

Malaria Parasite Prevalence in Relation to Slide Positive Rate and Annual Parasite Incidence in Some Localities of Bareilly



Zoology

KEYWORDS :

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ABSTRACT

This study is an overview of malaria prevalence; S.P.R. and A.P.I. have been worked out. There has been prevalence of Pv cases in all the selected localities viz. Bareilly city (L1), Nawabganj (L2), Aonla (L3), Baheri (L4) and Faridpur (L5) with respect in their selected rural areas. In concern with there has been found the nominal prevalence of Pf infections in some selected localities during the study period from the year 2000-2001. Rural areas of Baheri (L4) had the highest rate of S.P.R. than Bareilly city (L1), respectively the rural areas of Faridpur(L5) had the highest rate of A.P.I. than Aonla(L3) during the study period

INTRODUCTION

Among the mosquito borne diseases, Malaria is an ancient complex disease and its severity is a function of the interaction between the parasite, the Anopheles mosquito vector, the human host and the environment. As far the epidemiology of malaria is concerned, it is influenced by geographical and climatological conditions; presence of vectors; their flight range, and bionomics. (Chatterjee, 1976). In case of malaria, this is a debatable question as in some studies population residing in rural areas have been found to serve as its reservoir pool for the disease. (Kumar, 1997). Chopra and Kumar (1987) made a survey on the instances of malaria infection in and around BHEL locality of Hardwar. They found maximum infection in September and minimum in December. Further, they also found more infection of Pv than Pf. Malaria is exclusively a local phenomenon therefore, its incidence varies from place to place, ward to ward in a same city (Anon, 1996). Recently, Sharma *et al.* (2002) made a study on malaria incidence, SPR and API in some parts of Jaipur and found that prevalence of malaria started soon after the rainy season. Hence an efforts has been made to provide the real situation of malaria incidence in different localities of Bareilly District.

MATERIALS AND METHOD

Monthly survey was carried out of selected study area to determine malaria prevalence. Blood samples were collected from finger prick of person having symptoms of malaria and through visit on PHCs of selected localities. With the help of malaria personnel thick and thin blood films were prepared for each stained with J.S.B. and Leishman's stain. (Chatterjee, 1980). Two mass blood surveys i.e., one during low transmission and another during peak transmission season were conducted to monitor malaria prevalence in the chosen locality. Parasite species were also identified and parasite counts were made. Epidemiological aspect of malaria disease and involvement of a particular *Anopheles* species (*An. fluviatilis*) in malaria transmission, the co-operation from District Malaria Officer, Bareilly was required.

The slide positive rate (S.P.R.) and Annual parasite incidence (A.P.I.) were calculated in different localities using

following formula,

$$S.P.R. = \frac{\text{Total number of blood smear positive}}{\text{Total number of blood smear examined}} \times 100$$

$$A.P.I. = \frac{\text{Total number of blood smear positive}}{\text{Total population of study area}} \times 1000$$

Active case detection (ACD) and passive case detection (PCD) under the existing Primary Health Care system had strengthened and the data collected were analyzed to monitor incidence of malaria in different seasons.

RESULT

Table 1 shows the occurrence of malaria cases in selected localities viz. Bareilly (L1), Nawabganj (L2), Aonla (L3), Baheri (L4) and Faridpur (L5) of Bareilly district, during the study period 2000-2001. This study was on the basis of Slide positive rate (S.P.R.) and Annual parasite incidence (A.P.I.) along with parasite counts. There has been prevalence of Pv cases in all the selected localities with maximum number encountered in Kuandanda site of Faridpur (L5) locality in 2001 and the minimum cases were recorded in Ramnagar site of Aonla (L3) locality in the year 2000. As far as the occurrence of Pf in concerned there have been two cases from Dalelnagar site in Nawabganj (L2) locality in the year 2001. Other sites which were having Pf infections were Faridpur main town and Kuandanda of Faridpur (L5) locality in the year 2001 (Tab. 1). Further the analysis of data as shown in tab. 1 revealed that the S.P.R. and A.P.I. were calculated during the study period in selected peri urban and rural areas of Bareilly district. In the year 2000 the values of S.P.R. and A.P.I. were relatively higher in comparison to 2001 from locality L1 (Bareilly city) and L3 (Aonla) despite of more number of blood smear examined. But in the locality L2 (Nawabganj), L4 (Baheri) and L5 (Faridpur) the values of S.P.R. and A.P.I. were relatively higher in 2001 in comparison to the year 2000. (Table 1) Respectively in locality L1 (Bareilly city) and L3 (Aonla) malaria positive counts were more in the year 2000 while in the year 2001 malaria positive counts were more in L2 (Nawabganj), L4 (Baheri) and L5 (Faridpur) localities.

Table 1 – Showing Slide positive rate (S.P.R.) and Annual parasite incidence (A.P.I.) along with parasite counts in selected localities during the year 2000 & 2001***

S. No.	Locality	Collection site*	Population**	Year	Total		SPR %	API %	Pv	Pf
					S.Ex.	Pos.				
1.	Bareilly City (L 1)	Kyara	1,37,133	2000	5543	09	0.16	0.06	09	--
				2001	8407	25	0.29	0.18	25	--
		Bhojipura	1,26,742	2000	4379	71	1.62	0.56	71	--
				2001	5013	42	0.83	0.33	42	--

2.	Nawabganj (L2)	Nawabganj	1,72,932	2000	4561	81	1.77	0.46	81	--
				2001	7769	246	3.16	1.42	246	--
	Delelnagar	1,19,537	2000	5357	148	2.76	1.24	148	--	
			2001	6232	122	1.95	1.02	120	02	
3.	Aonla (L3)	Majhgawan	1,86,506	2000	2373	84	3.53	0.45	84	--
				2001	3053	54	1.76	0.28	54	--
	Ramnagar	1,72,829	2000	2236	06	0.26	0.03	06	--	
			2001	2357	29	1.23	0.16	29	--	
4.	Baheri (L4)	Mudia	1,68,154	2000	2443	109	4.46	0.64	109	--
				2001	4387	253	5.76	1.50	253	--
	Shergarh	1,73,033	2000	2603	183	7.03	1.05	183	--	
			2001	2323	181	7.79	1.04	181	--	
5.	Faridpur (L5)	Faridpur	1,77,886	2000	3555	99	2.78	0.55	99	--
				2001	7626	96	1.25	0.53	94	02
	Kuandanda	1,35,275	2000	1727	93	5.38	0.68	93	--	
			2001	6675	495	7.41	3.65	493	02	

* Two collection sites in each locality are chosen on the basis of PHC existed.

** Peripheral population of working area.

*** In collaboration with D.M.O. Bareilly.

DISCUSSION

Malaria is exclusively a local phenomenon therefore, its incidence varies from place to place, ward to ward in a same city (Anon, 1996). This is clearly noticed in different places of present investigation. During present study of Bareilly district, with emphasis on its five main areas, Bareilly, Nawabganj, Aonla, Baheri and Faridpur, a larger temporal variation in malaria incidence were recorded following different survey, indicates that studied areas were of unstable malaria as suggested by Beaver *et al.* (1984) and Subhasini *et al.* (2002) where they found wide differences in incidence from year to year or season to season. An analysis of data, available to us by active and passive surveys from District Malaria Office, Bareilly revealed that positive survey was more effective in locating malaria cases in comparison to active and mass way of surveys used during the present investigation. Incidence of malaria in an area is governed by various biotic and abiotic factors. It has been found that degree of diverse malaria prevalence is associated with temperature and rainfall variations (Woube, 1997). In present study the prevalence of malaria started soon after the onset of rainy season. The peak in post rainy season due to availability of mosquito breeding sites in a large number (Anon, 1958). In areas of Bareilly district, S.P.R. was a dependable parameter for determining the incidence as it is less dependent on annual blood examined rate and so, was more reliable than A.P.I. S.P.R. is of great significance when annual blood examined rate is low and gives better indication of parasitic load in the community where as high malaria incidence in peri-urban/ rural areas of Bareilly district was due to the availability of more mosquitoes, breeding habitat.

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