ORIGINAL RESEARCH PAPER

Volume-8 | Issue-8 | August - 2019 | PRINT ISSN No. 2277 - 8179

INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

A STUDY OF CLINICAL AND HAEMATOLOGICAL PARAMETERS IN PATIENTS OF MALARIA AT TERTIARY TEACHING HOSPITAL

General Medicine

Dr. B. Srinu Post Graduate, Department of General Medicine, Alluri Sitarama Raju Academy of Medical Sciences, Eluru,west Godavari district, Andhra Pradesh 534005,India.

Dr. S. Krishna Mohana Rao* Assistant Professor Department of General Medicine, Alluri Sitarama Raju Academy of Medical Sciences, Eluru, West Godavari district, Andhra Pradesh 534005, India. *Corresponding Author

Dr G. Swarnalatha Devi Professor & HOD, Department of General Medicine,Alluri Sitarama Raju Academy of Medical Sciences, Eluru,west Godavari district, Andhra Pradesh 534005,India.

ABSTRACT

INTRODUCTION: Malaria, the most important of the parasitic diseases of humans, transmitted in 106 countries containing 3 billion people and causes approximately 2000 deaths each day.

AIMS AND OBJECTIVES: Asses the clinical severity of Malaria and its relation to hematologic and coagulation parameters.To determine the hematological parameters in patients with malaria.

MATERIALS AND METHODS: STUDY DESIGN: An Analytical - Cross sectional study, which was conducted through clinical examination and laboratory investigation, in a tertiary health care center.

PERIOD OF STUDY: The study was conducted for a period of 20 months, i.e., 2017 to 2019.

STUDY AREA: The study was conducted in the department of General Medicine, Alluri Sitaram Raju Academy of Medical Sciences, Eluru, West Godavari district, Andhra Pradesh.

INCLUSION CRITERIA: All cases positive for Malaria above 18 years of age were included in the study.

EXCLUSION CRITERIA: All cases below the age of 18 years of age were excluded from the study.

RESULTS: In this study the predominant age group affected was the age group between 18 to 30 years. The male to female ratio was 2.57:1.

41.2 % of patients had P. falciparum infection.32.4% of patients had P. Vivax infection.

26.5% of patients had mixed. Fever was the most common symptom and was present in nearly all cases.P. falciparum infection had more symptoms when compared to P. vivax. Symptoms and signs such as chills and rigors, easy fatigability, abdominal pain, vomiting, oliguria and altered sensorium have statistically significant association with malaria.

CONCLUSION: The study concludes that P. Falciparum as well as P. Vivax can cause significant haematological changes with high occurrence of thrombocytopenia, anaemia, neutrophilia, monocytopenia and lymphopenia.

KEYWORDS

Malaria , Haematological parameters.

INTRODUCTION:

Malaria, the most important of the parasitic diseases of humans, transmitted in 106 countries containing 3 billion people and causes approximately 2000 deaths each day.

The WHO has recently released the *Global Technical Strategy for Malaria 2016–2030*, which advocates acceleration of global malaria elimination efforts and has set targets to reduce malaria mortality rate and malaria case incidence globally by 90% by 2030 (baseline 2015); eliminate malaria from at least 35 countries in which malaria was transmitted in 2015; and prevent re-establishment of malaria in all countries that are malaria-free.

AIMS AND OBJECTIVES:

1. Asses the clinical severity of Malaria and its relation to haematological and coagulation parameters.
2. To determine the hematological parameters in patients with malaria.

MATERIALS AND METHODS:

1. STUDY DESIGN: An Analytical - Cross sectional study, in 50 malaria cases which was conducted through clinical examination and laboratory investigation, in a tertiary health care centre.

2. PERIOD OF STUDY: The study was conducted for a period of 20 months, i.e., from September 2017 to May 2019.

3. STUDY AREA: The study was conducted in the department of General Medicine, Alluri Sitaram Raju Academy of Medical Sciences, Eluru, West Godavari district, Andhra Pradesh.

4. STUDY POPULATION: All the cases of fever positive for Malaria by PS / MPICT /QBC tests, admitted in the department of General Medicine, Alluri Sitaram Raju Academy of Medical Sciences, Eluru, during the study period were considered for the study.

5. INCLUSION CRITERIA: All cases positive for Malaria above 18 years of age were included in the study.

6. EXCLUSION CRITERIA: All cases below the age of 18 years of age were excluded from the study.

METHODOLOGY:

The study was carried out on 68 patients admitted during the period of September 2015 to August 2017 in Alluri Sitarama Raju Academy of Medical Sciences hospital, Eluru.

A detailed history was taken followed by clinical examination to assess the severity and complications due to malaria.

All the patients in this study were confirmed to be cases of malaria either by Peripheral smear examination (both thick and thin smear) or MPQBC or by Malarial antigen Assay.

The investigations were ordered before the anti malarial treatment was started.

Investigations advised for:

- Haemoglobin estimation by cyanmethemoglobin method,
- RBC count by total and differential counts – using Neauberg's chamber.
- Total platelet count by modified Dacie Leurs method.
- Whole blood clotting time by Lee white method.
- Prothrombin time, activated partial thromboplastin time.
- ESR estimation by Westergren method.
- Liver function test.
- Routine and microscopic examination of urine.

RESULTS:

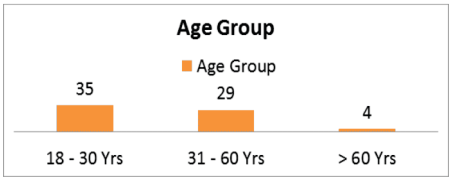
- Chi Square test was applied to find the statistical significance.
- Results were expressed as values in absolute numbers

andproportions and were presented in the form of tables & graphs.

Table 1: Showing Age Distribution

AGE GROUP (Years)	FREQUENCY	PERCENTAGE(%)
18 to 30 Years	35	51.5
31 to 60 Years	29	42.6
> 60 Years	4	5.9
Total	68	100

Graph 1: Showing age distribution

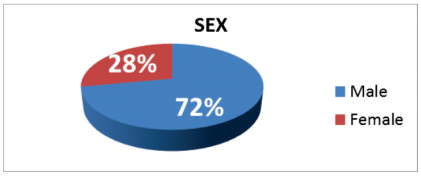


In this study the predominant age group affected was the age group between 18 to 30 years.

Table – 2: Showing Sex Distribution.

SEX	FREQUENCY	PERCENTAGE(%)
Male	49	72.1
Female	19	27.9
Total	68	100

Graph 2: Showing Sex Distribution

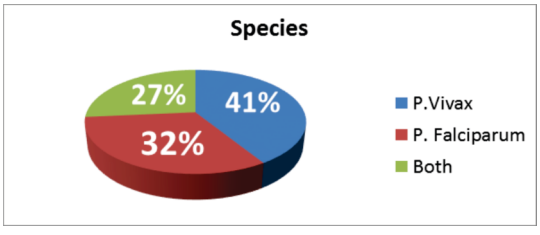


The numbers of males affected in our study were more compared to females. The male to female ratio was 2.57:1.

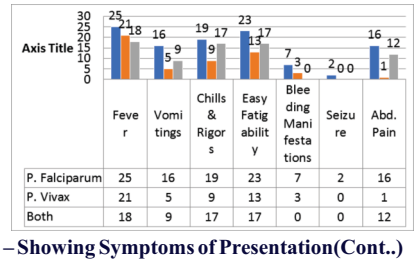
Table 3: DISTRIBUTION OF SPECIES:

SPECIES	FREQUENCY	PERCENTAGE(%)
P. Vivax	28	41.2
P. Falciparum	22	32.4
Both	18	26.5
Total	68	100

Graph: 3 - DISTRIBUTION OF SPECIES:



Graph: 4 – Showing Symptoms of Presentation



Graph: 5 – Showing Symptoms of Presentation(Cont..)

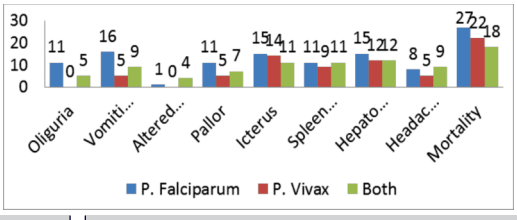


Table: 4 - Association of thrombocytopenia and splenomegaly

Platelet count	Spleenomegaly		Total
	YES	NO	
Thrombocytopenia	29	28	57
Eucytopenia	2	7	9
Thrombocytosis	0	2	2
Total	31	37	68

Graph:6 - Association of thrombocytopenia and splenomegaly

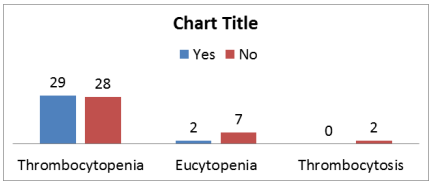


Table-5: Relationship between Hepatomegaly and splenomegaly:

Spleenomegaly	Hepatomegaly		Total
	Yes	No	
Yes	28	03	31
No	11	26	37
Total	39	29	68

DISCUSSION:

In the present study the predominant age group affected was the age group between 18 to 30 years.

The predominant age group affected in present study was similar than the study done by Preetam N Wasnik et al and Madhu Muddaiah et al.

Study	Predominant Age Affected
Preetam N Wasnik et al	21-30 years.
Madhu Muddaiah et al	21–30 years
Present study	18 – 30 years

In the present study the numbers of males affected in our study were more compared to females.

The male to female ratio was 2.57:1.

In the present study the male to female ratio was 2.57 : 1 and compared Chowta M N, et al., Preetam N Wasnik et al., Madhu Muddaiah et al the females affected were more in our study.

	Present Study	Cowta M N et al	Preetam N Wasnik et al	Madhu Muddaiah et al
Male: Female Ratio	2.57:1	2.6:1	3:1	4.2:1

In the present study

41.2 % of patients had P. falciparum infection.
32.4% of patients had P. Vivax infection.
26.5% of patients had mixed.

Species	Present study	Madhu Muddaiah et al	Ameekumari Patel et al.,	Dr Shamim Akhtaret al.,
P.falciparum	41.2%	33.75%	59%	51.7%
P.vivax	31.4%	52.54%	41%	36.48%
Mixed	26.5%	13.69%	0.9%	10.81%

Fever was present in 94.1% of the total patients. Which is in par in the study conducted by Preetam N Wasnik et al., Madhu Muddaiah et al., and Chowta M N et al.

In the present study fatigability was observed in 77.9% of the total cases. Which was similar to Gupta BK et al., study.

In the present study vomitting was present in 44.1% of the total cases predominantly seen in patients affected with p. Falciparum which was similar in studies of Madhu Muddaiah et al., and Mishra SK et al.

In the present study abdominal pain was noted in 42.6% of the total cases predominantly in P. falciparum patients.

The incidence of abdominal pain was more in present study when compared to study conducted by Preetam N Wasnik et al., and Madhu Muddaiah et al.

Bleeding manifestations were present in 14.7% of total patients in the

present study which is more when compared to the study conducted by Murthy GL et al.

Headache was present in 32.4% of patients in the present study. This was similar to the study conducted by Madhu Muddaiah et al., however, 51.5% of cases had headache in study by Madhu Muddaiah et al., Altered sensorium was present in 7.4% of cases in the present study. It was nearly similar to study conducted by Madhu Muddaiah et al.

Splenomegaly was present in nearly half of the patients in the present study. It was similar to studies conducted by Kochar DK et al and Kochar DK et al.

Hepatomegaly was present in nearly half of the total patients in the present study. This was similar to study conducted by Kochar DK et al.

CONCLUSIONS:

1. The predominant age group affected was the age group between 18 to 30 years.
2. Incidence of malaria was higher in males compared to females.
3. Fever was the most common symptom and was present in nearly all cases.
4. P. falciparum infection and had more symptoms when compared to P.vivax.
5. Symptoms and signs such as chills and rigors, easy fatigability, abdominal pain, vomiting, oliguria and altered sensorium have statistically significant association with malaria.
6. Splenomegaly is an important sign in malaria, but absence of this does not rule out malaria.
7. Seizures and oliguria were noted only in cases with P. falciparum.
8. Relationship between fever and chills & rigors was statistically significant.
9. Relationship between hepatomegaly and splenomegaly was statistically significant.
10. The higher incidence of falciparum in this study is due to the fact that ours is a tertiary centre and the area we conducted study is endemic for falciparum malaria.
11. Mixed infections behave like falciparum malaria.
12. The study concludes that P. Falciparum as well as P. Vivax can cause significant haematological changes with high occurrence of thrombocytopenia, anaemia, neutrophilia, monocytopenia and lymphopenia.

REFERENCES:

1. WHO. World Malaria Report. World Health Organization. 2016. 1-186 p.(accessed on 13. 02.2017)
2. Prasad J. National Framework for Malaria Elimination in India. 2016; 63.Available from: http:// nvbdcp.gov.in /Doc /National-framework-for-malariaelimination-in-India-2016–2030.pdf (accessed on line on 13.02. 2017)
3. Malaria situation 2012. 2016 ;(July):63573564. (accessed online on 15.02.2017)
4. K. Park. Parks Text Book of Preventive & Social Medicine, 24th ed. Jabalpur:Banarasidas Bhanot; 2017. chapter 5, epidemiology of communicable diseases, page 271 – 285.
5. Mehta S. Drop in malaria cases, claims Andhra SEC - Times of India[Internet]. The Times of India. Available from: https://timesofindia.indiatimes.com /city/visakhapatnam/Drop-in-malaria-casesclaims-AndhraSEC/articleshow/53049541.cms (accessed online on 20. 02.2017)
6. Vector N, Disease B, Programme C, General D, Services H, Marg S. Strategic Action Plan for Malaria Control in India. 2012; 1–84. (accessed online on 24.02.17)
7. NVBDCP. Operational Manual for Malaria Elimination in India 2016. 2016;256. Available from: file:/// C:/Users/USER /Desktop/Operational-Manual-Malaria-2016-Version-1.pdf (accessed on 30. 02. 17)
8. DISEASE PROFILE – MALARIA. 2013;29792(accessed online on 1.03.17)76
9. By express news service. Malaria rampant, over 6k cases registered so far,The New Indian Express. 28 June 2017 (accessed online on 2. 06. 17)
10. The Hindu: Andhra Pradesh / Eluru News: Malaria cases on the rise in WestGodavari [Internet]. Thehindu.com. Available from: http://www.thehindu.com/2005/07/27/stories/2005072711890400.htm (accessed on line on 2.03.17).
11. Kasper D, Fauci A, Hauser S, Longo D, Jameson J, Loscalzo J. Harrison's principles of internal medicine. 19th Ed. New York: McGraw-Hill; 2015. Harrison textbook of internal medicine., 19th edition., chapter 248., pages 1367 to 1383
12. World Health Organization. Bench Aids for the Diagnosis of Malaria. 2000. p.12. (accessed online on 6.03.17)
13. Farrar J, Peter J. Hotez,Thomas Junghanss, Gagandeep Kang,David Lalloo,Nicholas J. White, Manson's tropical diseases. [S.I.]; 2014, Twenty ThirdEdition., section 9. chapter 43., pages 532 to 600.
14. Wasnik PN, Manohar TP, Humaney NR, Salkar HR. Study of Clinical Profile of Falciparum Malaria in a Tertiary Referral Centre in Central India. 2012; 60(October):33–6.
15. Muddaiah M, Prakash PS. A study of clinical profile of malaria in a tertiary referral centre in South Canara. J Vector Borne Dis. 2006; 43(1):29–33.