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Niyati Gosai and Nehal Shah

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Research Article

CLINICAL PROFILE OF P. VIVAX MALARIA RELATED TO ITS COMPLICATION AT TERTIARY CARE CENTRE

Niyati Gosai and Nehal Shah*

Medicine Department, GMERS Medical College, Gandhinagar, Gujarat, India

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ABSTRACT

Background: Plasmodium Vivax is the most widely distributed malarial parasite with an increase risk in human. Severe malaria due to P.vivax infection is increasingly observed now a day. With the implementation of molecular diagnosis, it has become evident that P.vivax as monoinfection could also cause multiple organ failure with life threatening complications.
Material and Method: We recruited 100 patients with confirmed P.vivax malaria during the study period from August 2013 to August 2014. After explaining the procedure in detail and with written consent from all patients, history and examination findings were noted in all patients .All patients were subjected to routine investigations. We followed up all patients till discharged or expired.
Result: We had 100 patients with plasmodium Vivaxmalaria infections either by smear or BY CARD test positive, Out of 100 patients 65 were male and 35 were female. Thrombocytopenia was the most common complication around 93% in present study. Other complications were anemia (47%), acute kidney injury (16%), hepatic dysfunction (24%), hypotension (21%), ARDS (5%) and cerebral malaria (10%). Mortality observed in P.vivax malaria was 7%.
Conclusion: Severe Vivax malaria is now very common with increasing morbidity and mortality. Thrombocytopenia is very common in severe Vivax malaria. Renal, hepatic, lungand cerebral involvement is also increasing now a day. Timely given appropriate treatment with Chloroquine or Artesunate based combination therapy with other supportive treatment can reduce multi organ dysfunction and mortality.

INTRODUCTION

Malaria is the oldest recorded disease in world. It is parasitic disease of human, transmitted by female anopheles mosquitoes. It is transmitted in 108 countries containing 3 billion people and causes nearly 1 million death each year. Malaria has been eliminated from United States, Canada, Europe and Russia in late 20th and early21st century.[1]. There has been an upward trend in the past few years for reporting various atypical or changing manifestation of P.vivax malaria. P.vivax is responsible for up to 400 million infection in world each year.[2]. Recently there is changing trend not only in the clinical manifestation, but also the complications. Major severe P. vivax clinical syndromes documented include important thrombocytopenia, cerebral malaria, and acute renal, hepatic and pulmonary dysfunctions.[3]. Along with chloroquine or artesunate based combination therapy other supportive treatment like intravenous fluid, blood or its components, ventilatory support and antibiotics are also needed in patients with multiorgan dysfunction. Together with rising documentation of drug resistance worldwide the complication of p.vivax infection represent a global health menace which needs focused efforts to its resolution. Considering the increase in number of cases of P.vivax malaria with changing spectrum of presentation, problem of drug resistance, the present study was under taken with objective of noting common and atypical presentation, complications, hematological and biochemical abnormality and their correlation with clinical severity and prognosis in acute P.vivax malaria.

Aims and Objectives

We want to study the different clinical presentation and different complication in patients having P. Vivax malaria. We also want to study the outcome in patients of P. Vivax malaria with life threatening complications.

MATERIALS AND METHODOLOGY

This study was done at Department Of Medicine, Government Medical College and Sir T. Hospital, Bhavnagar during period of Aug.2013 to Aug. 2014.

Total 100 P. Vivax positive patients as per the inclusion criteria were recruited after the permission from Institutional Review Board. Government Medical College.

*Corresponding author: **Nehal Shah***
Medicine Department, GMERS Medical College, Gandhinagar, Gujarat, India

Bhavnagar. The procedure was explained to patients in their vernacular language and consent was obtained from them.

Each patient was studied in detail with relevant clinical history and examination with

Following various investigations like peripheral smear for malarial parasite, complete blood count, renal function test, liver function test, blood sugar level, USG abdomen, chest x-ray, urine routine and micro and some special investigations like MP BYCARD test, arterial blood gas analysis, bleeding profile, G6PD activity etc.

Inclusion and Exclusion criteria

Inclusion Criteria

P.vivax patients confirmed by smear for malarial parasite or MP BY CARD test.
Age >12 year
Patient giving consent for the study

Exclusion Criteria

Age<12 years
Who do not give consent Patient having mixed infection with P.falciparum and P.vivax malaria.

Obeservation And Analysis

The present study includes 100 patients of plasmodium Vivax malaria with its manifestations in non paediatric age group admitted in Sir T hospital, Bhavnagar from August 2013 to August 2014.

Table NO 1 Age and Sex Wise Distribution

Agein years	Male	Female	Present study N=100
12-20	20	8	28
21-40	29	20	49
41-60	13	3	16
>60	3	4	7
TOTAL	65	35	-

ln our study, we observed that the maxımum numbers of patients were in age group of 21-40 years that is 49% followed by28% in age group of 12-20 years and 16% in 41-60 years group. In our study, elderly people were less effected (7%). The factors responsible for the age pattern may be because of outdoor work and migration to different areas for work among young patients.

Table No.2 Symptoms Wise Distribution

Symptoms	Present Study n=100
Fever	100
Headache	58
Vomiting	48
Epi. Pain	40
Dyspnoea	8
Oliguria	19
Icterus	24
Altered sen sorium	6
Convulsion	2
Bleeding tedency	15

We observed that 65% male and 35% female were affected with p.vivax malaria with male: female ratio was 1.85. The reason for predominantly distribution among adult males is due to the increase outdoor activities of males and outdoor sleeping habit, so they are more prone to get mosquito bites.

The present study shows that fever, headache, vomiting and icterus were common presenting symptoms. Fever was present in all patients. Headache was seen in 58% cases followed by vomiting in 48% cases, epigastric pain in 40% cases and icterus in 24% cases. Less common symptoms like oliguria in 19% cases, bleeding tendency in 15% cases, dyspnea in 8% cases and altered sensorium in 6% cases were noted. Convulsion was seen in only 2% in our study.

Table NO.3 Platelet Count

Platelet Count	Present Study n=100
<50000	44
50000-100000	32
100000-150000	17
>150000	7

In our study, we observed that thrombocytopenia is most common complication in p.vivax malaria. Severe thrombocytopenia e.g.<50000were observed in 44% cases. 32% cases had platelet count between 50000-100000, 17% cases had platelet count between 1 lakh to 1.5 lakh and 7% cases had platelet count more than 1.5 lakh. Immune mediated lysis and increasedsplenic platelet clearanceis considered as the major mechanism of thrombocytopenia in P.vivax malaria.[4].Though thrombocytopenia is more common with p.falciparum malaria, it is also find in patients with p.vivax malaria.

Table NO.4 Other Laboratory Parameters

Laboratory Parameters	Present Study N=100
Hemoglobin (<10gm %)	47
S.G.P.T.(≥40mg/dl)	30
Serum bilirubin (≥2mg/dl)	24
Serum creatinine (>1.5 mg/dl)	16
Random Blood sugar (<70mg/dl)	06

In our study, we observed that 47%cases had mild to severe anemia, in those patients hemoglobin level was <10 gm%,. In 30% cases S.G.P.T. was >40 mg/dl, in 24%cases serum bilirubin level was >2 mg/dl. Acute renal injury was found in16% cases, in those patients serum creatinine level was more than 1.5 mg/dl. In 6% cases random blood sugar was <70 mg/dl, the reason of hypoglycemia is due to failure of hepatic gluconeogenesis and an increase in the consumption of glucose by host and malarial parasites and also by inadequate intake by patients.[1]. And all these patients were categorized among mild to severe complicated p.vivax malaria.

Table No.5 Complications Wise Distribution

Complication	Present Study n=100
Anemia	47
Ards	5
Hypotension	21
Jaundice	24
Cerebral malaria	10
Aki	16
Thrombocytopenia	93

In our study, we observed the two most common complications of p.vivax malaria like thrombocytopenia in 93% cases and anemia in 47% cases. it is because of recurrent bouts of hemolysis of predominantly uninfected erythrocytes with increased fragility Other complications were also observed in

our study like jaundice in 24% case. Hepatic dysfunction is explained by increased hemolysis of parasitized red blood cells. Hypotension in 21%cases. Acute renal failure in 16% cases, usually acute renal injury is mostly associated with complicated p.falciparum malaria infection but now a day it is also associated with complicated p.vivax malaria which is less severe as compared to complicated p. falciparummalaria infection. Renal ischemia and acute renal failure is due toendothelial cytoadherence, sequestration, increases whole blood viscosity and capillary lumen obstruction by sticky cell aggregation.[5]. Cerebral malaria in 10% cases, it is due to nitric oxide production and convulsion are attribute to various factors like hypoglycemia, lactic acidosis and hypoxemia. ARDS was found in 5% cases. An inflammatory and immune mediated mechanism play role in development of ARDS.[6].

Table NO. 6 Antimalarialtherapies

Treatment	No.of patients
Artesunate based combination therapy	40%
Chloroquine	60%
Primaquin	100%

In our study, we observed that 60% cases were given chloroquine therapy and 40% cases were given artesunate based combination therapy. That indicates that Chloroquine is also effective to treat less complicated p.vivax malaria as a monotherapy. Primaquin was given to all patients in addition to chloroquine or artesunate combination therapy as radical treatment.

Table NO.7 Outcome

Outcome	Present Study n=100
Death	07
Recoveraed	93

In our study, we observed that overall mortality was noted in 7% cases. All patients were died because of delayed presentation to hospital and having multi organ dysfunction on time of admission. And 93%cases were recovered in hospital with proper treatment in spite of having complications.

DISCUSSION AND SUMMARY

This study was a prospective study carried out from August 2013 to August 2014. This study included 100 confirmed cases of P.vivax malaria confirmed byperipheral smear or BY CARD METHOD.

- The maximum numbers of patients were of young age group between 21-40 years (49%), the same thing is also observed in **Study at sola hospital, Ahemdabad** (50%).[7]. Old age people were less affected then young age group (7%), which is also comparable with Study at Sola Hospital, Ahmedabad. [7].We see that maximum incidence of p.vivax malaria infection were in male (65%) than female (35%), the Male: female ratio was 1.85:1, which was compared with **study at north Karnataka**.[8]**.** in which 58% male and 42% female were affected. with Male: female ratio was 1.38:1.[table.1]
- In our study fever was present in all cases (100%) which was compared with Mehta *et.al* [9].
- In our study, thrombocytopenia (platelet count <1.5 lakh) was found in 93% of patients while in Sharma *et al* [10] it was present in 60% cases, that is not comparable with our study. According to Nadkar *et al* [11].Thrombocytopenia was also more common in severe Vivax malaria as compared to falciparum malariaIn our study, anaemia (Hb <10 gm%) was found in 47% of patients, which closely correlates with Mehta *et al* [9], that was in 40%cases.Chronic co-morbidities affecting erythrocyte physiology, such as sickle cell anaemia (SCA), may be related to more severe haemolysis and severe anaemia as well [12].S.G.P.T. level (>40 mg/dl) was found in 30% cases in our study, which was more in Sharma *et al***.**(74%). Increase level of serum bilirubin (>2mg/dl) was found in 24% cases in our study, which was 68% in Sharma *et al***.** Raised serum creatinine level (>1.5 mg/dl) was present in 16% cases in our study, which was 15% in Bruno B Andradstudy [3]**.** Another **study in Banaras, Hindu university** [13]. Also concluded that P.vivax malaria can cause AKI, which occurs more commonly with P.falciparum malaria, but prognosis with Vivax malaria infection is favorable. In our study random blood sugar level <70mg/dl was found in 6% cases, which was comparable with Sharma *et al***.** e.g. 4% cases.
- In our study ARDS was in 5% of patients, which was 4% in Sharma *et al* and 2.96% in **study at Mumbai** hospital [14]. The incidence of ARDS in present study, closely correlates with Sharma *et al* and study at Mumbai. Hypotension was observed in 21% of patients in present study, 9% in Sharma *et al*. That was higher incidence in present study as compared to other study. Jaundice was observed in 24% of patients in our study, which is closely correlate with **Study at hospital of western Utttar Pradesh**.[15], in which hepatic dysfunction was found in 29% cases. This is more common with P. falciparum infection than P.vivax infection, but present study and other study also shows that jaundice frequently found in patient with P. Vivax malaria infection. Cerebral malaria was found 10% cases in our study, which was 3.55% in **study at Mumbai**. But incidence of cerebral malaria was higher, which was 25.9% in Sharma *et al***.** Acute kidney injury was also seen in 16% patients in our study, which was observed in 20.4% cases in Prakash *et al* **study [**16**].** All patients were treated conservatively with fluid and diuretic therapy in present study. Renal replacement therapy was not required in any patient of present study.
- Chloroquine or Artesunate therapy was given as first line therapy. Chloroquine was given in 60% of patients and was well tolerated in most of patients. Total 40 patients were given Artesunate based combination therapy. Artesunate was given in patients with multiple complications. Along withchloroquine and artesunate antibiotics, blood transfusion and supportive treatment like intravenous fluid and ventilator support were given as and when required. Primaquin was given to all 100 patients as a radical treatment. [17]
- The overall mortality was 7% in the present study, which is comparable with **A study at Mumbai hospital.[**11**],** which was found in 9.01% cases. All patients who died had multiple complications like anemia, thrombocytopenia, acute kidney injury, cerebral

malaria, ARDS and hypotension. So, the deaths were encountered in patients with delay in the pre-hospital phase and consequent presentation with multi organ failure.

CONCLUSION

Malaria is a significant and serious health problem in India. There is increase in the prevalence of P.vivax malarial infection in recent years. In spite of advance in detection and management of malaria, deaths due to its complication are still unavoidable because of multiple factors like atypical presentation, delay in diagnosis and inadequate treatment, multi organ dysfunction or drug resistance. The main causes of mortality in patients with complicated P.vivax malaria are ARDS, cerebral malaria, severe anemia, thrombocytopenia and AKI. Treatment like Chloroquine, Artesunate and other supportive therapy like antibiotics, intravenous fluids, blood and its components therapy, and ventilatory support with ICU care are very effective in management of complicated P.vivax malaria if timely given.

So, the awareness about the changing spectrum of severe p.vivax malaria is of great importance to every level of health care provider. Adequate vector control measure, active surveillance with the help of primary health care system, early diagnosis and prompt treatment will reduce the malaria transmission and severe morbidity and mortality.

References

1. Harrison's Principles of Internal Medicine 18thedi.:210:Pg no 1688.
2. Piscat S, Is Plasmodium Vivax Still a Paradigm For Uncomplicated Malaria? Med Mal Infect 2006:36:406-413.+
3. Severe Plasmodium vivax malaria exhibits marked inflammatory imbalance, Bruno B Andrad, Antonio Reis-Filho, Sebastião M Souza-Neto, Jorge Clarêncio, Luis MA Camargo, AldinaBarral, ManoelBarral-Netto.
4. Davis JG, Allen DL, Lee SH, White NJ. Thrombocytopenia in malaria. South Asian public health.1992; 23:44-50.
5. Acute Renal Failure in Plasmodium vivax Malaria, J Prakash, A K Singh, NS Kumar RK Saxena.
6. Anstey NM, Handojo, pain M, Kenangalam. n Lung injury in P.vivax malaria: athophysiology evidence for pulmonary vascular sequestration and post treatment aiveolar capillary inflammation.2007; 195:589-96.
7. Study of complications in patients with P.Vivax malaria infection at Sola hospital, Ahemdabad, Gujarat.
8. Kocher SK, Saxena V, Sirohi P, Garg *et al*. Severe plasmodium Vivax malaria :a report on serial cases from Bikaner in northwestern India. Am J Trop Med Hyg.2009; 80: 194-8.
9. Mehta SR, Malaria - present day problems, and experience with 50 cases, JAPI 2013; 37(4): 264-67
10. SHARMA ET.A. "Hematological and coagulation profile in P.vivax malaria" 2013.
11. Huchche AM, Singh R, Pazare AR. Clinical profile of severe Plasmodium vivax malaria in a tertiary care centre in Mumbai from June 2010-January 2011. J Assoc Physicians India. 2012; 60:11–30.
12. Cabral PHO, Andrade SD, Alecrim WD, Alecrim MGC, Lacerda MVG. Malaria and sickle cell anemia: report of complications and clinical management of three patients in a highly endemic area for Plasmodium vivax malaria in the Brazilian Amazon. Case Rep Clin Pract Rev. 2006; 7:220–223.
13. Beg MA, Khan R, Baigsm, Gulzar Z, Hussain R, Smego Ra, cerebral involvement in benign tertian malaria. Am J Trop Med Hyg 2002; 67:230-32.
14. Clinical Profile of Severe P.vivax malaria in tertiary care centre Mumbai from june 2010-11'JAPI 2012:11-13
15. Complications associated with Plasmodium vivax malaria: A retrospective study from a tertiary care hospital based in western Uttar Pradesh, India. Imran Rizvi, Devendra Kumar Tripathi, Anjum Mirza Chughtai, Mujahid Beg, Shamsuz Zaman, Noorin Zaidi, Year : 2013 | Volume : 12 | Issue : 3 | Page : 155-159
16. Acute renal failure in Plasmodium vivax malaria. Prakash J1, Singh AK, Kumar NS, Saxena RK.J Assoc Physicians India. 2003 Mar; 51:265-717.
17. WHO, World Malaria Report 2013.

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