

A RETROSPECTIVE STUDY OF CHARACTERISTICS OF MALARIA CASES ATTENDING OPD OF A TERTIARY CARE LEVEL HOSPITAL IN BILASPUR DISTRICT, CHHATTISGARH

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ABSTRACT

Background: The mobility for employment in this tribal dominated region i.e. Bilaspur and other neighbouring and bordering Districts results constant admixture of different subgroups of the population which is a leading factor for spread of malaria in all possible directions. The present study was carried out to find out the proportion of fever patients, samples positive for malaria, types of parasites involved and the seasonal variation of malaria cases.

Methodology: This record-based descriptive retrospective study was conducted from January to December 2009. All the patients with fever as chief complain who had attended OPD of Medicine, their blood samples were collected from Central laboratory & Pathology Department of a tertiary care level hospital in Bilaspur district of Chhattisgarh state. The cases were identified from computer records of the hospital during one year. Individual case note was retrieved and data abstracted in a specific format which was developed for the study. The data were analyzed in the computer software Statistical Package for Social Sciences (SPSS) version 12.0.

Results: Out of a total of 4063 blood reports studied 1005 (24.74%) were positive for malaria. The overall slide positivity rate (SPR) and slide falciparum rate (SFR) were 24.74% and 71.5 % respectively and Positive falciparum (Pf) constituted 18.1% of the malaria cases. These observations are very alarming and call for immediate attention for controlling the disease in these communities to stop all the transmissions of the parasites of the diseases in the different subgroups of the populations of the region.

Key-words: Malaria, Slide Positivity Rate (SPR), Slide Falciparum Rate (SFR), Positive Falciparum (Pf)

INTRODUCTION

Malaria continues to be a major public health problem globally. It remains the most complex and overwhelming health problem with 300 to 500 million cases and 2 to 3 million deaths per year¹ in tropical and sub-tropical regions of the world. About 90% of all malaria deaths in the world today occur in the sub-Saharan Africa and this is because majority of infections are caused by *Plasmodium falciparum*, the most dangerous of the four human malaria parasites (*P. falciparum*, *P. ovale*, *P. vivax*, *P. malariae*), accounting for an estimated 1.4 to 2.6 million deaths per year in this region^{2,3}. The majority of

malaria related morbidity and mortality happen in young children⁴.

Malaria imposes great socio-economic burden with six other diseases i.e. diarrhea, HIV/AIDS, tuberculosis, measles, hepatitis B, and pneumonia, accounts for 85% of global infectious disease burden^{5,6}. The World Health Organization estimates 300-500 million malaria cases annually, with 90% of this burden being in Africa^{7,8}. In the Southeastern Asian Region, 1.4 billion people living in 11 countries, 1.2 billion are exposed to the risk of malaria, most of whom live in India⁹. However, Southeast Asia contributed to only 2.5 million cases to the

global burden of malaria. Of this, India alone contributed 76% of the total cases.

In India, the problem is even worst among tribal population. With this view the present study was carried out in a tertiary care hospital of Bilaspur which caters the population of tribal dominated region with the objectives to find out proportion of fever patients attending OPD of tertiary care level hospital positive for malaria as well as the types of parasites involved and to study the seasonal variation of malaria cases.

MATERIAL AND METHODS

This record-based descriptive retrospective study was conducted in a tertiary care level hospital of Bilaspur city. The records of fever patients attending OPD of Medicine were collected from Central laboratory & Pathology Department of the hospital during one year period from January to December 2009. The cases were identified from computer records. Individual case note was retrieved and data abstracted in a specific format which was developed for the study. The data were analyzed in the computer software Statistical Package for Social Sciences (SPSS) version 12.0.

RESULTS

Total of 4063 blood reports were studied and the findings are presented in the tables. The overall slide positivity rate and slide falciparum rate were 25.3% and 71.5% respectively. *P. falciparum* constituted 18.1% of the malaria cases. The total no. of positive cases monthly wise was in increasing order gradually from June to December 2009 and in decreasing order from January to May. Rainy season from June to

December lead to more water collections on earth surface creating favorably conditions for reproduction of several types of species of mosquitoes which are responsible for transmission of malaria parasites and such type of increasing trend for malaria cases is expected during these month and month of December onward the reverse trend observed which is again a expected trend for any state in India. Similarly other parameters like SPR, SFR, Pf are also following the similar biannual trends in this study. [Figure1]

Month wise positive cases of malaria also shows increasing trend from July to January gradually in this study. [Table 1] A line diagram drawn for percent positivity which was gradually going up after starting from the month of June to the month of October (from 6.30% and 37.1%) and after November onward that trend is down. In January month it is high(48.2%) then fluctuate till June (4.5%). [Figure 1]

The trends of percent positivity in the line diagram studied and we look trend of percent slide falciparum rate, from January (91.9%) to December (55.2%) the overall is going down. But in mid-time May (98.1%) is going up then suddenly down in June (25.0%). July(98.1%) is going up then down slowly in August(38.8%). [Figure 1] Trends of percent positivity by line diagram we look trend of percent positive falciparum cases out of total examined according that from January (44.3%) to December(9.1%) the overall was consistently going down. But in mid-time May (25.5%) is going up then suddenly down in June (1.1%). July (14.3%) is going up then down slowly in August (7.9%). [Figure 1]

Table1: Various Indicators related to Malaria from January to December 2009

Month wise	Blood Slides Examined	Malaria Positive	SPR (%)	SFR (%)	Pf. (%)
Jan	309	149	48.2	91.9	44.3
Feb	310	90	29	93.3	27.1
March	215	67	31.2	80.6	25.1
April	234	40	17.1	65	11.1
May	208	54	26	98.1	25.5
June	356	16	6.3	25	1.6
July	370	54	14.6	98.1	14.3
August	394	80	20.3	38.8	7.9
September	402	123	30.6	72.4	22.1
October	491	182	37.1	63.2	23.4
November	368	83	22.6	43.4	9.8
December	406	67	16.5	55.2	9.1
Total	4063	1005	25.4	71.5	18.1

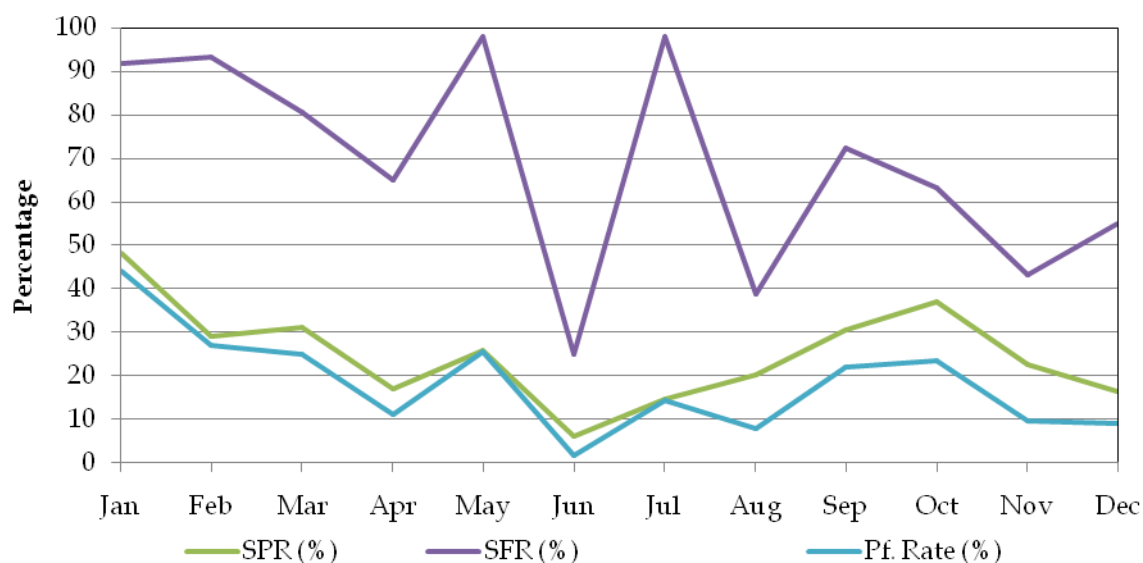


Figure1: Monthly trends of SPR (%), SFR (%) and Pf. Rate (%)

DISCUSSION

Further analysis with month wise distribution of cases shows that malaria cases start increasing from June every year and remain more or less high till October, thereafter it tends to fall gradually. Similar findings were also reported by Prajapatiet al¹⁰. Chhattisgarh presents a tribal pattern of malaria. This is contrary to findings of Bonnländeret al¹¹ in a study done in Haiti who observed that the peak malaria season was November to January, a few months rainy season. Hence, Babikeret al¹² commented that "Greater awareness of the risk of malaria by travelers and medical practitioners must be encouraged".

RECOMMENDATIONS

Understanding the dynamics of seasonal variation is important not only in controlling the disease in the community but also enables us to plan before hand to cope with the challenges of management of Malaria at primary, secondary and tertiary level. And as the observations are very alarming and calls for immediate attention by the concern authority because no declining trends were observed during the whole year of study period and it's a matter of concern.

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