ORIGINAL RESEARCH PAPER

Volume-7 | Issue-4 | April-2018 | PRINT ISSN No 2277 - 8179

INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

"CLINICAL PROFILE OF CHILDREN WITH MALARIA"

Pediatrics

Rahul Choudhary Department of Pediatrics, Hindu Rao Hospital, Delhi

Peeyush Jain* Department of Pediatrics, Hindu Rao Hospital, Delhi*Corresponding Author

Harshwardhan Singh Department of Biochemistry, Hindu Rao Hospital, Delhi

ABSTRACT

Background: Malaria is a major health problem in the world including in India. In malaria patients, prompt and accurate diagnosis is the key to effective disease management However the the disease pattern has changed over the years. it is important to be aware not only of disease pattern but also of any atypical presentations of malaria.

Methods: Observational study of Forty eight children with malaria presenting to casualty of a tertiary hospital in Delhi. The presenting features along with examination findings of these children were noted. The plasmodium species in these children was also identified.

Results: M:F ratio was 26:22 (p>0.05). P Vivax was seen in 44 and P falciparum in 2 cases. Both P.v and P.f. were seen in 2 patients. Intermittent fever with chills & rigors was the commonest presentation (89.5%) followed by vomiting (68,7%) & pain abdomen (39.5%). Remittent fever was rarely (2%) the presenting feature. Bleeding manifestation was seen only in 10.5%. On examination hepatomegaly & splenomegaly were commonest finding in approx. 90% patients followed by pallor in 77%. CNS involvement was seen in 6.5% patients all of whom were P.v. 4% of patients were comatosed at presentation. Only 2.0 % had icterus and none had convulsions in this study. The clinical features have also been detailed. based on the species type.

Conclusions: This study reports clinical profile of children with malaria in Delhi.. Knowledge of common presentations of malaria and of its atypical features would lead to heightened clinical suspicion and subsequent timely diagnosis of malaria.

KEYWORDS

Malaria, clinical features, children

Introduction-

Malaria is one of the ancient diseases claiming a history as old as human race1. It has contributed greatly to the high mortality rate in the developing countries worldwide including India.2 In malaria patients, prompt and accurate diagnosis is the key to effective disease management.5 The peripheral smear still remains the mainstay of diagnosis of malaria. Moreover rapid diagnostic tests kits which are being used for diagnosis have varied sensitivity & specificity between various brands for diagnosing malaria. The disease profile & clinical signs are still being used in endemic areas for giving empirical therapy. With the upswing in plasmodium falciparum malaria along with the advent of newer antimalarials, the disease pattern has changed over the years. Moreover different types of malaria tend to have different clinical presentations. So it is important to be aware not only of disease pattern but also of any atypical presentations of malaria. Although many studies are available on adults, there is a paucity of studies from India on clinical profile of children with malaria. The present study intends to do just that.

Material & Methods.

This observational study was conducted in the Department of Pediatrics, Hindu Rao Hospital, Delhi, in 2014 after approval from the institutional ethical committee. The children presenting to emergency with unexplained fever or clinical suspicion of malaria were screened for malaria using peripheral smear and rapid diagnostic test (antigen detection by card). If detected to have malaria, the informed consent was obtained from the parents, and children included in the study. The detailed history was obtained and the patients examined in detail.

Observations and results:-

The study population comprised of 48 (M=26) children aged 0-12 years of age who were diagnosed as having malaria. The sex wise distribution of patients was statistically insignificant. Out of the patients, P.vivax (P.v) positive were 44 cases (91.66%), P.falciparum (P.f) were 2(4.16%) and 2(4.16%) cases were infected with both P.vivax and P.falciparum. No child was detected to have P.ovale (P.o).

The presenting symptoms of these patients are given in Table1.

Fever was present in all (100%) the cases. Fever with chills and rigors present in 89.58% and without chills and rigors present in 14.58% of cases. In P.vivax malaria Fever with chills and rigors was presenting complaint in 84.09% of P.v cases while in P.f. malaria chills & rigors were present in all (100%). Fever without chills and rigors was present in only 15.9% of P.v cases. Most children of malaria (95.83%) presented with intermittent type of fever. In P.f malaria intermittent type of fever present in 100% cases while in P.v it was present in 95.45 %. Remittent type of fever was present in 2.2% cases of P.v.

Table 1: Presenting Symptoms in Children with Malaria

Clinical features	P.v.(44/48) (alone) n=44	P.f.(2/48) (alone) n=2	Both (P.v & P.f) (2/48) n=2	Total n=48
Fever	44(100%)	2(100%)	2(100%)	100 %
With chills & rigor	37(84.09%)	2(100%)	2(100%)	43(89.58%)
Without chills & rigor	7(15.9%)	0	0	7(14.58%)
Type: Continuous	1(2.2%)	0	0	1(2.08%)
Intermittent	42(95.45)	2(100%)	2(100%)	46(95.83%)
Remittent	1(2.2%)	0	0	1(2.08%)
Vomiting	30(68.1%)	2(100%)	1(50%)	33(68.75%)
Pain abdomen	18(40.9%)	1(50%)	0	19(39.58%)
Malena	3(6.8%)	0	1(50%)	4(8.34%)
Epistaxis	1(2.2%)	0	0	1(2.27%)

Vomiting and/or pain abdomen was a prominent presenting feature. In our study. 68.75% patients presented with vomiting and 39.58%. Of all malaria cases presented with Pain in abdomen. In P.vivax vomiting was present in 68.1% and pain abdomen present in 40.09% cases whereas in P.f. vomiting present in 100% cases and pain abdomen present in 50% cases.

Bleeding manifestation was present with malena in 4 (8.34%) cases and Epistaxis was seen in 1(2.27%) cases. All cases of bleeding manifestation had P.v.

The clinical examination findings are given in Table 2.

Table 2: Examination Findings in Children with Malaria

Clinical features	P.v.(44/48) (alone) n=44	P.f.(2/48) (alone) n=2z	Both(P.v & P.f) (2/48) n=2	Total n=48
Pallor	33(75%)	2(100%)	2(100%)	37(77.08%)
Icterus	0	1(50%)	0	1(2.08%)
Conscious	41(93.1%)	2(100%)	2(100%)	45(93.75%)
Stupor	1(2.2%)	0	0	1(2.08%)
Comatose	2(4.5%)	0	0	2(4.16%)
Hepatomegaly	39(88.6%)	2(100%)	2(100%)	43(89.58%)
Splenomegaly	41(93.1%)	1(50%)	2(100%)	44(91.67%)

Of all malaria cases, pallor was present in 37 (77.08%) cases. .In P.v. pallor present in 33 (75%) cases and in P.f. pallor present in 100 % cases. In patients with dual infection, pallor was present in 100% of the cases.Icterus was present in only 1 (2.08%) case that of P.f..

Impaired consciousness defined as Glasgow Coma Scale (GCS) of below 11 for this study. Forty five (93.75%) of cases did not have any impairment in consciousness at presentation .No cases are seen with drowsiness. One patient (2.08%) was stuporus and two patients were comatose (4.16%) of all malaria cases. Impaired consciousness was present only in P.v. cases in our study. Present study revealed, Liver was palpable below coastal margin in 89.58% of cases and Spleen palpable in 91.67% cases. In P.vivax hepatomegaly was present in 88.6% while splenomegaly was present in 93.1%. In P.f. hepatomegaly and splenomegaly were seen in 100% of cases.

Discussion:-

The considerable morbidity and mortality in Malaria is usually due to delay in diagnosis and failure of administration of treatment promptly and adequately. Due to its myriad presentations, it is not always possible to diagnose malaria only on clinical basis. This study was therefore conducted to determine clinical profile of children with Malaria.

In this study, 45.83% of children were male and 54.16% children were female. This sex preponderance for male may be due to more health seeking behavior for male child in our community. Similar male preponderance was found in other studies as well[11-13,16] .In contrast, in a study by Adedapo et al[17] , no sex predilection was found. However Amar Taksande et al found reverse sex ratio (M: F 1:2) in their study[8]. Also 64.58% of cases were more than 5yrs of age. Kamble MB et al observed that 80% of cases were more than 6yrs of age[10]. While Ahmed SH et al noted that 83.33% of cases were more than 4 yrs of age.[12].

All patients presented with fever which is similar to other studies.[09,11,14,16,]. In our study, fever was associated with chills and rigor in 89.58% cases. Chandramohan D et al had observed fever with chills in 46.8% cases[16] and 98.10% in another study. These variations may be due to different inclusion criteria used in different studies. Sanathanakrishnan BR et al found febrile convulsion in their study in 15.38% of cases.[13] which however were not detected here.

In many studies both altered sensorium and convulsion have been observed in different proportion(2.53%-100%).[7,8,11,13,15,16,] Chandramohan D et al found unusually sleepiness in 0.7% of cases[16] and Major SR Mehta observed coma and confusion in 2.85% of cases. In these studies, no case of convulsion was noted.[18,] Neurological findings are more commonly associated with P.f..[7,11,] In present study, only two case of P.f. was found and this can explain the absence of neurological manifestation in our study. Moreover altered sensorium was present in 3 cases, all P.v. thus showing that CNS involvement is also a feature of vivax malaria.

Pain abdomen was found in the present study in 39.58% cases and vomiting in 68.75% cases. Similar association has been observed in other studies.[7,8,11,16,17] In the study by Mohanty N et al[10] and Murthy Lalitha G et al, pain abdomen was observed in 5.5% and 4.3% of cases respectively. Tamal deb et al noted diarrhea and vomiting in 11.4% of cases and pain abdomen in 5.7% of cases in their study on atypical presentation of malaria.

In this study, malena was found in 10.41% of cases. Bleeding manifestation were observed in 2%-14.28% of cases.[7,8,10,] Prakash JK et al found gastrointestinal hemorrhage in 2.12% of cases and disseminated intravascular coagulation in 7.44% of cases. Tamal deb et al observed retinal hemorrhage or per vaginal bleeding in 8.5% of cases.

Hepatomegaly and splenomegaly were noted in 89.58% and 91.66% cases respectively in our study. In the other studies both hepatomegaly and splenomegaly were noted in 4.2%-83.33% and 6.25%-82% cases respectively.[7,11-14,16]Mohanty N et al observed only hepatomegaly, as they studied only hepatopathy in malaria children[18] and Tamal deb et al observed only splenomegaly in 45.6% of cases.

In the present study, pallor was observed in 77.08% of cases. Pallor was a prominent feature of most of the studies (31.9%-74.68% of cases).[7,9,13,16,] Clinically, jaundice and icterus was observed in 2.08% patient in the present study. While in other studies jaundice and icterus were observed in 2.3%-37.3% of cases.[7,8,10-14,16,]

The pathogenesis of pallor & jaundice in malaria is complex and involves multiple processes relating to both the destruction of erythrocytes and their reduced production. Repeated hemolysis of infected red cells is the most important cause for reduction in hemoglobin levels and subsequent pallor &/or icterus.

There are however certain limitations of the study. The clinical features are as observed at presentation. A larger prospective observational study including laboratory parameters and management details is suggested.

Conclusions:-

This study reports clinical profile of children with malaria in Delhi. It is important for a pediatrician to be aware of the common presentations of Malaria. Knowledge of its atypical features would also lead to heightened clinical suspicion and subsequent timely diagnosis of malaria.

Contributions: PJ, RC: conception and design of the study and data collection. RC, PJ: Acquisition , analysis & interpretation of the data. PJ will act as guarantor for the paper

Compliance with Ethical standards: Yes
Conflict of interest: None.

Source of funding: None. The study is original thesis work of RC under guidance of PJ

REFERENCES

1. Gupta BD, Maheshwari RK, Karunakaran M. Historical overview In: Malaria 2nded. New Delhi. BI Publication; 2006. p.1.
2. Singhal T, Lodha R, Kabra SK. Protozoal infection. In: Paul VK, Bagga A editor Ghai Essential pediatrics. 8thed. New Delhi. CBS Publishers & Distributors; 2013. p. 260-68
3. WHO [Internet] Geneva. World Malaria Report. 2014 (Accessed 2015 Oct 10) Available from URL: http://www.who.int/malaria/ publications/world_ malaria _ report _2014 /report/en/
4. National vector borne disease control programme. [Internet]. Delhi. Malaria 2014 (Accessed 2015 Oct 10) Available from URL: http://nvbdcp.gov.in /Doc/Annual-report-NVBDCP-2014-15.pdf
5. Tanwar GS, Khatri PC, Sengar GS, Kochar A, Kochar SK, Middha S et al. Clinical profiles of 13 children with Plasmodium vivax cerebral malaria. Annals of Tropical Paediatrics.2011; 31(4):351-56
6. Dubey ML, Mahajan RC, and Ganguly NK. Pathogenesis of anemia in malaria infection. Indian J. Med. Microbiol.1993; 11(1): 51-5.
7. Gehlawat V, Arya V, Kaushik J, Gathwala G. Clinical spectrum and treatment outcome of severe malaria caused by Plasmodium vivax in 18 children from northern India. Pathogens and Global Health. 2013; 107(4): 210-214.
8. Taksande A, Vilhekar K, Jain M, Atkari S. Clinic haematological Profile of cerebral malaria in a rural hospital. Journal Indian Academy of Clinical Medicine 2006; 7(4):308-12.
9. Tripathy R, Parida S, Das L, Mishra D, Tripathy D, Das M et al. Clinical Manifestations and Predictors of Severe Malaria in Indian Children. Pediatrics.(Internet) 2007), [cited 2015 june 12]; 120(3).Available from http://pediatrics.aappublications.org.ezproxy.cul.columbia.edu/content/120/3/e454.short
10. Kamble MB, Raut PP, Hussain ZF. Cerebral malaria in rural India. Indian J Pediatr 2002; 69:659-61.
11. Bhave SY, Warad V, Joshi SV, Dhar HL. Hepatic and renal dysfunction in childhood malaria [Internet] [Accessed 2015 oct 14]; Available from: URL: http://www.bhj.org/journal/2005_4703_july/html/original_hepatic_225.htm.
12. Ahmed SH, Kidwai T, Moonis R, Shahab T, Chandra J. Clinical profile of malaria in children-a prospective study from Aligarh N. India. Ann Trop Paed1987; 7:82-86.
13. Santhakrishnan BR, Parthsarthy A, Bhawani CR, Ramesh S. Profile of malaria in Madras. Indian J Pediatr 1985; 52:249-55.
14. Wattanagoon Y, Srivilairit S, Looareesuwan S, White NJ. Convulsions in childhood malaria. Trans R Soc Trop Med Hyg 1994; 88:426-428.
15. Ahmed SH, Kidwai T, Moonis R, Shahab T. Cerebral malaria in children. Indian J Pediatr 1986; 53:409-13.
16. Chandramohan D, Carneiro I, Kavishwar A, Brugha R, Desai V, Greenwood B. A clinical algorithm for the diagnosis of malaria: results of an evaluation in an area of low endemicity. Trop Med Int Health 2001; 6(7):505-10.
17. Adedapo AD, Falade CO, Kotila RT, Ademowo GO. Age as a risk factor for thrombocytopenia and anaemia in children treated for acute uncomplicated falciparum malaria. J Vector Borne Dis 2007; 44:266-71.
18. Mohanty N, Satpathy SK, Nanda P. Hepatopathy in complicated falciparum malaria: report from eastern India. Trans R Soc Trop Med Hyg 2004; 98: 753–4.