

## “STUDY OF CLINICAL, BIOCHEMICAL AND HEMATOLOGICAL PROFILE IN MALARIA PATIENTS”

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### Abstract

Points and destinations of current examination were to contemplate the clinical, biochemical and hematological profiles in smear positive jungle fever patients and its connection to prompt result of patient. To investigate the biochemical and hematological awkward nature and its connection with clinical introduction and kind of malarial parasites. To explain the connection of hematological and biochemical changes in kids contaminated with jungle fever and their effect on prompt result of patients. All patients conceded with a finding of intestinal sickness in branch of Pediatrics at Shri Mahant Indiresht Hospital, Dehradun, Uttarakhand amid the examination time of 10 January 2018 to 12 December 2018. Test measure was 109 cases. The investigation was done in the wake of getting a definite history, complete general physical examination and fundamental examination. The patients were exposed to pertinent examinations. The information with respect to understanding points of interest, analysis and examinations is gathered in an uncommonly structured case recording structure and exchanged to an ace graph exposed to measurable techniques like mean, standard deviation, extent, rate computation and wherever fundamental chi square test for extent are utilized. Complete 106 patients were enlisted in study. Complexities of PF (N=32): Jaundice 17%, extreme pallor 22%, thrombocytopenia 28%, leukopenia in 24%, hyponatremia in 30 %, cerebral intestinal sickness in 17% and hyperkalemia in 16%. Intricacies of PV (N=66): Jaundice 21%, serious iron deficiency 21%, thrombocytopenia 19%, leukopenia in 12%, hyponatremia in 45.8%, hyperkalemia in 10%, cerebral intestinal sickness in 11.7% and hypoglycemia in 4.02%.

**Key words:** Malaria, Smear positive malaria, RFT, LFT, Hemogram

### Introduction:

Malaria, a contagious disease caused by a blood-borne protozoan of the genus *Plasmodium* (P) and is communicated by the *Anopheles* mosquito. Among the more than 70 species from the genus *Plasmodium* five are currently known to infect humans: *P. falciparum*, *P. vivax*, *P.*

*malariae*, *P. knowlesi* and *P. ovale*. The almost significant of these in term of mortality is *P. falciparum*, although *P. vivax* also has an enormous influence on population with respect to morbidity. According to the World Health Organization report 2017, there were an estimated 445000 deaths from malaria globally. Asia malaria burden (24 million cases per year).

One of the most important problems in controlling malaria is limited access to effective diagnosis and treatment. Malaria can be cured if promptly diagnosed and adequately treated. Hence, this study was carried out to analyze the trends in clinical features and severity of disease in both *P. falciparum* and *P. vivax* infections in our hospital, and to evaluate various clinical, hematological and outcome parameters in malaria patients.

## MATERIALS AND METHOD

All patients conceded with a finding of jungle fever in division of Pediatrics at Shri Mahant Indires Hospital, Dehradun, Uttarakhand, amid the investigation time of 10 January 2018 to 12 December 2018 were taken for the examination subsequent to thinking about the incorporation and avoidance criteria. Our examination was a clinical, forthcoming, observational and open investigation directed amid the time of 10 January 2018 to 12 December 2018. Test estimate was 106 cases. Incorporation criteria for the investigation was all kids under 18 years old with smear positive intestinal sickness cases analyzed at Shri Mahant Indires Hospital, Dehradun, Uttarakhand, and willing to partake in the examination. Youngsters with innate liver as well as renal ailments recently analyzed and treated instances of smear positive intestinal sickness patients, patients with known instance of liver ailment creating jungle fever, patients with known instance of renal illness creating intestinal sickness were barred from the examination.

The investigation was done in the wake of acquiring a point by point history, complete general physical examination and foundational examination. The patients were exposed to applicable examinations like Hemogram - Hb, all out leukocyte check, differential leukocyte tally, platelet tally, blood urea, serum creatinine and serum electrolytes. Glucose, complete bilirubin, coordinate bilirubin, SGOT, SGPT, prothrombin time and aPTT were finished. All patients were exposed to fringe smear examination - thick and

thin smear for conclusion of intestinal sickness. Two slides were set up from each example, one slide with a thick square film and another with a thin blood film and recolored with Leishmann's stain. The species and the phase of the parasite were accounted for in the wake of analyzing the thin blood smear. The information with respect to understanding specifics, conclusion and examinations is gathered in a uniquely planned case recording structure and exchanged to an ace diagram exposed to factual techniques like mean, standard deviation, extent, rate count and wherever fundamental chi square test for extent are utilized.

## RESULTS AND DISCUSSION

Out of all out 109 patients, 66 (for example 61%) were having *P. vivax*, 33 (for example 29%) had *P. falciparum* while 10 (for example 9.12%) had Mix - *P. vivax* and *P. falciparum* contamination. All out 46 (for example 43.4%) were female patients and 61 (for example 56.6%) were male patients. Of all the male patients 39 (for example 36.2%) had *P. vivax*, 17 (for example 16.1%) had *P. falciparum* and 5 (for example 5.2%) had blend disease. While in female patients 27 (for example 25.37%) had *P. vivax*, 15 (for example 14.5%) had *P. falciparum* and 5 (for example 3.8%) had blend disease. Male patients with *P. vivax* disease were 63% (N=38) of all out male patients with intestinal sickness, while female patients were just 59% (N=30) of all out female patients with *P. vivax* intestinal sickness. According to the outcomes rate of *P. vivax* is insignificantly higher for male patients enduring with intestinal sickness contrasted with female patients with malaria fever. While it was inverse if there should be an occurrence of *P. falciparum* patients: 27% (N=18) of complete male patients had *P. falciparum* while 32% (N=16) of all out female had *P. falciparum* disease. Results demonstrates that, occurrence of *P. vivax* is barely more in male and *P. falciparum* in female patients yet it is measurably immaterial ( $P>0.05$ ).

As referenced in Table 1, Fever was available in every one of the patients, mean span of fever

was 5.17 days (SD ± 3.29) extending from 1 day to 15 days. Of all the related grumbings most regular were spewing in 35 (for example 33%) patients and stomach torment in 28 (for example 26.4%) patients. Different objections were hack in 17 (for example 16%) patients, cerebral pain in 16 (for example 15%) patients, trouble taking in 3 (for example 2.8%) patients, body hurt in 9 (for example 8.4%) patients, spasm in 5 (for example 4.7%) patients, looseness of the bowels in 4 (for example 3.7%) patients and grumbling of shortcoming in 1 (for example 0.9%) patient and seeping from nose was available in 4 (for example 3.7%) of patients. As rule examination discoveries, whiteness was available as most regular finding in 70 (for example 66%) of patients. while icterus was available in 22 (for example 20.7%) of all out patients. Knuckle pigmentation was available in 1 (for example 0.94%) of patients, lymphadenopathy was available in 6 (for example 5.6%) while pedal

edema was available in 10 (for example 9.4%) of patients, while indications of meningeal disturbance were available in 3 (for example 2.8%) of patients. Of all the foundational examination discoveries, hepatomegaly, splenomegaly of hepato-splenomegaly was all the more reliably present contrasted with other fundamental examination discoveries. Hepatomegaly was available in 7 (for example 6.6%) patients, splenomegaly was available in 20 (for example 18.8%) patients while hepato-splenomegaly was the most widely recognized finding seen in 39 (for example 36.7%) patients. On respiratory framework examination crepitation was available in 9 (for example 8.4%) patients. On CVS examination stream mumble was available in 13 (for example 12.2%) patients. What's more, on CNS examination changed sensorium was available in 11 (for example 10.3%) patients.

**Table 1: Distribution of symptomatology according to species, positive general examination findings according to species, and positive systemic examination findings according to species.**

	<i>P. vivax</i> (N)	% of total pt	<i>P. falciparum</i> (N)	% of total pt	Mix (N)	% of total pt
<b>Symptoms</b>						
Vomiting	15	14.35 %	20	18.92 %	2	1.78 %
Abdominal pain	18	17.22 %	9	8.72 %	2	3.03 %
Headache	10	9.433 %	4	3.77 %	2	1.88 %
Difficulty breathing	0	0 %	3	2.83 %	0	0 %
Body ache	5	4.71 %	3	2.83 %	1	0.94 %
Cough	11	10.37 %	5	4.71 %	1	0.94 %
Convulsion	2	1.88 %	3	2.83 %	0	0 %
Diarrhea	1	0.94 %	2	1.88 %	1	0.94 %
Weakness	1	0.94 %	0	0 %	0	0 %
Bleeding from nose	4	3.77%	0	0 %	0	0 %
<b>Gen exam</b>						
Pallor	43	40.56 %	19	17.92 %	8	7.54 %
Icterus	13	12.26 %	5	4.71 %	4	3.77 %
S/o meningeal irritation	2	1.88 %	0	0 %	1	0.94 %
Knuckle pigmentation	1	0.94 %	0	0 %	0	0 %
Lymphadenopathy	2	1.88 %	3	2.83 %	1	0.94 %
Pedal edema	2	1.88 %	8	7.54 %	0	0 %
<b>Systemic examination</b>						

HS megaly	20	18.86%	13	12.26%	6	5.66%
Splenomegaly	15	14.15%	5	4.71%	0	0%
Systolic murmur	5	4.71%	5	4.71%	3	2.83%
Altered sensorium	6	5.66%	2	1.88%	3	2.83%
Crepitation	7	6.60%	2	1.88%	0	0%
Heaptomegaly	3	2.83%	3	2.83%	1	0.94%

Mean Hb level was 8.44 gm% (SD ± 2.3). 90% (N=9) of patients with blend disease had moderate to extreme weakness, while *P. vivax* and *P. falciparum* had 88% (N=57) of patients with moderate to serious pallor (Hb <10.9 gm%). Moderate frailty (Hb between 7-10.9 gm%) was available in 68% (N=44) of patient with *P. vivax*, 65% (N=20) of *P. falciparum* patients and just 20% (N=2) of patients with blend contamination. while serious iron deficiency (Hb <7 gm%) was available in 70% (N=7), 23% (N=7) and 20% (N=13) of patients with blend disease, *P. falciparum* and *P. vivax* separately. So by and large there was no distinction in dimension of frailty in patients with *P. vivax* and *P. falciparum* contamination. Be that as it may, was progressively serious if there should be an occurrence of blend disease. For examination between *P. vivax*, *P. falciparum* and blend contamination patients P esteem was 0.042. While for correlation of serious iron deficiency (Hb<7 gm%) between *P. vivax* and *P. falciparum* P esteem was non-noteworthy (P esteem 0.79).

Mean platelet tally was 1.27 (SD ± 0.84), Ranging from 0.14 needs to 4.08 needs. Platelet include <1.5 needs was available 44 (for example 41.5%) patients with *P. vivax*, 23 (for example 21.6%) patients with *P. falciparum* and 6 (for example 5.6%) with blend disease, out of 106 patients. While serious thrombocytopenia (Platelet tally <50000/cu mm) was available in 12 (for example 11.32%) patients with *P. vivax*, 9 (for example 8.49%) with *P. falciparum* and 1 (for example 0.94%) with blend disease. As indicated by our investigation, serious thrombocytopenia was seen all the more much of the time in patients with *P. falciparum* 29% (N=9) of patients than 18% (N=12) of patients with *P. vivax* and 10% (N=1) of patients with blend disease. INR > 1.2

was seen in 29% (N=19) of *P. vivax*, 26% (N=8) of *P. falciparum* and 20% (N=2) of blend disease patients. P esteem was 0.846. While for the consequences of APTT, it was brought >35.5 up in 17% (N=11) of patients with *P. vivax* and 40% (N=4) patients with blend disease yet in disconnected *P. falciparum*. aPTT level were inside typical breaking points (<35.5) for every one of the patients with *P. falciparum*. While the raised aPTT level was just found in the event of *P. vivax* contamination and for patient with *P. falciparum* contamination aPTT was in ordinary range for all.

Absolute number of patients with cerebral jungle fever was 15.09% (N=16), *P. vivax* patients with cerebral jungle fever 12.3% (N=8), *P. falciparum* patients with cerebral malarial fever 16.3% (N=5), blend contamination patients with cerebral intestinal sickness 30% (N=3), spasm regular in *P. Falciparum* patients 9.67% (N=3) and changed sensorium regular in 30% of blend contamination patients (N=3).

Mean Hb level was 8.44 gm% (SD ± 2.3). 90% (N=9) of patients with blend contamination had moderate to extreme pallor, while *P. vivax* and *P. falciparum* had 88% (N=57) of patients with moderate to extreme sickliness (Hb <10.9 gm%). Moderate weakness (Hb between 7-10.9 gm%) was available in 68% (N=44) of patient with *P. vivax*, 65% (N=20) of *P. falciparum* patients and just 20% (N=2) of patients with blend disease. while extreme sickliness (Hb <7 gm%) was available in 70% (N=7), 23% (N=7) and 20% (N=13) of patients with blend contamination, *P. falciparum* and *P. vivax* individually. So generally speaking there was no distinction in dimension of iron deficiency in patients with *P. vivax* and *P. falciparum* contamination. Be that as it may, was increasingly serious if there should be an

occurrence of blend contamination. For examination between *P. vivax*, *P. falciparum* and blend contamination patients P esteem was 0.042. While for correlation of extreme sickliness (Hb<7 gm%) between *P. vivax* and *P. falciparum* P esteem was non-huge (P esteem 0.79).

All out number of patients with cerebral jungle fever was 15.09% (N=16), *P. vivax* patients with

cerebral jungle fever 12.3% (N=8), *P. falciparum* patients with cerebral intestinal sickness 16.3% (N=5), blend disease patients with cerebral malaria fever 30% (N=3), seizure regular in *P. Falciparum* patients 9.67% (N=3) and modified sensorium regular in 30% of blend contamination patients (N=3).

**Table 2: Distribution pattern of anemia amongst malaria patients according to species, thrombocytopenia amongst malaria patients according to species**

	<i>P. vivax</i> (N)	% of total pts	<i>P. falciparum</i> (N)	% of total pts	Mix (N)	% of total pts
HB						
>10.9	9	8.74%	5	3.85%	2	1.08%
7-10.9	44	41.50%	20	18.86%	2	1.88%
<7	13	12.26%	7	6.60%	7	6.60%
Platelet						
>1.5	21	19.81%	8	7.54%	4	3.77%
50000-1.5	32	30.18%	14	13.20%	5	4.71%
<50000	12	11.32%	9	8.49%	1	0.94%
INR						
>1.2	19	17.92453	8	7.54717	2	1.886792
<1.2	46	43.39623	23	21.69811	8	7.54717
APTT						
>35.5	11	10.37736	0	0	4	3.773585
<35.5	54	50.9434	31	29.24528	6	5.660377
Cerebral malaria						
Convulsion	2	1.88%	3	2.83%	0	0%
Altered sensorium	5	4.65%	3	2.97%	2	3.14%

In our investigation aggregate of 109 instances of intestinal sickness admitted to Shri Mahant IndiresH Hospital, Dehradun, Uttarakhand, from 10 January 2018 to 12 December 2018. were broke down. *Plasmodium vivax* happened in 66 (63.5%) and *Plasmodium falciparum* happened in 32 (30.63%) patients while blend disease was available in 11 (10.63%) patients. A large portion of them had day by day fever cresting once in multi day. Whiteness was accounted for in 58% of patients in concentrate by Bashwri et al. contrasted with that in our examination whiteness was accounted for in higher level of patients (67%).

**CONCLUSION**

The incidence of malaria is higher in males than females. Thrombocytopenia is very common in malaria, but spontaneous bleeding is not so common finding in malaria. Mixed infections behave like *falciparum* malaria. *P. vivax* malaria though traditionally considered to be a benign entity can also have a severe and complicated course, which is usually associated with *P. falciparum* malaria.

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