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CLINICAL PROFILE OF FALCIPARUM MALARIA IN HOSPITALIZED CHILDREN

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ABSTRACT

Background: Malaria; a global health problem which affects more than 40% of the world population in 143 countries. Over 300 millions of new malaria cases are added every year. It kills more than one million people worldwide each year and of these more than 15-25% are under 5 children. In South East Asia 9 countries out of 11 including Bangladesh are facing malarial health problem seriously. Main victims of this problem are children and pregnant women. They are 75% of total affected people. **Objective:** In this study our main goal is to see the variable clinical presentations of falciparum malaria in children and response to therapy. **Methods:** Total 100 cases of falciparum malaria, in the age group of 9 months to 12 years, were studied in the paediatric ward of Chittagong Medical College Hospital from March to August, 2003 with the objectives of studying the clinical presentations of falciparum malaria and their response to therapy, in children. **Result:** Majority of patients 63% had parasite count 500-10,000 their peripheral blood and count was plenty in only 2% cases. Most of the patients were anaemic but 13% cases had sever anaemia. Leucoopenia was observed in 5% leucocytosis in 39% cases. Evidence of haemolysis was present in 22% cases; which included jaundice, severe anaemia (Hb%=<5 g/ dl), increased serum bilirubin level and reticulocytosis. CSF study was done in 10 cases of cerebral malaria. CSF pressure was found to be raised in 3 cases, other laboratory findings of CSF were normal. **Conclusion:** Only Plasmodium falciparum causes severe malaria. Children are most vulnerable to this. Hill-tracts being forest area, Chittaagong, Cox's bazaar being foot- hill areas are endemic zone for falciparum malaria. So this health problem is a headache of this region. Which needs evaluation and further re-evaluation of malaria situation time to time.

KEYWORDS: Plasmodium falciparum, falciparum malaria, leucoopenia, haemolysis.

INTRODUCTION

According to Malariometric survey carried out in the past revealed the presence of hyper and holo- endemic malarial zones with pockets of meso-endemicity in the eastern and south eastern parts of the country, having mostly forested, forest fringe hilly and foot hill areas. The majority of cases now reported are from 17 districts. Out of these 5 districts bear the main burden. These are Banderban. Khagrachari, Rangamari, Cox's bazaar and Chittagong. These areas are the catchment areas of Chittagong Medical College Hospital. Being a tertiary referral hospital of the aforementioned area, it provides a good scope to study malaria patients in such setting. For the purpose of diagnosis new case definitions applied to falciparum malaria in hyperendemic zone: Uncomplicated malaria (UM), Treatment failure Malaria (TFM), Severe Malaria (SM).[1]

Among these three clinical types severe malaria bears the significant mortality and morbidity and it is only caused by plasmodium falciparum species.[2] Though in WHO case definitions of severe malaria and treatment failure malaria is a must, in practical situation blood slide may be false negative due to many factors. Like parasite density in the blood; sequestration of parasite to vital organs (Brainh, kidney, lung, GIT mucosa); time of slide preparation (Just after paroxysm of fever) and efficient microscopy.[3,4,5]

Falciparum malaria has got no particular characteristic clinical picture of its own and can be mimicked by a variety of febrile infectious illness in the tropics.[1] Severe malaria is falciparum malaria that is sufficiently serious to be an immediate threat to life. Occurs almost invariably as a result of delay in treating the uncomplicated malarial cases.[6]

So there is a necessity to see the clinical presentations, response to anti malarial therapy (before laboratory confirmation) and its outcome in children.

Though there is one such previous study in this context it needs further evaluation.[7] Considering WHO's focus on the clinical disease in its malaria control efforts there is a need for such data to guide diagnostic efforts in the absence of effective microscopy in highly endemic zone to start empirical treatment with antimalarial drug which significantly reduces morbidity and mortalilty due to falciparum malaria.[8] The national strategy for control of malaria, **"Early Detection and prompt Treatment"**.[9]

Objective

General objective

- The aim of current study is to see the variable clinical presentations of falciparum malaria in children and response to therapy.

Specific objective

- Early diagnosis of falciparum malaria from clinical presentations and early administration of treatment in the reduction of morbidity & mortality.

METHODOLOGY

Type of study	It was a prospective study.
Place of study	At pediatric wards of Chittagong Medical College Hospital, Chittagong, Bangladesh.
Study period	March, 2003 to August, 2003.
Study population	A total of 100 cases of falciparum malaria amoung 9 months to 12 years age group were included in the study.
Sampling technique	Non-probability purposive sampling method

RESULTS

Table I: **Age distribution (N-100).**

Age (Years)	Number of Patients	Percentage (%)
9m-11m	11	11
1-3 Yrs.	29	29
4-6 Yrs.	42	42
7-9 Yrs.	14	14
10-12 Yrs.	13	13

Table I shows that that 42% were in the 4-6 years, 11% in the 9-11 months age group. it is observed that younger adult are more sufferer than late adult.

Table II : Sex distribution (N=100).

Sex	Number of patients	Percentage (%)
Male	61	61
Female	39	39

In this study 61% male and 39% female, which is almost same as study done by "Kanti Parimal Nath. It is because of female population is still less than male in Bangladesh and female child is less cared in our socio-economic culture.

Table III: Regional distribution. (N=100),

Region	Number of Patients	Percentage (%)
Rauzan	4	4
Fatikchari	12	12
Rangunia	5	5
Chittagong Hilltracts (Rangamati, Bandarban, Khagrachari)	24	24
Boalkhali	3	3
Patia	3	3
Chandanaish	4	4
Banskhali	4	4
Cox's bazar	16	16
Ctg	21	21
Satkania	5	5
Other than ctg /Feni	1	1
Sitakund	1	1

In this study cases reported are from 24% from Hilltracts, 21% from Chittagong district.

Table IV: Presenting Symptoms.

Symptoms	Number of Patients	Percentage (%)
Fever	100	100
Vomiting	15	15
Headache	7	7
Prostration	46	46
Unconsciousness	28	28
Convulsion	40	40
Yellow coloration of eye	19	19
Pallor	60	60
Scanty urine	15	15
Dyspnoea	10	10
Dark urine	14	14
Bleeding manifestation	5	5
Diarrhea	8	8

In this study all patients presented with fever and no patient had chemoprophylaxis.

Table V: Types of fever (N=100).

Types of Fever	Number of patients	Percentage (%)
Intermittent	52	52
Continuous	21	21
Remittent	27	17

Table VI shows that 52% patients suffered from intermitted fever, 21% continuous fever and 17% suffered from remittent fever.

Table VI: Diarrhea (N-8).

Malaria	Number of patients	Percentage (%)
Un complicated	6	75
Complicated	2	25

Diarrhea was observed in 8.33 % cases in the present series, among which 75% had acute watery diarrhea and 25% had dysentery. This reflects that diarrhroea in falciparum malaria is more common in children than adults.

Table VII: Physical signs in complicated falciparum malaria (N=96).

Physical signs	Number of Patients	Percentage (%)
Rise of Temperature	90	93.75
Respiratory distress	4	4.6
Anaemia	69	71.87
Jaundice	22	22.91
Hepatomegaly	56	58.33
Splemomegaly	33	34.37
Haemoglobinuria	12	12.5
Ncck rigidity	4	4.16
Kernigs sign	2	2.08
Bleeding manifestation	3	3.12

In the present series, we found 63% patients had parasite count is 500-10,000/ c u mm range and only 2% cases had parasite count infinity/c u mm in peripheral blood. But no definite correlation was made between the severity of complications of falciparum malaria with the density of parasite in peripheral blood.

Table-VIII: Complications observed in severe malaria (N=96)

Complications	Number of patients	Percentage (%)
Cerebral malaria	28	29.16
Pulmonary oedemia	2	2.08
Acute Renal failure	3	3.12
Haemoglobinuria	9	9.37
Septicaemia /DIC	2	2.08
GIT Bleeding	2	2.08
Diarrhea	8	8.33

In the present series, we found severe anaemia in 13% cases, moderate anaemia in 42% cases and mild anaemia in 3% cases. Here leucocytosis was in 18% cases, leucopenia in 5% cases and normal leucocyte Count in 77% cases.

DISCUSSION

Malaria is one of the tropical diseases against which WHO expressed its concern. Malaria is considered as a severe health problem upon the people of Bangladesh since 1970. It is known as hyper endemic with its hilly areas. Younger age group is more vulnerable to the disease than adult. It is because of children are less immune or not immune. From a study by Hussain and Chakraborti it is observed that younger adult are more sufferer than late adult. In this study it is also seen that 42% were in the 4-6 years, 11% in the 9-11 months age group.[11]

Sex distribution of patients in their study (Hussain and Chakraborty) was not representative.[12] Because their study was on soldiers in Combined Military Hospital most of the patients were natuarally male. In my study 61% male and 39% female, which is almost same as study done by "Kanti Parimal Nath".[13] It is because of female population is still less than male in Bangladesh and female child is less cared in our socio-economic culture.

Travelling history is an important clue in the diagnosis, mortality and morbidity of falciparum malaria. But no such travel history (From out side to endemic zone or staying outside for some period then back to endemic zone) was noted in this study. It is because of location of Chittagong Medical College Hospital. Where most of the patients are from bearby endemic zone. Migratory sufferers are brought to other hospitals.

Children present with less typical pictures of malaria than adult. Studies with Falciarum malaria on adult were conducted by Faiz et al and Hussain.[11] Faiz et al. Found

no patient had apyrexia. He mentioned this is due to chemoprophylaxis against malaria.

The patient of blackwater fever which was associated with acute renal failure was treated conservatively with intravenous hydrocortisone, blood transfusion and tab chloroquine. The patient was admitted at the late stage of the disease and advised for peritoneal dialysis, but patient expired before dialysis could be started.

Intestinal involvement of falciparum malaria can lead to diarrhea. Diarrhea was present in 2.6 and 12.% cases in Faiz et al. and Hussain's studies respectively on adult patients.[10]

Hyperparasitemia is not a reliable indicator of severity or poor prognosis in falciparum malaria in children in endemic African countries.[14] Waiz et al. in their study showed that severity of falciparum malaria was inversely proportional to the peripheral parasitemia.[15]

Patient with malaria developed normocytic norm chromic, sometimes hypochromic normocytic and very rarely macrocytic anemia. During a paroxysmal attack of fever, there may be leucocytosis. Later there is leucopenia with monocytosis and sometimes with monocytisis and sometimes with lymphocytosis.[16]

CONCLUSION

Only Plasmodium falciparum causes severe malaria. Children are most vulnerable to this. Hill-tracts being forest area, Chittaagong, Cox's bazaar being foot- hill areas are endemic zone for falciparum malaria. So this health problem is a headache of this region. Which needs evaluation and further re-evaluation of malaria situation time to time.

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