Burden of Malaria in Rajasthan and its seasonal variation: A record base study

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Abstract*—Malaria is still a major public health problem in India. It is caused by a protozoa transmitted through bite of a type of mosquito. Temperature and rainfall has important role in life cycle of mosquito. So this record base study was conducted to assess the burden of Malaria in Rajasthan in year 2018 with its seasonal variation. This study was conducted at Directorate Medical and Health Services (DMHS) Jaipur (Rajasthan) India. The present study found total 9205 cases of Malaria occurred in year 2018. It was found that that Malaria cases start increasing from September with peak was in October. Majority (72.61%) of cases found in September to November.*

Keywords: Malaria, Seasonal Variation.

I. INTRODUCTION

Malaria is a infectious disease caused by *Plasmodium* protozoans transmitted through bite of infected female Anapheles mosquito. It is still a public health problem in many of countries.

Globally, an estimated 3.4 billion people in 99 countries were at risk of contracting malaria with approximately 207 million reported cases and an estimated 627,000 reported deaths.[1] India is the most populous country affected by malaria, having over 400 million people affected with infection.[2,3] Future climate changes may lead to an increase in malaria transmission in the marginally-suitable highland areas of Africa, South America and southeast Asia etc.[4-8]

A wide discrepancy in various figures in estimating actual burden of malaria in India.[3,9,10] This disparity may be associated with under-reporting of malaria from rural regions, involved of the private sector and misdiagnosis.[9,11]

Temperature and rainfall influence the life cycle of female *Anopheles* mosquito vector and therefore the viability of the *Plasmodium* parasite within[12,13,14] so there may be seasonal trend of Malaria. So this present study was conducted to assess the burden of Malaria in Rajasthan, India and its seasonal variation.

II. METHODOLOGY

This present study was conducted from records of year 2018 regarding Malaria at Directorate Medical and Health Services (DMHS) Jaipur (Rajasthan) India

Data for the study were collected from the records of DMHS, where the data from whole Rajasthan accumulates through seasonal disease reports from all over Rajasthan. Data regarding Malaria was collected. Month wise occurrence of Malaria cases were also observed to know the seasonal variation.

Data thus collected were entered in MS Excel worksheet 2010 in the form of master chart. Observations were presented in the form of percentage and proportions.

III. RESULTS

The present study observed that total 9205 cases of Malaria occurred in year 2018. (Table 1)

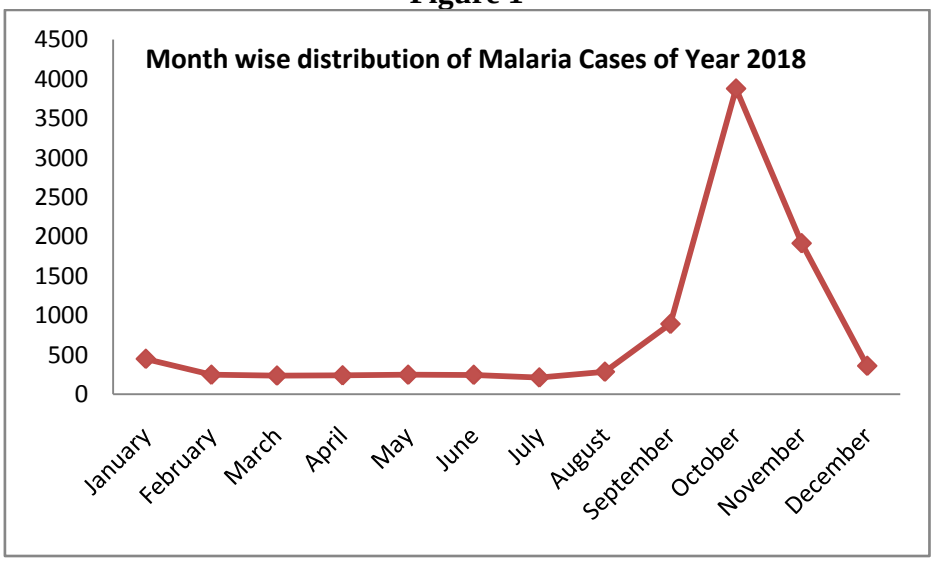
For seasonal variation, month wise distribution of these cases was analysed. It was observed that maximum cases were found in October followed by November, September, January, December, August, February, May, June, April, March and July. (Table 1)

Table 1
Month wise distribution of Malaria Cases of Year 2018

S. No.	Month	Number of Malaria Cases	Percentage of Malaria Cases
1	**January**	449	4.88
2	**February**	247	2.68
3	**March**	236	2.56
4	**April**	239	2.60
5	**May**	247	2.68
6	**June**	246	2.67
7	**July**	212	2.30
8	**August**	285	3.10
9	**September**	892	**9.69**
10	**October**	3877	**42.12**
11	**November**	1915	**20.80**
12	**December**	360	3.91
	Total	9205	100.00

On further analysis it was found that cases start increasing from September with peak was in October. Majority (72.61%) of cases found in September to November. (Figure 1)

Figure 1



IV. DISCUSSION

The present study observed that total 9205 cases of Malaria occurred in year 2018. Majority (72.61%) of cases found in September to November. The present study also found total 9205 cases of Malaria occurred in year 2018.

The seasonal cycle was also successfully reproduced, capturing peak temperatures in May and the seasonal monsoon rains between June and September, with the rains starting slightly earlier in May in NE India compared to June in NW India.[15]

Another study reported the maximum prevalence of malaria in most parts of India in July to November months. Rainfall provides mosquitoes, a breeding ground giving rise to epidemics.[16]

Regarding seasonal variation of Malaria is almost similar of above study with the present study. In the present study the peak is in September to November which is post monsoon seasonal.

V. CONCLUSION

The present study concluded that Malaria cases start increasing from September with peak was in October. Majority (72.61%) of cases found in September to November i.e. post monsoon seasonal. The present study also found total 9205 cases of Malaria occurred in year 2018.

CONFLICT OF INTEREST

None declared till now.

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