ORIGINAL ARTICLE

FREQUENCY OF SLIDE POSITIVITY IN CLINICALLY SUSPECTED MALARIA CASES

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ABSTRACT

Background: Malaria is a public health problem and affects 40% of the world population. According to WHO 97% of the Pakistani population is at risk of contracting malaria with nationwide burden of 1.6 million cases per year. This study was aimed at determining the slide positivity rate in clinically suspected cases of malaria using microscopy as diagnostic tool.

Material & Methods: This descriptive study was conducted on patients presenting to Medical OPD of Khalifa Gul Nawaz Teaching Hospital, Bannu city from 15th May 2013 to 15th July 2013. Patients with age ≥5 years of both the genders and having fever above 37.5^{0}C were included. Those who had antimalarial medication during the previous two weeks were excluded from the study. Both thick and thin films were made by the laboratory technician for malaria. The slides were stained by Giemsa stain and seen under the light microscope. Results were recorded on proformas and analyzed for frequencies using SPSS version 13.

Result: Among the total 236 patients, 117(49.58%) were males and 119(50.42%) females. Age ranged from 5 to 78 years. Regarding results of slides for malaria, out of 236 slides examined, 170 (72.03%) were positive for malarial parasite. Among the positive cases, 94.71% were Plasmodium vivax and 5.29% Plasmodium falciparum. No other species was found. In positive patients 129(75.88%) were in the younger age below 40 years and only 41 (24.11%)were above 40 years age. Positivity for malarial parasites was higher 89 (52.35%) in males as compared to females 81 (47.64%) patients.

Conclusion: Malaria is responsible for fever in most febrile patients in our community. It is more common in younger age group. Plasmodium vivax is the most common species involved.

KEY WORDS: Malaria; Plasmodium vivax; Plasmodium falciparum.

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INTRODUCTION

Malaria is a public health problem and affects 40% of the world population in 107 counties. Each year 500 million cases and 3 million deaths are reported from malaria, involving mostly Sub Saharan Africa and the poor communities of the world. According to WHO 97% (approximately 150 million) of the Pakistani population is at risk of contracting malaria with nationwide burden of 1.6 million cases per year.[1,2]

There are four species of malaria parasite, Plasmodium (P) vivax (the most common), P. falciparum (the most severe), P. ovale and P. malariae.

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Malaria occurs seasonally in Pakistan and occurs in outbreaks in certain areas especially in Khyber Pakhtunkhwa, Baluchistan and Sindh provinces. The malaria season is usually from September to November, however, malaria transmission occur throughout the year. P. vivax accounts for 75% while P. falciperum for 25% of all cases of malaria.[3-5]

Microscopy is the gold standard method for the diagnosis of malaria. An experienced microscopist can detect as few as five parasites /μl in a thick film and 200 /μl in a thin film.[6] Recent advent of rapid diagnostic tests for malaria may be a significant step forward in malaria diagnoses and management.

This study was aimed at determining slide positivity rate in clinically suspected cases of malaria using microscopy as diagnostic tool.

MATERIAL AND METHODS

This descriptive study was conducted on

patients presenting to Medical OPD of Khalifa Gul Nawaz Teaching Hospital, Bannu city from 15th May 2013 to 15th July 2013.

Patients with age ≥5 years of both the genders and having fever above 37.5^{0}C were included. Those who had antimalarial medication during the previous two weeks were excluded from the study.

Both thick and thin films were made by the laboratory technician for malaria. The slides were stained by Giemsa stain and seen under the light microscope.

Results were recorded on proformas and analyzed for frequencies using SPSS version 13.

RESULTS

Among the total 236 patients, 117 (49.58%) were males and 119 (50.42%) females. The age ranged from 5 to 78 years. Age groups of patients are given in table 1.

Out of 236 slides examined, 170 (72.03%) were positive for malarial parasite and 66 (29.97%) were negative. Out of 170 positive cases 161 (94.71%)

Table 1: Age distribution of patients examined and positive for malarial parasite (n=236).

Age (Year)	Total slide	Positive slides
5-40	174	129 (75.88%)
>40	62	41 (24.11%)
p value	< 0.05	< 0.05

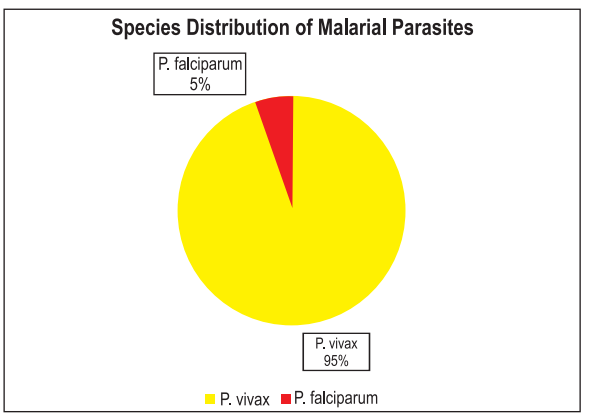

Figure 1: Species distribution of malarial parasite positive slides (n=170).

were Plasmodium vivax and 9 (5.29%) were P. falciparum. No other species was found. (Fig. 1)

In positive patients 129(75.88%) were in the younger age below 40 years and only 41 (24.11%) were above 40 years age. Positivity for malarial parasites was higher 89 (52.35%) in males as compared to females 81 (47.64%) patients.

DISCUSSION

Our study revealed that malaria is prevalent in febrile patients in Bannu District and is considered to be the common etiology of fever, slide positivity rate of 72.03%. These results are totally different from the study by Hozhabri et al[7] which showed the prevalence of malaria in Sindh as 5.9% in febrile patients.

In other local studies, Muhammad et al[8] found 12% slide positivity, whereas Yasinzai et al[9] found it up to 34%. In contrast Jalal-Ud-Din et al[10] found 96% positivity. In another study by Singh et al[11] showed positivity of 51%. In a study by Mehmood KH[12] in Karachi the positivity rate of malarial parasite was only 4.37% which is quite lower than our study, the reason may be that study was conducted in a large number of General Practitioners with the involvement of many laboratories and different technicians, in comparison to our study where we involved few expert laboratory persons.

Regarding species, our study showed high percentage of P. vivax (95%) as compared to P. falciparum (5%). These results are almost similar to the results of a study in the neighbouring district Kohat by Khattak et al[13] which showed P. vivax as 86.34% and P. falciparum as 13.65%. Howerver, our results are in contrast to the study by Hozhabri et al[7] which showed predominance of P. falciparum; P. vivax 35% and falciparum 65%. In the study by Soomro et al[14] P. vivax was found to be positive in 71.48% and falciparum in 28% cases which correlates closely to our study in cases of P. vivax but still differs in P. falciparum positivity. Comparing our results to the series by Sheikh et al[15] in 2005 from Quetta, we have dissimilarity regarding species of malaria having 58% P. falciparum and 35% P. vivax in their study. This difference may be due difference in the climates; hot climate and plain area of Bannu as compared to the cold weather and hilly area of Quetta.

In the study by Mehmood KH[12] from Karachi P. vivax was found to be 47% and P. falciparum 36% which correlates to some extent with our series by having more vivax than falciparum.

Age and seasonal variables of our study were similar to the study by Trevor et al,[16] both having more positive cases in young patients but they have included children only and we had mix population both adults and children. Comparing our results to the series by Sheikh et al in 2005 from Quetta, we have similar data regarding age from 5-65 years.

Sex wise distribution of positive cases in our study matches with the study conducted by Rehman et al from Bangladesh in which they have 50% male and 45% females.[17]

CONCLUSION

Malaria is responsible for fever in most febrile patients in our community. It is more common in

younger age group. Plasmodium vivax is the most common species involved.

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CONFLICT OF INTEREST
Authors declare no conflict of interest.
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None declared.