

FEBRILE CONVULSIONS IN ILORIN

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SUMMARY

Doyin Fagbule Chike-Obi Ud and Akintunde EA Febrile Convulsions in Ilorin *Nigerian Journal of Paediatrics* 1991: 18(1) 23-27 The Pattern of Febrile convulsion in the University of Ilorin Teaching Hospital over a 12-month period was prospectively studied. Over the study period, febrile convulsion accounted for 11.5% of all admissions to the Emergency Paediatric Unit. The male: female ratio was 1.3:1 with 34% of cases presenting in the second year of life. About two-thirds of convulsions occurred during the wet months of May to October. *Plasmodium falciparum* infection accounted for 71.7% of febrile seizures cow's urine concoction, a form of home remedy, was given to 60.2% of cases during the convulsive episode. Various complications associated with this therapy included, multiplicity of seizures, oropharyngeal soft tissue injuries altered state of sensorium, aspiration pneumonitis and death. It is suggested that adequate malaria control in this geographic area will reduce the incidence of febrile convulsion and therefore reduce the need to treat children with the lethal cow's urine concoction.

INTRODUCTION

FEBRILE convulsion is a common condition although its true prevalence in the Nigerian population is not known. However, in studies carried out elsewhere, its prevalence lies between 2% and 5%¹⁻⁴.

Infective agents likely to precipitate febrile convulsion vary depending on the most prevalent fever-inducing organisms in a given geographic location. Lewis et al⁵ in Harrow, Britain found that 87% of febrile convulsions were secondary to a viral

etiology commonly manifesting as tonsillitis, pharyngitis, otitis media and gastroenteritis. On the other hand, Familusi and Sinnette⁶ reporting from Ibadan Nigeria, found that malaria parasitaemia caused most febrile convulsions.

In most technologically advanced countries, morbidity and mortality following febrile convulsion are minimal. This may not be true of less developed countries considering the role of some adverse socio-cultural practices.⁷ The common use of cow's urine concoction in the Western part of Nigeria (Ilorin inclusive), has been associated with high morbidity and mortality in children with convulsive disorders⁶⁻⁹

The purpose of this study is to identify the aetiological agents responsible for febrile condition in this geographic area, as well as investigate the morbidity pattern of this acute neurological entity.

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MATERIALS AND METHODS

All children between the ages of six months and six years who presented to the Emergency Paediatric Unit (EPU) of the University of Ilorin Teaching Hospital with fever and convulsion were prospectively studied. The unit caters for children under 16 years of age in Ilorin and its environ.

A questionnaire designed to obtain pertinent historical and physical information was completed in respect of each patient. Febrile convulsion is traditionally defined as convulsion following a febrile illness of extracranial cause in a child between the ages of 6 months and 6 years with no previous neurological problems. A febrile convulsion was said to be simple if it was generalized, lasted less than 15 minutes and occurred only once in 24 hours. A complex febrile convulsion was either focal in nature, lasted longer than 15 minutes, or occurred more than once in 24 hours.

Laboratory data obtained at the time of admission were haematocrit (Hct), cerebro-spinal fluid (CSF) microscopy, culture and sensitivity, protein and sugar; blood sugar and blood culture. Urine microscopy and culture, chest roentogenogram were done when clinically indicated. Patients found to have viral or bacterial meningitis, encephalitis, or cerebral malaria were excluded from the study. All patients were initially seen by a House-Officer or Resident and subsequently reviewed by a Consultant.

RESULTS

Between August 1987 and July 1988 (a 12 month period), there were 1804 admissions to the EPU. Of these, 207 (11.5%) had febrile convulsion. One hundred and fifty nine out of 207 cases with febrile convulsion were studied. The rest were excluded because of inadequate data collection. Fig 1 shows the seasonal prevalence of febrile convulsion. One hundred and forty three (69.1%) cases presented between the months of May and October coinciding with the rainy season in the region.

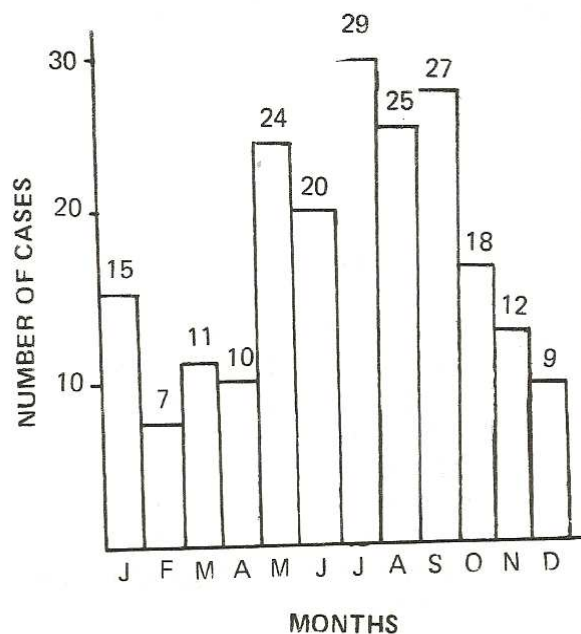


Fig 1: Seasonal distribution of cases of Febrile Convulsion

SEX AND AGE DISTRIBUTION

There were 89 males and 70 females giving a ratio of 1.3:1. The cases ranged from 6 months to 6 years with a mean age of 30.7 months ($SD \pm 22.8$ months). Thirty-four percent of the patients were in the second year of life (Figure 2).

CONVULSIONS

Ninety-three (58.5%) cases had one episode of convulsion in 24 hours. Thirty-three (20.8%) had two episodes while another 33 (20.8%) had three or more episodes in 24 hours. When subjected to statistical analysis, there was no significant relationship between the age of patients and the number of convulsions in 24 hours ($P > 0.5$). There also was no significant relationship between the temperature of patient and number of seizures experienced in 24 hours ($P > 0.1$).

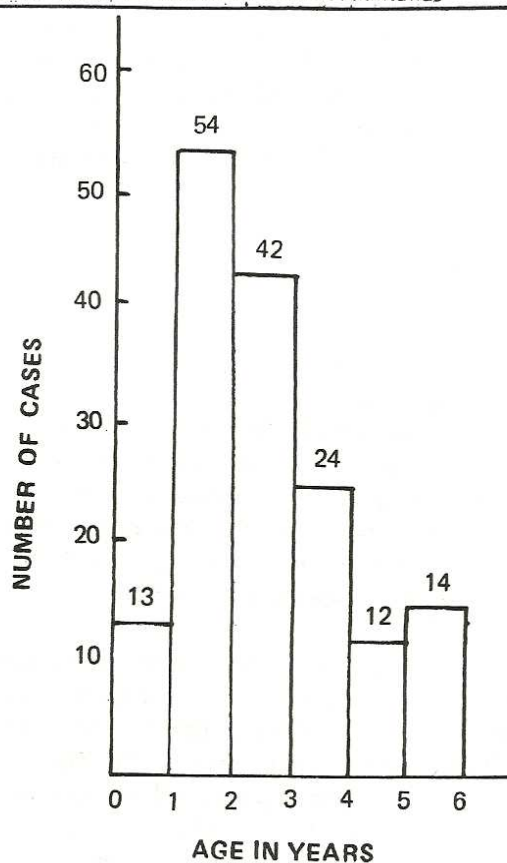


Fig. 2: Age distribution of cases

HOME REMEDIES

Seventy-one (60.2%) out of 118 cases questioned had cow's urine concoction (CUC) administered orally and occasionally topically too. In 18 cases, the CUC was given by a well-meaning relative or neighbour rather than the parents of the patient. Forty-seven (39.8%) cases denied the use of any traditional drugs during the convulsive episode while less than 20% of cases had some form of orthodox drugs (e.g. analgesics, antipyretics, antimalarials), administered prior to presentation.

Two cases had second degree burns on the soles of their feet, and thighs as a form of therapeutic intervention. Forty-nine (69.0%) out of 71 cases that ingested CUC had complex febrile convulsion.

On the other hand, 17 (36.2%) of the 47 cases without CUC ingestion had complex convulsions. This association was statistically significant ($P < 0.001$).

LABORATORY DATA: HAEMATOCRIT (Hct)

Hæmatocrit values were between 7% and 42% with a mean value of 30%. Forty-six (28.9%) cases had Hct values $\leq 25\%$.

MALARIA PARASITE

One hundred and fourteen (71.7%) patients had significant malarai parasitaemia. *Plasmodium falciparum* (*P. falciparum*) was the only specie identified. Of the 46 patients with Hct $\leq 25\%$, 43 (93.5%) had *P. falciparum* infection.

OTHER CAUSES OF FEVER

Thirteen patients with malaria infection also had other possible causes of fever identified. Ten of these had upper respiratory tract infection (otitis media 7, pharyngitis 3) two had bronchopneumonia and one cellulitis of the foot. A clinical diagnosis of bronchopneumonia was made in 4 cases while 15 cases had upper respiratory tract infection and one patient, mumps parotitis. In the remaining 25 cases, the cause of fever could not be readily identified but they were treated with antimalarial drugs with appropriate response. See Table 1.

COMPLICATIONS

Complications comprised various injuries suffered by patients at home prior to presentation at the hospital. These include bruises and lacerations of the lips and oropharynx in 27 cases 20 of whom received cows urine concoction 2 cases of second degree burns to the lower limbs; 7 cases of chemical conjunctivitis resulting from application of traditional drugs to the eyes. Aspiration pneumonitis occurred in 8 patients, 7 of whom received oral CUC. One patient developed cortical blindness. Four deaths (case fatality of 2.5%) occurred. All four had CUC therapy. No autopsy was performed on any of these cases.

Table 1:

CAUSES OF FEVER IN 159 PATIENTS WITH FEBRILE CONVULSION

Causes	No. of cases	% of Total
Malaria alone	101	63.5
Malaria with another infection	13	8.3
Upper respiratory tract infections	15	9.4
Pneumonia	4	2.5
Mumps Parotitis	1	0.6
Unidentified source of fever	25	15.7
Total	159	100.00

DISCUSSION

This present study shows that acute malaria parasitaemia is the most common cause of febrile convulsion at the University of Ilorin Teaching Hospital, accounting for 71.2% of cases; a figure higher than 45% obtained by Familusi and Sinnette⁶ at UCH Ibadan in 1971. The seasonal incidence which assumed an epidemic proportion during the raining and mosquito breeding months of May through September buttresses the fact that malaria plays a significant role in febrile convulsion in this geographic area.

In keeping with previously established findings^{2, 10} we found that more males than female were affected. We recorded a mean age incidence of 30.7 months in contrast to 18.9 months reported by Lewis et al.⁵. In their study, only 3 cases were above 3 years of age.

While viral agents account for a large proportion of febrile convulsion in the temperate regions,⁵

their role in our study remains undetermined. They may however play a significant role in febrile convulsion in the tropics as identified by Familusi et al.¹¹ who isolated viruses in 7.6% of their patients who had viral studies done. This is an area for further investigation.

In contrast to some local studies^{11, 12} that found acute lower respiratory infections as the second commonest cause of febrile convulsion, we found acute upper respiratory tract infections to be commoner. It has been documented previously that severe malaria infection can produce pneumonic changes which clinically may be misinterpreted as bacterial or aspiration pneumonia.¹³ Patients with unidentifiable cause of fever showed clinical response following antimalarial therapy thus buttressing the fact that a single negative blood film does not exclude malaria infection.¹⁴

In this study, CUC administration was associated with soft tissue trauma to the oropharynx, a higher incidence of complex febrile convulsions, ($P < 0.001$) and aspiration pneumonitis. The effects of CUC in man and experimental animal include, severe depression of the cardiac, respiratory and central nervous systems as well as hypoglycaemia.^{6, 9, 15} The multiplicity of seizures encountered in cases that received CUC could thus have resulted from its central nervous system and hypoglycaemic effects. The dangers posed by this toxic preparation cannot be overemphasized.

Reports from Europe and North America show that febrile convulsion, though common and dramatic in its manifestation leaves the child with negligible sequelae, the commonest long term complication being recurrence of febrile seizures.¹⁶⁻¹⁸ Mesial temporal sclerosis leading to epilepsy¹⁹ as well as intellectual and motor handicap²⁰ are complications of infrequent occurrence.

Acute severe *P. falciparum* infection with the added CUC poisoning makes febrile convulsion a more serious illness in our environment as shown by this study as well as that by Familusi and Sinnette.⁶ Hendrickse and King²¹ in 1958 identified malaria

as a major cause of childhood morbidity in Nigeria. After over 30 years of advanced medical technology, social and economic enlightenment, and the WHO's programmes on malaria eradication, it still remains holoendemic in this region. Efforts must therefore be intensified in the various malaria control programmes.

Through primary health care facilities and the mass media, simple but effective measures on control of mosquito breeding can be taught. Community health educators should instruct parents on the effectiveness of exposing and tepid sponging the febrile child. Health educators should also discourage the traditional practice of over-clothing the febrile child.

The use of antimalarial prophylaxis in a holoendemic area remains controversial but it can be recommended to specific patient groups like those with history of recurrent febrile seizures. The use of CUC must be vigorously condemned through public enlightenment programmes. These efforts will go a long way to make febrile convulsion a disease of negligible sequelae here as is the case in developed countries.

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