PREVALENCE OF MALARIA AMONG THE PATIENTS LIVING IN AREAS OF DISTRICT SBA (SHAHEED BENAZIR BHUTTO) AND MIRPURKHAS.

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Abstract:

Objective: Malaria is a major cause of morbidity in the tropics and about 300 million causes were reported word wide in 2006 among the 100 species of genous plasmodia, the four species such as PL: falciparum, vivax, ovaule and malaria causes malaria. The malaria is transmitted by the bite of female anopheles mosquitoes. .

Methodology: This descriptive and experimental study was carried out at department of pathology, People's University of Medical & Health Science (PUMHS), Nawabshah. The cases were collected from paediatrics & Medical outpatients departments of PUMHS Hospital Nawabshah and also from Muhammad Medical College (MMC) Hospital & Civil hospital Mirpurkhas (CHM) from January 2010 to December 2011. A total of 1200 patients were included. The prevalence of malaria on the basis of age, sex, areas of resident, and clinical finding of all patients were recorded and blood tests performed.

Results: Plasmodium Vivax in 70.8% of cases and Plasmodium Falciparum in29.2%of cases.

Conclusion: In the areas (Nawabshah and Mirpurkhas), Plasmodium Vivax and Plasmodium Falciparum are the cause of Malaria.

Keywords: Malaria, Plasmodium, Pakistan, Nawabshah, Mirpurkhas.

Introduction:

Malaria is a major cause of morbidity in the tropics and about 300 million causes were reported word wide in 2006 among the 100 species of genous plasmodia, the four species such as PL: falciparum, vivax, ovaule and malaria causes' malaria. The malaria is transmitted by the bite of female anopheles' mosquitoes.

The life cycle of malaria parasite is completed in human and female anopheles mosquito. The sprozoites are transmitted into blood by mosquito bite and they first infect the liver cells, then red blood cells by releasing merozoites which mature into the male and female gametocycle. When a mosquito bites a malaria infested human, these gametocycle in the mosquito's stomach unite together to form zygotes that develop into oocysts, which grow and rupture to relesingsporozoites and cycle starts again'. Malaria causes haematological complications such as anemia leucocytosis and thrombocytopenia, fever which rigor, sweating, body ache, headache, vomiting, pallor and splenomegaly. Death can occur due to complications including cerebral malaria and hematological complications. The microscope examination of peripheral blood for detection of malarial parasite and along with estimation of hemoglobin concentration, ESR and complete blood count are important laboratory investigation for the diagnosis of malaria and its hematological complication.

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The aim of this study was to evaluate prevalence of malaria among the patients living in areas of Districts of Nawabshah and Mirpurkhas . We also studied the hematological complication in these patients.

Patients and Methods:

This descriptive and experimental study was carried out at department of pathology, People's University of Medical & Health Science (PUMHS), Nawabshah. The cases were collected from paediatrics & Medical outpatients departments of PUMHS Hospital Nawabshah and also from Muhammad Medical College (MMC) Hospital & Civil hospital Mirpurkbas (CHM) from January 2010 to December 2011. A total of 1200 patients were included. The prevalence of malaria on the basis of age, sex, areas of resident, and clinical finding of all patients were recorded. To establish the laboratory diagnosis of malaria and its hematological complication, Z-3ml of venous blood sample was taken from each patient in the tubes containing EDTA and sent to the pathology department. Thick and thin blood smears were made on the clean glass slide and examined under the microscope for detection of various of developmental stages of malarial parasites after staining with Giemas, stain. The (CBC) including Hemoglobin Concentration. Total Leucocyte count (TI.C), Differential Leucocyte Count (OLC) and Platelet Count were determined by hematology analyzer from the blood sample. The ESR and Malaria Rapid Diagnosis Test were also done from the same blood sample.

Results:

A total of 1200 cases were studied. Among these 700 (58.3%) were children and 500 (41.7%) were adults. The age of these patients ranged between 5 and 65

year, and their mean age was (35+30), while male to female ratio was 1.7:1. Of 1200 patients, 400(32.3%) were residents of Nawabshah city and 800(66.7%)were resident of the rural areas of district SBA and Mirpurkhas. (Table I).The clinical finding in these patients as shown in table II were fever with rigor, sweating or feeling of cold and hot pallor, body ache and splenomegaly. The laboratory finding in these patients as shown in table III showed that the mean value of hemoglobin, RBC and platelet counts were significantly reduced, while WBC count with percentage of neutrophils and ESR were significantly increased. The microscope examination of stained thick and thin blood smears of all these patients showed Plasmodium Vivax in 70.8% of cases and Plasmodium Falciparum in 29.2%of cases. The ICT malaria test was positive for Plasmodium Vivaxin 70.8% cases and 29.8% positive for Plasmodium Falciparum.

TABLE 1 Prevalence of malaria among the children and adults on the basis of age, sex and area OF residence of district SBA/Mirpurkhas

N=1200

AGE	SEX	RESIDANCE
Age in years 5-65years mean age35+3	Male770(64.1% Female430 (35.9% Male to Female ratio!.7:1	Rural 800 (66.7%) Urban 400(33.3
Adult	children	total
500(41.7%)	700(58.3)	1200(100%)

N= Number of patients

TABLE-II
Clinical finding in patients with malaria

N=1200

S#	Clinical Finding	No.of Patients	Percentage
1	Fever	1200	100%
2	Associated symptoms with fever like chill, sweating or feeling or coldness and hotness	980	81.7%
3	Baby Ache	750	62.5%
4	Headache	600	50.0%
5	Pallor	800	66.6%
6	Splenomegaly	300	25.0%

N=Total Number of patients

Table III
Laboratory finding in patients with malaria and its hematological complication

N=1200

S. #	Laboratory Finding	No. of Patients	Percentage
1	Hemoglobin concentration 5.5 – 11.5/dl(8.5+3)	800	66.6%
2	ESR 40-11mn 37.5+72.5	1200	100.0%
3	Total Leukocytes count 6500 – 25000/cumn (1625+8750)	900	75.0%
4	Red Cell Count 2.5-4.5 m/cumn 3.5+1.0	700	58.3%
5	Differential Leukocytes count neutrophils 67-85% (80.5+5.5) Lymphocytes 10- 14%(11+3) Monocytes 10-18%(14+4) Eosinophils 2-4% (3+1)	1000 900 950 1200	83.3% 75.0% 79.1% 100.0%
6	Platelets count 40000-110000/cumn (75000+35000)	750	62.5%
7	Microscopy P1:vivax P1:Falciparum	850 350	70.8% 29.2%
8	Malaria Diagnosis test Immunochrom atographly (IC) Technique +ve for P1:vivx +ve for P1: Falciparum	350 850	70.8% 29.2%

Discussion:

Malaria remain a major cause of morbidity and mortality in Asian as well as African countries of the world and about 300-500 million cases of malaria while 1 million death case per year due to malaria occurs globally[2]. 90% of malaria caused by plasmodium falciparum occurs in Africa[3]. Prevalence of malaria is common cause of death among the children and pregnant woman[4-6], Many Pakistani studies have shown that the ratio of P.vivax to Plasma Falciparum is at least 2 or just above that[7-11] .The hematological complications of malaria such as anemia, leukocytosis with neutrophilia and thrombocytopenia have been reported. .Anaemia is one of the most common complications in malaria that result from a combination of haemolytic mechanisms and accelerated removal of both parasitized and non-parasitized red blood cells, depressed and ineffective erythropiesis. Age as a risk factor for thrombocytopenia and anaemia in children treated for acute uncomplicated falciparum malaria[12-16]
In our study, prevalence of P.vivax malaria (70.8%) is more common than the P. Falciparum. (29.2%) among the 700 children (58.3%) and 500 adults (41.7%) out of total 1200 cases in district SBA and Mirpurkhas The significant clinical finding in these patients were fever with

rigors, pallor, body ache and headache. Hematological complication in these patients were anemia, leukocytosis with neutrophilia, ESR and thrombocytopenia and these were detected by hemoglobin, BSR and complete blood count estimations. In our study. Hemoglobin, platelet count and RBC count were significantly reduced while BSR, leukocyte count and percentage of neutrophils were significantly increased.

Conclusion:

The following conclusion has been made from the above study.

1. The prevalence rate of the malaria caused by P. Vivax is 2.5 times greater than the malaria caused by P. Falciparum among the children and adults in District Shaheed Benazeirabad.
2. The hematological complication such as anemia, leucocytosis with neutrophilia and thrombocytopenia among the children and adult were assessed by hemoglobin RBC estimation and complete blood count. It has been observed that haemoglobin ,RBC count and platelet count were decreased while ESR and total leukocyte count with percentage of neutrophils in these
Patients were increased.
3. Further studied are needed to determine the cold agglutination test, platelet aggregation test and serum interleukin level in the malaria.

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