of study. This trend has been observed previous in Africa and other developing countries[7,15]. This could be a reflections of unavailability and poor distribution of drugs. Experience in Malawi[17] and Kenya[21] indicates that if appropriate and adequate drugs is offered to the patients in their first consultation more would attend the clinic and follow instructions. Moreover patients in this study reported significant improvement on modern medical treatment than on traditional therapies.

A: **FOLLOW UP COHORT STUDY**

The survey method undertaken in this study of house to house interview of key informants in each household enabled us to identify a reliable good number active epilepsy in a rural community carried out by well trained primary health workers. The prevalence reported vary from village to village and represent in some village the highest recorded prevalence in the world. The treatment protocols were intended to be suitable for use by non-medical personnel at the existing primary health services.

Health workers played an important part in diagnose, education, choice of doses and monitoring treatment and compliance. Diagnosis was confirmed by neurologists and psychiatrists who also reviewed the health worker activities as an important aspects of quality control. The health workers were able to monitor treatment as was indicated by the low drop out rate (21.8%), of whom the majority were due to migrations from the district. Also by the low rate of withdrawal due unacceptable side effects (2.2%), low rate on non-compliance (1.7%) and the good response to treatment (68.7%) and another 19.6% with effective reduction in seizure frequency. Of the original group of the patients 57% experienced considerable improvement in seizure control a rate almost similar, although somewhat low than in those reported in developed countries[22] and the experience in Kenya[21]. Thus the results confirm further that seizures particularly generalised tonic-clonic can be successfully treated with simple regimen (in this case Phenobarbitone) in areas where medical facilities are limited and where heavy reliance is placed on health workers. Therefore treatment of epilepsy could be given a priority at primary health care and a supply of drugs must be assured for the success of any treatment programme. It appears that once the seizures have been well controlled over 12 months, a substitution of another maintenance dose antiepileptic drugs does not result in break though seizures as is commonly taught. Contrary to recent views our study has demonstrated that Phenobarbitone is an effective and safe antiepileptic drug that can monitored at primary health care level.

Neither the length of history of epilepsy nor the number of seizures before treatment influenced effect of therapy. This is in agreement with experience in Kenya[21] and Malawi[17].

Early prognosis in the study was good with case fatality of 8.6% in 24 months period of follow up only 1.1% of death were directly attributable to seizures. It seems the case fatality could be reduced by general improvement of nutritional of the community other medical care aspects.

CONCLUSION

Results from this study have strengthened further the observation of very high prevalence of active epilepsy in Mahenge in a rural Tanzania community. Two risk factors Family history and previous febrile convulsions were strongly associated with subsequent epilepsy. Health education on lowering body temperatures of a child is with febrile illness, discouraging consangious marriage and better antenatal care will greatly reduce the epilepsy in the community. About a quarter of patients had no obvious past risk factor. The possibility of other environment factors like tropical diseases such as anchocerciasis were not scrutinized. This calls for further studies. A significant majority of epileptic

are social deprived because of epilepsy prese. The diagnosis of epilepsy, the treatment and health education can be undertaken by primary health workers. Primary health care epilepsy programme can be a success if there is a constant supply of antiepileptic drugs. The majority of patients with active epilepsy will be seizure-free in 12 month of instituting, treatment with Phenobarbitone and most of adverse drug reaction were manageable at primary health care.

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