

MALARIA INFECTION IN PREGNANT WOMEN ATTENDING ANTENATAL CLINIC IN MUBI GENERAL HOSPITAL, MUBI, ADAMAWA STATE , NIGERIA.

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ABSTRACT

A study on the prevalence of malaria parasite among pregnant women attending antenatal clinic in Mubi General Hospital was carried out over a period of three months from June to August 2010. Thick blood smears were made to examine the presence of the parasite. Out of 120 women examined, 94(78.33%) were found to be infected with the parasite. The wide spread of the infection was found to be higher in women using insecticide 48(40.00%) and anti-malarial drugs users were found to have the lowest infection rate 7(05.83%). There is significance difference in the infection rate at ($P \leq 0.05$). The study was to determine the relationship between the infection rate and the preventive method and to determine the land sanitation around their habitat. Blood samples were collected base on the World Health Organization standard and their habit.

KEYWORDS: *Plasmodium* parasite, Anti-malaria drugs, protozoa, *Anopheles*, and transmission.

INTRODUCTION

Malaria parasite is a protozoan belonging to the Genus *Plasmodium*, class Sporozoa, Phylum Apicomplexa and Kingdom Protista.

Malaria is by far the world's most important parasitic disease of the tropics. It is endemic in 91 countries and has been estimated that more than 4 billion people are at risk of developing malaria each year, there are up to 500 million cases and 1.5-2.7 million deaths annually (Sherman, 2002a). This average to one person dying of malaria every 12 seconds, mainly children under the age of 5 years as well as significant number of pregnant women.

There are four species of *Plasmodium* that cause human malaria, these are: *Plasmodium vivax*, *Plasmodium ovale*, *Plasmodium malariae*, and *Plasmodium falciparum*. Most disease and death are due to malignant tertian malaria caused by *P. falciparum*, *P. vivax* is an important pathogen that causes benign tertian malaria in parts of Asia and Latin America (Sherman 2002b). The intermediate host is female *Anopheles* mosquito which feed on

the blood of human it injects the parasite through saliva (Sylvia and Mader, 1997).

Plasmodium infection remains a massive burden that is carried by those that are least equipped to combat the infection; small children and pregnant women in poor parts of the world particularly sub-Saharan Africa. The disease has become worst with time because of inadequate funding of the health systems, this has increased the problem with *Plasmodium* becoming resistant to some anti malarial drugs (Kerenrop *et al*, 2003).

There are no doubts why severe malaria is concentrated among children in areas of intense and stable *P. falciparum* transmission; older people have acquired protective immunity to the disease. Adults in such areas may continue to experience sporadic parasitemic episodes, but severe and life threatening disease is rare. Acquisition of protection following natural parasite exposure is a slow process that may take years or decades to develop and probably never results in sterile immunity (Kerenrop *et al*, 2003). Many believe that these unattractive features can be

overcome by artificial immunization and that vaccination constitutes a potentially attractive and cost beneficial weapon in the battle against *P. falciparum* malaria (Hay *et al* 2004). However, the sobering reality is that progress towards such a vaccine has been less than brisk, and that decades of intensive research has failed to result in a single effective and practical vaccine (Greenwood, 2005)

In areas of intense *Plasmodium falciparum* transmission, clinical immunity is acquired during childhood and adult enjoy substantial protection against malaria. An exception to this rule is pregnant women in which malaria is both prevalent and severe than a non-pregnant women living in the same endemic condition (Menendez, 1995).

In the study area, the climatic and environmental factors of the region make the vector more active throughout the year. Effect of malaria parasite on pregnant women remains a challenge to Adamawa State and Nigeria therefore; several control measures have to be taken to prevent the pregnant women from the parasite.

This study determines the prevalence and preservative measures used by pregnant women and the number of times women became prepare in endemic areas.

MATERIALS AND METHODS

Study Area

The study was carried out in the General Hospital Mubi South Local Government. Mubi refers to the Northern part of old Sardauna Province which now forms Adamawa Northern Senatorial district as defined by the Nigerian

Independent National Electoral Commission (INEC, 1996).

Mubi lies between latitude 9°30' and 11° north of the Equator and longitude 13° 45' east of the Greenwich meridian. Mubi is bounded in the North by Borno State, in the west by Hong and Song Local Government Areas and in the South east by the Republic of Cameroon. Mubi has a land mass area of 4728.77km² and a population of 759, 045 in 2003 (Adebayo, 2004).

Study Sample

120 pregnant women were examined during the months of June to August 2010 for the presence of malaria parasite. These women were selected randomly among the population of women coming for antenatal clinic within Mubi metropolis.

Sample Collection/Preservation

During the sample collection, information such as age, duration of pregnancy, number of times being pregnant, use of bed net, insecticide and anti-malaria drugs were recorded. Sample collected from each individual was done by using a separate sterile needle as described by (WHO, 1999);

Specimen was labeled with a maker by writing across the slide, the laboratory numbers and then dried. Other parasitological examinations were done as fixing, as described by (WHO, 1999).

RESULTS

A study on the prevalence of malaria parasite in pregnant women attending ante natal clinic in Mubi General Hospital was carried out and the results are summarized to the tables below:

Table 1: Relationship between the infection rate and preventive methods used

Preventive methods	No. examined	No. infected	Percentage %
Bed net	38	20	16.67
Insecticide	50	48	40.00
Repellant	22	19	15.83
Anti-malaria drugs	10	7	05.83
Total	120	94	78.33

Table 2: Prevalence of malaria infection according to gestational period

Duration of pregnancy	No. Examined	No. infected	Percentage %
First trimester	39	38	31.67
Second trimester	41	30	25.00
Third trimester	40	26	21.66
Total	120	94	78.33

Table 3: Prevalence of malaria infection according number of times being pregnant

No. of times pregnant	No. examined	No. infected	Percentage %
Primigravidae	42	38	31.67
Secundigravidae	40	32	26.66
Multigravidae	38	24	20.00
Total	120	94	78.33

DISCUSSION

Malaria parasite is highly prevalent among pregnant women attending antenatal clinic in Mubi General Hospital. Out of 120 women examined, 94 (78.33%) were infected. This result shows significantly high percentage compared to the results in other parts of the country where, Akambi *et al* (2002) in Ibadan found the prevalence rate to be 16.67%.

The prevalence of the parasite in pregnant women in Mubi metropolis might be due to poverty, ignorance combined with low environmental sanitation makes the impact of mosquitoes and malaria more severe in this part of the country. In Mubi town, it is not uncommon to see that all the waste water from backwards, and other domestic uses are collected in a stagnant gutter. Such water together with in appropriate disposal of refuse which is

rich in organic matter constitutes breeding centers for mosquitoes. Because of poverty, cases of malaria are inadequately treated which results in relapses and therefore maintaining an infection level in the community.

The infection rate was high among women using insecticide (40.00%). This might be due to the vectors resistance to the insecticide; the insecticide may weaken the vectors immediately after spray but later in the night become active and bites.

Women using bed nets have the infection rate of (16.67%) this might be due to the exposure of their bodies to the vectors before going into the bed or inappropriate use of the bed net.

The use of repellent has the infection rate of (15.83%). This might be due to the resistance of the vectors towards the repellent.

Women using anti-malarial drugs as preventive method have the infection rate of (05.83%). This might be due to the effectiveness of the drugs. However due to education, very few women are using it. Many believed that there was no need of taking anti-malarial drugs when they are in good health.

The result in Table 2 shows that out of 39 pregnant women in their first trimester, 38 were infected; 41 in their second trimester, 30 were tested positive for malaria and out of 40 in their third trimester 26 were infected. There was no significant difference ($P>0.05$) in the rate of infection of pregnant women on the basis of gestational period, between the first and second trimester. However, there was significant difference between ($P>0.05$) the rates of infection in the third trimester. The result shows that there was high rate of infection in first trimester (31.67%) followed by second trimester (25.00%). In third trimester there is decrease in the rate of infection (21.66%). The higher values might be due to ignorance of some of the pregnant women in first and second trimesters which they do not know the importance of malaria in pregnancy. In third trimester some pregnant women might have visited antenatal clinics and were educated on the dangers of malaria during pregnancy or they might have taken some drugs that would have boosted their immune system. Table 3 shows that 42 women were examined with Primigravidae and 38 (31.67%) were infected, 40 were examined with Secundigravidae and 32 (26.66%) were infected, lastly 38 women were examined as Multigravidae and 24 (20.00%) were infected.

There was no significant difference ($P>0.05$) in the rate of infection of pregnant women on the basis of parity. However, there is significant difference between the rate of infection in the Multigravida at ($P>0.05$).

This might be due to ignorance of the women concerning the dangers of

malaria during pregnancy at Primigravidae and Secundigravidae, so that they may know the important of using preventive methods. Those in Multigravidae might be using the necessary preventive measures and may be they are attending antenatal clinics regularly or they may be taking the drugs that would boost their immune system.

CONCLUSION

This research reveals that there is high prevalence of malaria parasite in pregnant women in the study area; this might be due to poor or inappropriate use of preventive measures such as bednet, insecticide, repellent and anti-malarial drugs. The inhabitant of the study area might be ignorant of using anti-malarial drugs as a preventive method when they are in good health and some do not like the anti-malarial drugs because of the side effect and the irritating test. The prevalence might be due to poor environmental sanitation which makes the vectors multiply rapidly and active through out the year.

RECOMMENDATIONS

In the study area where the malaria infection is high, the health workers should organize public awareness on the need to keep the environment clean by clearing stagnant water as well as clearing the grasses around their habitat to reduce the breeding places of the vectors. Local community and health workers should organize public awareness on the importance of medical check up during pregnancy so that appropriate medication should be given when necessary together with all other method to reduce the prevalence of malaria in pregnant women in particular and population in general .

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