Study Of Prevalence of Malaria in Different Thasils Rural Hospital of District Gadchiroli

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Abstract: In Gadchiroli malaria is complex because of vast tracts of dense forest with tribal settlement. The present study reveals the prevalence of malaria in Three rural hospitals of district gadchiroli from 2020 to 2022.Rural Hospital Sironcha ,Rural Hospital Aheri and Rural Hospital Bhamragad. The results were obtained through cross-sectional record based study. The plasmodium falciparum and plasmodium vivax infection was identified individually by one Step malaria Anti - P.f./P.v.(Antigen & Antibody Reaction) test and infection was confirmed by examining blood smear microscopically by thick and thin smear. The malaria cases were recorded for all the three rural hospitals, In the year 2020, out of total 522 cases 193 cases were P.F. and 329 were P.V; in the year 2021 out of total 439 cases 271 cases were P.F. and 168 were P.V ; in the year 2022 out of total 554 cases 427 cases were P.F. cases and 190 were P.V.

Keywords: Sironcha , Aheri , Bhamragad , Epidemiological Investigation, Plasmodium falciparum, plasmodium vivax, Malaria incidence, Rural Hospitals ,Tahsils.

1. Introduction

Malaria is a life-threatening disease primarily found in tropical countries. It is both preventable and curable. However, without prompt diagnosis and effective treatment, a case of uncomplicated malaria can progress to a severe form of the disease, which is often fatal without treatment. Malaria is a major public health problem in India and its transmission dynamics differ from place to place. (Pattanayak s, Sharma VP et al 1994) It is one of the biggest killers in the world.

Malaria is not contagious and cannot spread from one person to another; the disease is transmitted through the bites of female *Anopheles* mosquitoes. Five species of parasites can cause malaria in humans and 2 of these species – *Plasmodium falciparum* and *Plasmodium vivax* – pose the greatest threat. It causes about 400-900 million cases of fever and approximately one to three million deaths annually. (Breman, 2001) It remains a life-threatening disease in India causing significant mortality and morbidity despite concerted efforts to control it.

Malaria is transmitted to the people through the bite of infected female *Anopheles* mosquitoes caused by the Plasmodium parasites. According to the World Malaria Report 2014, 22% of India's population live in high transmission (> 1 case per 1000 population) areas, 67% live in low transmission (0–1 cases per 1000 population) areas and 11% live in malaria-free (0 cases) areas.(World Malaria Report, 2014). The biggest burden of malaria in India is borne by the most backward, poor and remote parts of the country, with >90-95% cases reported from rural areas and <5-10% from urban areas.

The risk factors leading to complete reconciliation of cause and effect relationships of malaria were identified in India by GIS based studies (Srivastava et al., 1999 & 2003). Persistent malaria is the characteristic feature in most forest areas and both Plasmodium *vivax* and Plasmodium *falciparum* are prevalent in forest areas of Madhya Pradesh (Singh and Khare, 1999). Hema Joshi (2003) reported the existence of genetic diversity among the field isolates of P. *falciparum* and P. *vivax* in India. A hospital based study on assessment of knowledge about malaria among patients indicated that the knowledge about malaria is poor in persons living in urban localities reported with fever (Matta et al., 2004). Control of malaria is also possible by educating the community to take measures for the non-prevalence of disease (Sharma et al., 2000). On a global scale, malaria has been a major public health concern. This risk of infection is higher in some areas than others depending on multiple factors, including the type of local mosquitoes. It may also vary according to the season, the risk being highest during the rainy season.

Malaria is the most prominent and problematic of all vector borne communicable diseases of ,District Gadchiroli Maharashtra.. Hence, the present study was focused on study of malaria incidence in selected Rural Hospitals (03) of District Gadchiroli Maharashtra.

2. Materials and Methods

Study Area:- In the present study, three rural hospitals of district gadchiroli are selected because these rural hospitals are occupied by tribal people and to get awareness of some communicable diseases. In the present study Sironcha , Aheri and Bhamragad were selected and the prevalence of malaria cases was studied for 3 successive years from 2020 to 2022. The data was obtained through cross- sectional record based study. The data regarding malaria cases from 2020 to 2022 was collected from the rural hospitals of district gadchiroli. The no. of cases of Plasmodium *falciparam* and P. *vivax* infection was identified in three rural hospitals by One Strip Malaria Anti - P. f. / P. v(Antigen & Antibody Reaction). Test and infection was confirmed by examining the blood smear microscopically by Thick and Thin Smear.

Sironcha is a Tahsil located in Gadchiroli district of Maharashtra. It is one of 12 TaHSILSs of Gadchiroli district. There are 147 villages and 1 towns in Sironcha Tahsil.

As per the Census India 2011, Sironcha Tasil has 18991 households, population of 74756 of which 37564 are males and 37192 are females. The population of children between age 0-6 is 8180 which is 10.94% of total population. The sex-ratio of Sironcha Tahsil is around 990 compared to 929 which is average of Maharashtra state. The literacy rate of Sironcha Taluka is 55.52% out of which 63.03% males are literate and 47.94% females are literate. The total area of Sironcha is 1256.60 sq.km with population

density of 59 per sq.km Out of total population, 90.07% of population lives in Urban area and 9.93% lives in Rural area. There are 24.5% Scheduled Caste (SC) and 23.97% Scheduled Tribe (ST) of Sironcha Population.

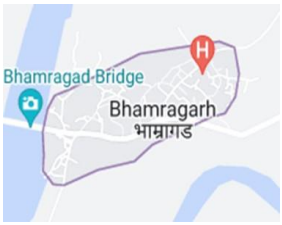
Aheri Tahsil of Gadchiroli district has a total population of 116,992 as per the Census 2011. Out of which 58,916 are males while 58,076 are females. In 2011 there were a total 26,446 families residing in Aheri Tahsil. The Average Sex Ratio of Aheri Tahsil is 986. As per Census 2011 out of total population, 12.5% people live in Urban areas while 87.5% live in the Rural areas. The average literacy rate in urban areas is 86.2% while that in rural areas is 67.7%. Also the Sex Ratio of Urban areas in Aheri Tahsil is 922 while that of Rural areas is 995. The population of Children of age 0-6 years in Aheri Taluka is 12991 which is 11% of the total population. There are 6687 male children and 6304 female children between the age 0-6 years. Thus as per the Census 2011 the Child Sex Ratio of Aheri Tahsil 943 which is less than Average Sex Ratio (986) of Aheri Tahsil.

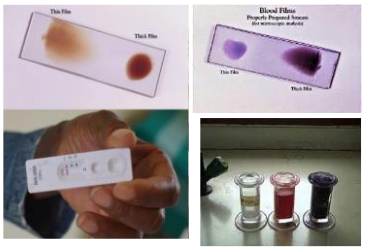
Bhamaragad is a large village located in Bhamragad Tahsil of Gadchiroli district, Maharashtra with total 779 families residing. The Bhamaragad village has population of 4046 of which 2187 are males while 1859 are females as per Population .In Bhamaragad village population of children with age 0-6 is 417 which makes up 10.31 % of total population of village. Average Sex Ratio of Bhamaragad village is 850 which is lower than Maharashtra state average of 929. Bhamaragad village has higher literacy rate compared to Maharashtra. In 2011, literacy rate of Bhamaragad village was 86.69 % compared to 82.34 % of Maharashtra. In Bhamaragad Male literacy stands at 91.43 % while female literacy rate was 81.06 %.

Rural Hospital Tahsil Sironcha

Rural Hospital Aheri

Rural Hospital Bhamragad





3. Results and Discussion

The malaria cases were recorded for all the three rural hospitals (Sironcha , Aheri, Bhamragad)From 2020 to 2022 . In the year 2020, out of total 522 cases 329 cases were P.F. and 193 were P.V; in the year 2021 out of total 439 cases 271 cases were P.F. and 168 were P.V ; in the year 2022 out of total 554 cases 427 cases were P.F. cases and 190 were P.V.

Table 1: Prevalence of Malaria in District Gadchiroli from 2020 to 2022.

Name of the RH	SIRONCHA					AHERI					BHAMRAGAD				
Year	No.positive Cases			Percentage (%)		No.Positive Cases			Percentage (%)		No.Positive Cases			Percentage (%)	
	P. v.	*P. f.*	Total	*P.v.*	*P. f.*	*P. v*	*P. f.*	Total	*P.v.*	*P. f.*	*P. v.*	*P. f.*	Total	*P.v.*	*P. f.*
2020	93	112	205	45.3	54.6	38	141	179	21.2	78.7	62	76	138	44.9	55
2021	72	123	195	36.9	63	44	106	150	29.3	70.6	52	42	94	55.3	44.6
2022	108	172	260	41.5	66	43	173	216	16.9	80	39	82	121	32.2	67.7

The falciparum cases found to be more in 2022 when compared to the previous years. But the p. vivax cases were declining. It was also noticed that falciparum cases were recorded more than the vivax cases. Thus according to our study P.falciparum malaria was more prevalent than P.vivax malaria in three rural hospitals of district gadchiroli.

Thus the P.f. cases are increasing which Conveys that P.f. parasite is becoming a drug resistance in district gadchiroli population. Thus there is an urgent need to study the molecular basis for multidrug resistant falciparum malaria.

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