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A STUDY OF CLINICAL PROFILE OF PATIENTS WITH SEVERE MALARIA

General Medicine

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ABSTRACT

Background: Severe malaria is a major cause of mortality and morbidity in patients with malarial fever.Early recognition of clinical Signs, Symptoms and laboratorial abnormalities of severe malaria helps in initiation of artesunate combination therapy at an early stage of disease progression thus significantly reducing disease mortality.

Objective: To study the clinical presentation of severe malaria regarding age, sex, causative agent, clinical manifestation, risk factors, mortality and morbidity and to compare the clinical manifestation of sever malaria in patients infected with p.falciparum , p.vivax ,and mixed infection.

Materials and Methods: This study was carried out on 60 patients diagnosed with severe malaria based on the national vector born disease control program (NVBDCP).

Result: Most common cause of severe malaria is p.falciparum. Severe malaria mainly affects young individuals in the age of 20-40years and predominantly male. Fever is the most common presenting symptom. Most common manifestation of severe malaria is thrombocytopenia mainly caused by falciparum and other common manifestation being altered renal function, altered liver function severe anaemia, metabolic acidosis, ARDS, cerebral malaria. Mortality is more common with falciparum infection and most common cause being ARDS, other causes of death is renal failure, hepatic failure and hypotension. Early diagnosis, anticipation of complication, close monitoring of vital parameters and combination therapy to overcome drug resistant perhaps helped to curtail the extent of mortality in severe malaria.

Conclusion: Of the 60-patient studied we came to conclusion that severe malaria is caused more commonly by falciparum mainly involving young male during rainy season with renal failure and metabolic acidosis as the most common manifestation of severe malaria. With high mortality rate for patients developing ARDS and favourable outcome for patients initiating early treatment.

KEYWORDS

INTRODUCTION

Malaria is caused by unicellular, protozoan parasites belonging to the genus Plasmodium.Until recently 5 Plasmodium species were considered infectious to humans; P.falciparum, P.vivax, P.ovale, P.malariae and P.knowelesi(1,2,4).Malaria usually manifest as either uncomplicated (most common) or severe form.The global annual incidence of severe malaria can be estimated to be 2 million cases(3,5).Severe malaria is a medical emergency mainly caused by monoinfection with p.falciparum or p.vivax and also by mixed infection by both(7).The falciparum species is the most common cause of severe malaria.Severe falciparum malaria has a higher incidence of multi organ failure, thus increasing its mortality and morbidity.(9,10).Early diagnosis, anticipation of complication, close monitoring of vital parameters and artesunate combination therapy help to curtail the extent of mortality in severe malaria.(8,10)

NVDCP- criteria for Severe Malaria(5,10)

Any one of the under mentioned symptom/sign occurring in absence of an identified alternative cause, and in presence of a plasmodium asexual parasitaemia is considered to have severe malaria until proved otherwise and managed accordingly

Signs	Manifestations
Cerebral Malaria	Unarousable coma, coma persistent for> 30 minutes after generalised convulsion
Jaundice	Serum bilirubin level > 10mg/dl
Renal Failure	Urine output< 400ml/dl , serum creatinine >3.0mg/dl
Acidosis	Arterial Ph<7.25 or plasma bicarb <15mmol/L
Severe Anaemia	Haematocrit<15% or haemoglobin level of <5mg/dl
ARDS	Non cardiogenic pulmonary oedema
Hypoglysemia	Plasma glucose<40mg/dl
Hypotention	Systolic blood pressure <80mmHg in adults, capillary refill >2seconds
DIC	significant bleeding from gums, nose and GI tract
Convulsion	More that 2 generalised seizure in 24 hours
Hemoglobinuria	Macroscopic black, brown or red urine
Hyperparasitemia	Parasitaemia level>5%

AIM AND OBJECTIVE

AIM : Clinical profile of patients with severe malaria.

OBJECTIVES

To study the clinical presentation of severe malaria regarding age, sex, causative agent, clinical manifestation, risk factors, mortality and morbidity and to compare the clinical manifestation of sever malaria in patients infected with p.falciparum , p.vivax ,and mixed infection.

MATERIALS AND METHODS

This study was carried out on patients diagnosed with severe malaria based on the national vector born disease control program (NVBDCP) definition of severe malaria and admitted to Sir T Hospital, Bhavnagar after taking permission from institutional review board(IRB) and scientific committee(HEC),Government Medical college, Bhavnagar.

- **Sample size :** 60 Cases
- **Study design :** Cross sectional study, observational.
- **Duration of study :** August 2018 to July 2019

INCLUSION CRITERIA

Patients above 12 years of age diagnosed with severe malaria at admission or during course of stay.Lab diagnosed by thick/thin blood smear or RDK(rapid diagnostic kit).Patient positive for P.vivax, P.falciparum or mixed plasmodium species infection on peripheral smear

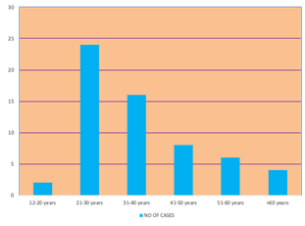
EXCLUSION CRITERIA

Patient not willing to give a valid consent.Those who are having concomitant WIDAL or DENGU positive test. Patient having chronic medical conditions like CKD and Liver chirrosis. Clinical malarial patients with negative blood smear or negative by rapid diagnostic test. Smear positive cases who does not fit into definition of severe malarial cases (NVBDC).

OBSERVATION AND RESULTS

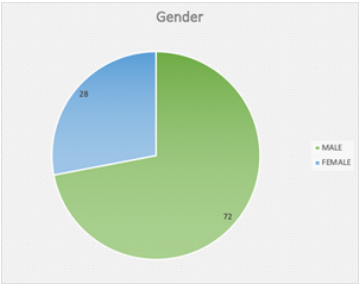
AGE DISTRIBUTION

30 patients in the age group of 21-30, 16 patients in 31-40 ,8 patients in 41-50 ,6 patients in 51-60 4 patients above 60 ,2 Patients in 10-20 ,so the mean age of the all patient is 36.6 with SD ±13



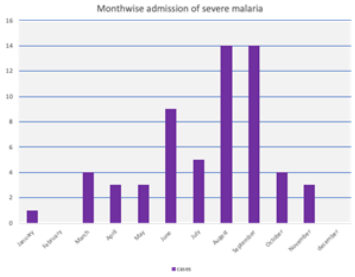
GENDER DISTRIBUTION

Of the 60 patients affected with severe malaria, 43 were male and 17 were females. Severe malaria has a higher prevalence in male, it might be because males are at higher risk of exposure to mosquito bite due to outdoor jobs, regular travel to endemic area, migrant labourer etc…



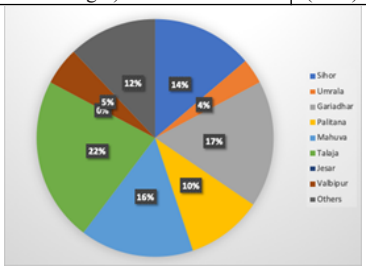
SEASONAL DISTRIBUTION

Number of admissions increased towards June(8 admissions) and July(5) and maximum admissions were during August and September(14 each).This study suggest that the transmission of severe malaria is more during and after rainy season because of the availability of stagnant water favouring breeding of anopheles mosquitos

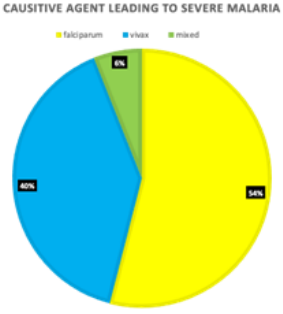


REGIONAL DISTRIBUTION

Region of case reported	No: cases reported
Talaja	13(22%)
Mahuva	9(16%)
Palitana	6(10%)
Gariadhar	10(17%)
Umrala	3(4%)
Sihor	8(14%)
Valbipur	4(5%)
Jesar	0
Other (outside Bhavnagar)	7(12%)

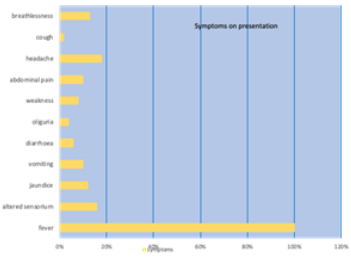


PLASMODIUM SPECIES CAUSING SEVERE MALARIA



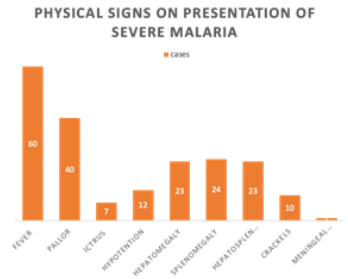
Plasmodium vivax was the causative species in 24 cases (40%) ,20 of them were smear positive ,12 of them showed ring or schizont form ,8 of them showed gametes ,4 were MP card positive ,Plasmodium falciparum caused severe malaria to the 32 cases (54%) ,26 were smear positive ,18 of the cases showed the ring form ,8 showed gamete form ,6 were RPR/MP card positive and mixed infection was found on 4 patients(6%) all were diagnosed on smear showing gametes and trophozoites of both species.

SYMPTOM WISE DISTRIBUTION



Symptoms analysis on admission shows that all cases (100%) had fever on presentation.Duration ranging from 1 to 20 days with a mean duration of 6.68±4.24 days. 48(80%) patients presented within 1 week of fever onset. Fever was followed by impaired consciousness in 10 patients (16%).

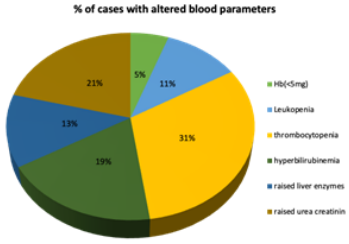
SIGNS WISE DISTRIBUTION



GENERAL PHYSICAL SIGNS ON ADMISSION

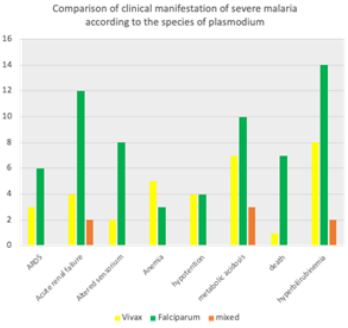
All patients(60) were febrile ,pallor was present in 40(66%) ,icterus in 7(28%) ,hypotension in 12(20%) ,hepatomegaly was observed in 23(38%), splenomegaly 24(38%) ,hepatosplenomegaly23(38%) , respiratory crackles in 10(16%)

BIOCHEMICAL PROFILE



On blood investigations mean Hb level is 9.34±2.7gm/dl ,severe anaemia (Hb<5mg/dl) observed in 8 patients, leucocytosis was observed in 2 patients ,while leucopoenia was present in 16 , thrombocytopenia was present in 45 patients ,abnormal bilirubin level was found in 28 ,altered liver enzymes (SGOT and SGPT) was raised in 18 patients ,abnormal renal function was observed in 30 patients.

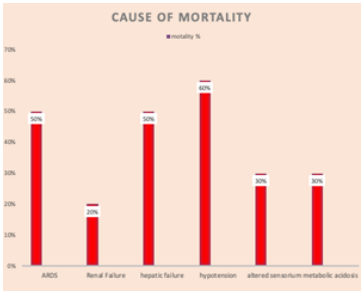
DIFFERENT MANIFESTATION OF SEVERE MALARIA



Altered Sensorium was observed in 10 patients falciparum (8) and

vivax (2).Hypotension systolic<80mmHg(8 patients) was equally prevalent in vivax (4) and falciparum (4). Metabolic acidosis(18 patients) was more frequent in falciparum 10 cases (50%) than in vivax 7 and mixed malaria 3 cases.Hyperbilirubinemia (24 patients) was higher in falciparum 14 case than vivax 8 and mixed had 2. The mean bilirubin in the falciparum infection was 13.19±2.90mg/dl and vivax was 6.80±1.49.Acute renal failure(Creatinine >3mg/dl) was significantly more common in falciparum 12 cases, vivax 4cases and mixed infection 2 cases.8falciparum infected 2 vivax infected required dialysis.ARDS was seen in 10 patients of which 6 falciparum, 2 vivax, 2 mixed respectively.

MORTALITY DUE TO SERVERE MALARIA



Of the 60 patients studie,10 patients expired during the hospital stay. Mortality rate was 16% 8 were falciparum positive and 2 vivax positive.Most patients developed multiple fatal manifestation together. 5 developed ARDS and was put on ventilator support. Out of the deaths due to ARDS 1 was vivax, 1 mixed and 3 falciparum positive. 2 other patients who expired also developed severe renal failure and was put on dialysis.5 patients developed liver failure (altered LFT)

SUMMARY

60patients with severe malaria (NVBDCP guideline) admitted to Sir T Hospital from August 2018 to July 2019 were studied.The mean age of the patients 36.6. Maximum number of patients 24(40%) were in the age group of 21-30.Male gender 43(72%) were more affected with severe malaria than females 17(28%). August and September where the months of maximum hospital admissions (46%) due to severe malaria. Out of 60 patients 32(54%) subjects were falciparum positive. Fever is the most common presenting symptom (100%). Mean duration of fever was 6.68±4.28SD. In presenting signs , pyrexia was present in all patients. Pallor and hepatosplenomegaly were common findings.Thrombocytopenia was the most common biochemical abnormality seen in 75% of the patients and was equally caused by falciparum and vivax(44% each). Altered liver function was found in 46% patients. Renal derangement was found in 50% of patient in the form of raised creatine Anaemia was present in 58% of patients of which 13% developed severe anaemia .Common Sever manifestations were jaundice(40%), metabolic acidosis(33%), Renal failure (30%) and ARDS(16%) had higher mortality associated with it. Impaired consciousness and severe anaemia were found in 13% of cases.Total mortality due to sever malaria was (16%). Mortality due to severe malaria was commonly due to plasmodium falciparum(80%), and the most common manifestations in expired patents were ARDS(50%), hypotension(60%) and) Hepatic failure(50%). Other causes of death are renal failure (20%), metabolic acidosis(30%) severe anaemia(30%).

CONCLUSION

Severe malaria mainly affects young individuals in the age group 20-40 (66%) years and predominantly males (72%). Severe malaria is more common during months of august-September (46.6%).Most common cause of severe malaria is plasmodium falciparum (54%).Fever is the most common presenting symptom and sign (100%). 80% of the patients presented within 7 days of onset of fever.Most common manifestation of severe malaria being altered liver function(40%), other common manifestation includes metabolic acidosis(33%), altered renal function(30%) , ARDS(16%), impaired consciousness(16%) and severe anaemia(13%). Hypoglycaemia, DIC, hyperparasitemia were not commonly found.Death due to severe malaria was more common with falciparum infection(80%) and common causes being ARDS(50%), hypotension(60%) and) Hepatic failure(50%). Other causes of death are renal failure (20%), metabolic acidosis(30%) sever anaemia(30%). Early diagnosis, anticipation of complication, close monitoring of vital parameters and artesunate combination therapy to overcome drug resistant perhaps helped to curtail the extent of mortality in severe malaria

RFFERENCES

1. Malaria Journal 2009; 8:281
2. Murthy GL, Sahay RK, Srinivasan VR, UpadhayaAC,ShantaramV, Gayatri K. Clinical profile of falciparum Malaria in a tertiary care hospital. J Indian Med Assoc2000;98:160-2,169.
3. Muddaiah M, Prakash PS. A study of clinical profile of malaria in tertiary referral centre in south canara. Journal of Vector Borne Disease2006;43:29-33
4. Madhavan KT, Jajoo UN, Bhalla A. Seasonal variation in the incidenceand complication of malaria in central India. Indian J Med Sci 2001;55:43-6.
5. Mehta SR, Naidu G, Chander V, Singh IP. Falciparum malaria present day problem, an experience with 425 cases. JAPI1989;37:264-7.
6. Deb T, Mohanti RK, Ravi K, Bhagat BM. Atypical presentation of falciparum malaria. JAPI 1992;40:381-4.
7. B ate CA, Taverne S, Playfair JH. Malarial parasite induces TNF production by macrophage immunity 1988;64:227-31.
8. Sharma SK, Das RK, Das PK. Hematological and coagulation profil in acute falciparum malaria. JAPI 1992;40:581-83.
9. B eale P, Cormark J, Oldrey T. Thrombocytopenia in malaria with immunoglobulin change (IgM). Br Med J 1972;1:345-349.
10. Kueh Y, Yoe K. Hematologic alteration in acute malaria sc and J hematology. 1982;29:147-52.
11. Lee SH, Looareesuwan S, Chan J et al, plasma macrophage colony stimulating factor and P selectin levels in malaria associated thrombocytopenia. Thrombostat1997;77:289-93.