FIELD MEDICINE

MALARIA IN KARACHI AND OTHER AREAS IN SINDH

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ABSTRACT

Malaria is one of he common febrile conditions which is often diagnosed on the basis of clinical signs and symptoms. The objective of the study was to determine the prevalence of malaria in Karachi. In this study 463 GP's were interviewed at Karachi. Out of 50 to 70 patients seen by each on a daily basis, 10 – 15 % cases were diagnosed as Malaria. In a follow up study in Karachi and two other areas in Sindh, Plasmodium vivax was found to be two times higher than Plasmodium falciparum. Mosquito density in respect of the anopheles corresponds with higher number of cases during July – September.

Keywords: Malaria, Plasmodium Vivax, Plasmodium Falciparum

INTRODUCTION

Malaria occurs almost everywhere. It is estimated that 300 to 500 million cases occur all over the world with a mortality of 1%. 90% of the cases are restricted to African countries, India, Brazil, Sri-Lanka, Afghanistan, Vietnam and Colombia [1,2].

There are no statistics available for the whole country in Pakistan although some organizations and institutions do keep their own figures. Due to the absence of comprehensive data, We in the Department of Community Health Sciences and Occupational Medicine at Hamdard College of Medicine and Dentistry desired to collect morbidity, parasitological and entomological data about the occurrence of malaria in Karachi and two other areas in Sindh. The study was conducted during 1998 – 2001 and objective was to determine the prevalence of malaria in Karachi and two more areas in Sindh to collect parasitological and entomological data about malaria and to find out diagnostic and therapeutic modalities adopted by the GP's for diagnosis and treatment of the disease.

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METHODOLOGY

This is a descriptive study which phase-I to collect the data about the occurrence of malaria - 1998. Phase-II to collect the data about the malarial parasite – 1999. Phase-III to collect entomological data about the density of mosquitoes especially anopheles 2000. Phase-IV to tabulate, analyze, interpret, tabulate and present the data. 2001 – 2002 using SPSS (version 10.0) (For administrative reasons it was not possible to collect all the data simultaneously. But the communities and the environment generally remained the same).

In phase-I, information from 463 General Practitioners at Karachi was obtained. The areas covered include;

Nazimabad No. 2 & 5, Shah Faisal Colony, Gulistan-e-Johar, Malir Cannt, Aram Bagh, Pakistan Chowk, Al-Noor Society, Shadman Town, Buffer Zone, Metroville, Tariq Road, M. A. Isphahani Road, Liaquatabad, Clifton, Defence Housing Authority and Gulshan-e-Iqbal.

In phase-II, three hospitals at Karachi, Malir and Pano Aqil were selected. Report about eleven thousand five hundred and seven (11507) blood examinations done for

malarial parasite was collected. In phase-III, specimens in respect of all the three important species i.e. clulex anopheles and aedes aegypti mosquitoes were collected. In phase-IV, the data duly interpreted and tabulated is presented.

RESULTS

The prevalence of malaria indicated that maximum number of cases at Karachi occurred in District Central followed by Districts East, South, Malir and West. Percentage distribution is shown in (fig-1). Two-third (305) of the practitioners stated that 10-15% patients out of 50-70 seen by them daily are malaria cases. Remaining GPs saw lesser number of cases. 94% GPs' diagnosed malaria on the basis of history, sign and symptoms. Only 6% diagnosed the disease with the help of Lab. Investigation. These physicians generally practice in areas like Defence, Clifton, PECHS & KDA scheme, areas which are inhabited by affluent families. 52% suspected cases were treated with oral Chloroquine. 36% suspected cases were given Sulpha and Pyrimithamine combinations. 12% were given other anti-malarial drugs. Even in hospital based study at Karachi. The initial diagnosis was made on clinical examination (B-54 in accordance with ICD-10)[2]. Out of 11507 films examined, only 4.37% of the slides were found to be positive for malarial parasite. In the positive slides 46.52% were not differentiated probably due to administrative reasons like the non-availability of trained technicians in adequate numbers (fig-2). Plasmodium – Vivax was two times more common than plasmodium – Falciparum as illustrated in (tables-1 to 3). 61% of the mosquitoes were culex. 21% anopheles and 18% were aedes. Anopheles density was higher during the months from July to September.

DISCUSSION

"Malaria is still the most prevalent and most devastating disease in the tropics. It threatens about 40% of the world population undermining the health and welfare of families endangering the survival of children debilitating the active population and straining both country's and people's scarce resources by excessive public health cost, low productivity and impaired growth" [3].

We were therefore extremely interested to determine various parameters of disease especially at Karachi, where all GP's examine, diagnose and treat malaria cases in their practice at Karachi. We estimated the occurrence of 1.09 million cases in area served by 305 GP's who gave us the number diagnosed as malaria. Considering that there are 5000 GP's in Karachi there were certainly many more cases, some individuals suffered many times as Plasmodium viviax is notorious for recurrence of the disease due to hypnozoite activity [4,5].

It was possible to ascertain the parasitological data though on a limited scale. The economic burden of the disease does not appear to have been noted or mentioned in Pakistan Economics [6]. It was possible to estimate on the basis of 35 to 50 rupees which a GP's normally charges from a patient that in direct cost it caused a loss of Rs. 547 million to the affected community at Karachi. The disease burden would further rise in case the data was collected from all GP's. The indirect cost in terms of sickness absence and productivity has not been estimated.

Basic and strategic research is evolving in Tropical diseases. DNA technology has improved and opened new opportunities for development of drugs, vaccines and diagnostics. It would be quite some time before a commercially affordable effective vaccine is made available against malaria or before changing mosquito genes help in stopping malaria transmission [7,8].

As a young captain at AFM College (Now AFPGMI) we used to collect mosquitoes by sucking through a rubber tube attached to a glass tube. Other technique was to use knock down spray. Both techniques

Table-1: Prevalence of malaria types in hospital "X" Karachi.

Period	Blood Films Done	Positive (% age)	Vivax (% age)	Falciparum (% age)
Jan to March 99	1396	33 (2%)	24 (73%)	09 (27%)
April to June 99	2127	109 (5%)	82 (75%)	27 (25%)
July to Sep 99	3686	221 (6%)	-	Not Differentiated
Oct to Dec 99	3018	186 (6%)	-	Not Differentiated

Table-2: Prevalence of malaria types in hospital "Y" Malir.

Period	Blood Films Done	Positive (% age)	Vivax (% age)	Falciparum (% age)
Jan to March 99	820	22 (3%)	-	Not Differentiated
April to June 99	780	12 (2%)	07 (58%)	5 (42%)
July to Sep 99	982	31 (3%)	13 (42%)	Other not differentiated
Oct to Dec 99	689	19 (3%)	15 (79%)	4 (21%)

Table-3: Prevalence of malaria types in hospital "Z" Pannu Aqil.

Period	Blood Films Done	Positive (% age)	Vivax (% age)	Falciparum (% age)
Jan to March 99	494	18 (27%)	14 (78%)	04 (22%)
April to June 99	520	24 (5%)	18 75%)	06 (25%)
July to Sep 99	702	38 (5%)	32 (84%)	06 (16%)
Oct to Dec 99	1332	220 (17%)	150 (68%)	70 (32%)

were time consuming with very little number of mosquitoes collected. In this study we collected the larvae and let them grow in a glass tube. Within a week they would grow into adult mosquitoes. It was thus easy to identify them and ascertain the density of various species of mosquitoes at Karachi. This technique might have been used somewhere but is not documented in current books on the subject.

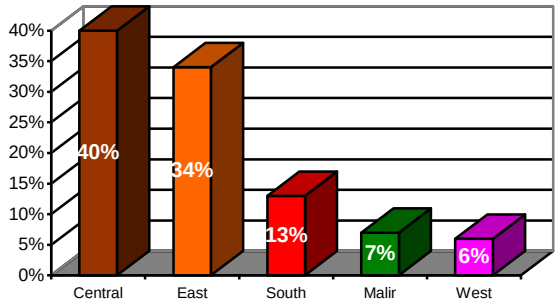

Fig.1: Percentage of malaria cases seen in different districts at Karachi.

CONCLUSION

Malaria remains quite rampant in the city of Karachi. Our study shows the morbidity pattern that at least 1.09 million cases occurred in the area of study during 1998 while plasmodium Vivax was dominant parasite in the areas studied. Differentiation of the parasite was not done in all cases. It is important as it enables to follow a particular line of treatment9 especially when the parasite may be resistant to Chronoquine. Our GP's possess reasonable level of knowledge about identification and treatment of malaria. Although in some cases knowledge about he epidemiology of the disease was not found to be optimum. The

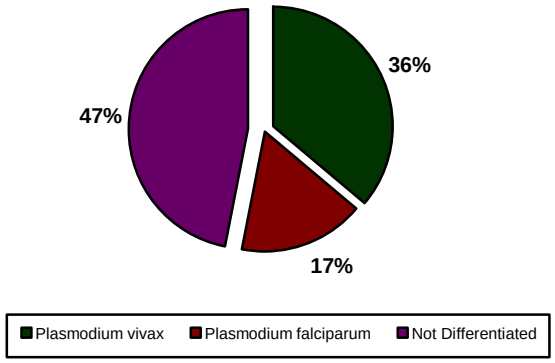

Fig.2: Percentage showing various malaria parasites.

GP's are not integrated into the local/ provincial or federal system of health services. They carry out the battle against the

disease by themselves. The emphasis remains on therapeutics and no advice seems to be given about use of mosquito nets or other personal protective measures. Proper statistics are not maintained due to administrative reasons. For determining mosquito density a new technique was used

RECOMMENDATIONS

There is a need to integrate GP's in local/ provincial health services. He can provide valuable statistics and play his role more effectively for the prevention of disease.

There is a need to create more awareness about the prevention of malaria by use of mosquito nets or chemoprophylaxis, where necessary.

There are many medical/ dental colleges in the city. In case they can integrate their efforts to periodically arrange some workshops without charging high fees from the GP's the level of knowledge would improve

"We need to diversify our alliances and remember and bear in mind that Health for all will only be achieved with the participation of all" [10].

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