

Epidemiology Of Malaria In Lal Qilla

Tauseef Ahmad, Akbar Hussain, Suhaib Ahmad

Abstract: The present study was conducted in Lal Qilla Dir (Lower) Khyber Pakhtunkhwa Pakistan during the period from January 2003 to December 2003. The purpose of the study was to find out the prevalence of malaria among the local community of the selected area visited to health care center. An epidemiological descriptive study was design and the data was collected from the Rural Health Center (RHC) Lal Qilla. For the collection of data a standard design chart sheet were used. The analysis of the data was done. The total 1091 samples were selected for the current study. Out of the total samples 189 (17.32%) were found positive for malaria with a ratio 111 (58.7%) male and 78 (41.3%) were female. The high number of malaria cases was recorded in age 15-64 years 145 (76.72%) while the lowest number of malaria cases were recorded in age >65 years 18 (9.52%). Where the month is concern the high number of cases was recorded in June 18 (23.38%) while the lowest were found in January 2 (8.34%). The species wise distribution shows that the high number of cases was recorded of *Plasmodium vivax* 188 (99.47%) where the *Plasmodium faciparum* is 1 (0.53%). From the present it was concluded that the *Plasmodium vivax* is most common species in the selected area.

Key words: Malaria. Epidemiological descriptive study. Plasmodium vivax. Plasmodium falciparum.

1 INTRODUCTION

Among the infectious diseases on the surface of the earth malaria is one of the leading causes of morbidity and mortality. In the developing countries it is still one of the major public health problems. It infects million of peoples every year. The malaria parasitic disease cause by the four known species of plasmodium (*Plasmodium vivax*, *Plasmodium falciparum*, *Plasmodium ovale* and *Plasmodium malariae*) among them the most infection are occurred due to *P. vivax* and *P. falciparum* than the other. In Pakistan the *P. vivax* and *P. falciparum* are common [1]. The majority of deaths are occurred due to *P. falciparum*. The common symptom of the disease is fever, chills, sweating and pain. The malaria is transmitted by the bite of infected mosquito [2]. In 2010, estimated 216 million clinical cases of malaria occurred worldwide among the 655,000 deaths were occurred [3].

2 METHODS

2.1 Study location

The present study was carried out to find the prevalence of malaria among the local population of the Lal Qilla visited to health care center. The study was conducted in Lal Qilla, District Dir (Lower), Khyber Pakhtunkhwa, Pakistan.

2.2 Study duration

The study was carried out during the period January 2003 to December 2003.

2.3 Study design

A simple epidemiological descriptive study was conducted.

2.4 Data collection

The data were collected from the Rural Health Center (RHC) located in Lal Qilla. For the purpose of data collection a standard design chart sheet were used.

2.5 Prevalence rate

The prevalence rate was determined by using the following formula:

$$\text{Prevalence rate} = \frac{\text{No. of patients having malaria positive}}{\text{Total no. of patients}} \times 100$$

2.6 Data analysis

The analysis of the data was done gender wise, age wise, month wise and species wise.

3 RESULTS

Out of the total 1091 samples the 189 (17.32%) were positive for the malaria where the 902 (82.68%) were found negative.

3.1 Gender wise occurrence of malaria

The gender wise occurrence of malaria shows that the male are more infected by malaria than female 111 (58.7%) and 78 (41.3%) respectively as shown in figure 1.

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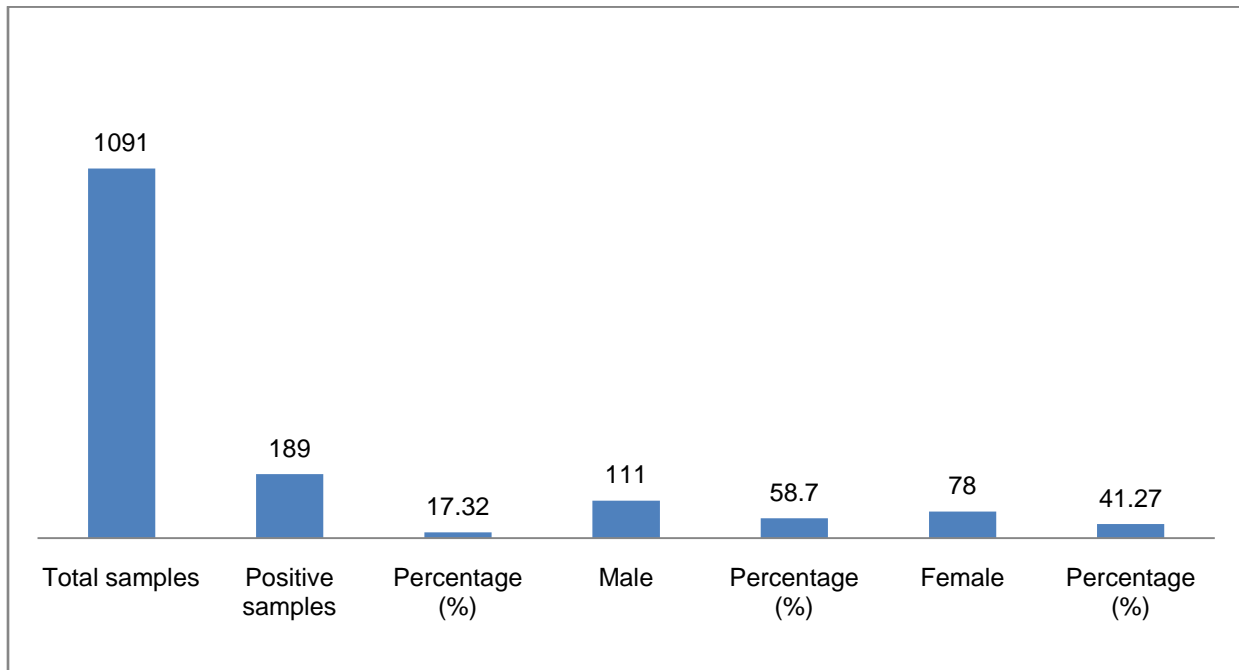


Figure 1: Gender wise occurrence of malaria in Lal Qilla

3.2 Age wise occurrence of malaria

For the age wise occurrence of malaria the local population were divided into three age group, age group 1: 0-14 years, age group 2: 15-64 years and age group 3: >65 years. The

result shows that the high cases were occurred in age group 2, 145 (76.72%) followed by age group 1, 26 (13.76%) and age group 3, 18 (9.52%) as shown in figure 2.

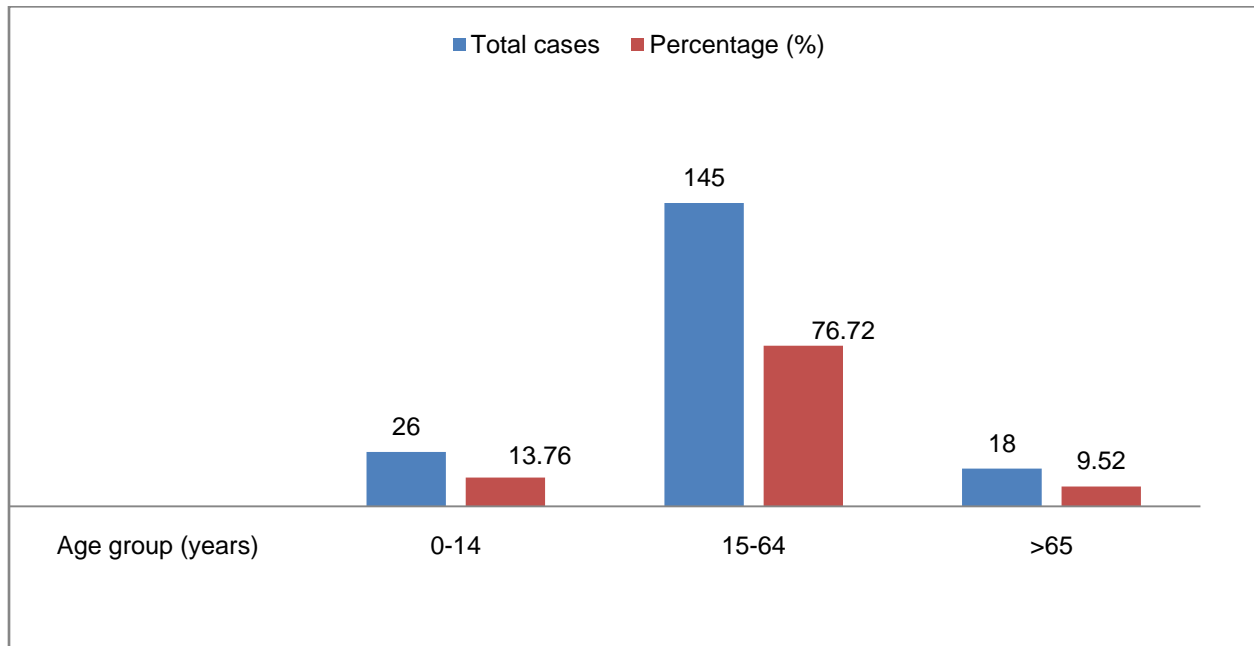


Figure 2: Age wise occurrence of malaria in Lal Qilla

3.3 Month wise occurrence of malaria

The month wise analysis from January 2003 to December 2003 of the data shows that the high number of cases was recorded in month of June 18 (23.38%) followed by November 21 (20.39%), September 30 (18.87%), July 19 (18.63%), October 39 (18.34%), December 15 (17.24%),

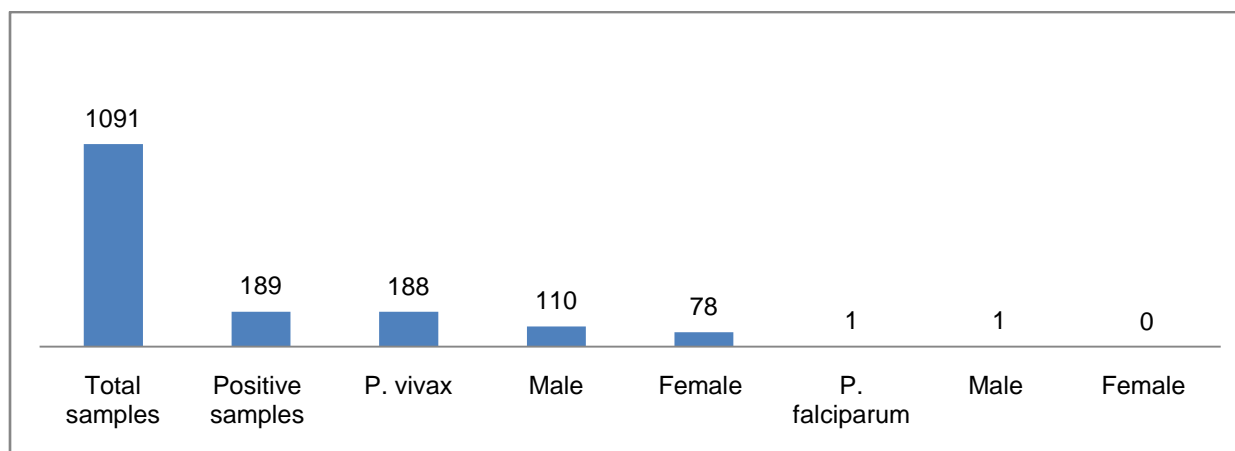
August 27 (15.6%), May 11 (12.5%), April 5 (11.12%), March 1 (10%), February 1 (9%) and January 2 (8.34%) as shown in table 1.

Table 1: Month wise occurrence of malaria in Lal Qilla

S. No	Months	Total samples	Positive sample	Male	Female
1	January	24	2 (8.34%)	1 (50%)	1 (50%)
2	February	11	1 (9%)	1 (100%)	0
3	March	10	1 (10%)	1 (100%)	0
4	April	45	5 (11.12%)	3 (60%)	2 (40%)
5	May	88	11 (12.5%)	6 (54.55%)	5 (45.45%)
6	June	77	18 (23.38%)	10 (55.56%)	8 (44.44%)
7	July	102	19 (18.63%)	9 (47.37%)	10 (52.63%)
8	August	173	27 (15.6%)	17 (62.96%)	10 (37.04%)
9	September	159	30 (18.87%)	18 (60%)	12 (40%)
10	October	212	39 (18.4%)	24 (61.54%)	15 (38.46%)
11	November	103	21 (20.39%)	13 (61.9%)	8 (38.1%)
12	December	87	15 (17.24%)	8 (53.37%)	7 (46.67%)
13	Total	1091	189 (17.32%)	111 (58.7%)	78 (51.3%)

3.4 Species wise occurrence of malaria

The present data also analyzed for the species wise distribution of malaria. The results show that the occurrence of *P. vivax* is much higher than *P. falciparum* 188 (99.47%) and 1 (0.53%) respectively as shown in figure 3.

**Figure 3:** Species wise occurrence of malaria in Lal Qilla

4 DISCUSSIONS

The result of the present study show that out of total tested samples 17.32% has malaria. The result revealed that the male are more infected than female. The result of our study is comparable with [4] reported high cases of malaria in male as compare to female. While the [5] reported the 58% cases in males and 42% in females in Gadap region Pakistan. The possible reason of high number of cases in male population was they are more expose to malaria parasite as compare to female. The male are work in the field so they have high chance of infection. Where the age is concern the malaria infects the most significant and productive age group of Lal Qilla. The 76.72% cases of malaria were reported in age 15-64 years. The result is similar with others [6] reported 88.93% cases of malaria in age 21 years and above. According to [7] reported 73.68% cases of malaria in age 21 years and above while the [8]

58.13% cases of malaria in age above 20 years. The month wise distribution of malaria shows that the high cases were recorded in the month of June 23.38% While the lowest were recorded in the month of January 8.34%. The *P. vivax* is the most common species reported in our study. The result is comparable with [9] reported high incidence of *P. vivax* among the local population of district Buner Pakistan. The result of our study is also similar with [7] reported 0.67% incidence of *P. falciparum* in Kashmiri refugees settled in Muzaffarabad Pakistan. According to [6] reported 88.69% cases of *P. vivax* in district Kharan Pakistan. In the present study no case of *P. malariae* and *P. ovale* were observed as the same was also not observed by [8] in Multan Pakistan.

5 CONCLUSIONS

From the present study it was concluded that the *P. vivax* is common prevailing disease in Lal Qilla. The male are more infected than female. The high cases were recorded in age 15-44 years. Awareness and proper treatment are needed to control the disease.

Competing interest

The authors are contributed equally and declare that they have no competing interest.

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