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Research Article

Prevalence of Malaria Parasite Infection among Pregnant Women Attending General Sani Abacha Specialist Hospital Damaturu

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Abstract: The study to determine the prevalence of malaria parasite infection among pregnant women attending antenatal clinic at General Sanni Abatcha Specialist Hospital Damaturu, was carried out between May, 2013 and September, 2013. Both thick and thin films were made and stained using parasitological standard procedure. Two hundred and seventy nine (279) women were randomly selected without the previous knowledge on their clinical and family history, all of which ware at their child bearing age. Overall 201 (72.0%) of the 279 pregnant women investigated were positive for malaria parasites, this was prevalence among the age group 20 – 25 with the prevalence rate of 87.5%. However, *Plasmodium falciparum* was the only malaria parasite observed during the study. Other predisposing factors observed during the study were education status (illiteracy 88.9%), residential areas (Nayi-Nawa 88.4%) and gestation period (first trimester 87.4%) proper environmental sanitation couple with the use of insecticide treated net will go a long way in preventing malaria infection.
Keywords: Prevalence, pregnant, malaria infection, *Plasmodium falciparum*

INTRODUCTION

Malaria is a life threatening parasitic disease that is highly prevalent tropical disease with high morbidity and mortality [1]. It is transmitted by female anopheles mosquito manifesting clinical symptoms like chill, fever, anemia, sphlenomegely, headache and anorexia.

Malaria infection especially during pregnancy is a major public health problem in tropical and subtropical regions of the world [2]. However, world health organization [3] established that about 50% of the population lives in places where malaria is endemic.

In Nigeria the geographical location of the country makes the climate suitable for the transmission of the disease. It was estimated that up to 97% of the population in the country are at high risk of the disease, while the r emain 3% that live in the mountains in southern Jos (the plateau state) are relatively at low risk of the disease [4].

Despite the curable nature of the disease, malaria is endemic and constitutes a major public health problem accounting 11% maternal mortality, 25% infant mortality, 30% under 5years old mortality with 60% cases among outpatients and 30% of admission [4]. Thus this disease exerts a huge social and economic burden on families, communities and the country at large.

During pregnancy, Plasmodium falciparum is mostly incriminated for the disease. The symptoms and complication of malaria during pregnancy differ, with the intensity of malaria transmission, and level of immunity acquired by the pregnant women. If malaria is not cured on time, this may result in prenatal mortality, low birth weight and maternal anemia [5].

The prevalence of malaria infection among pregnant women attending General Sani Abatcha Specialist Hospital Damaturu was carried out between May to September, 2013. Women of various age groups, educational background, that were residing in the three most populated wards were studied. The objective of the study is to examine malaria parasite infection in pregnant women in relation to the behavior and social pattern of living as it exposed them to malaria parasite infection.

MATERIALS AND METHODS

The subjects of this study were pregnant women attending antenatal clinic at General Sani Abatcha Specialist Hospital Damaturu. Two hundred and seventy nine (279) women were randomly selected

without the pervious knowledge on their clinical and family history, all of which were at their child bearing age. The study was conducted between May, 2013 to September, 2013.

Blood collection

Finger prick method of blood collection was used to collect the blood sample from each patient. Cotton wool soaked in 70% alcohol was swabbed on area to be pricked and allowed to air dry before pricking. Thick and thin blood films were made on a clean grease free slide and labeled accordingly [6].

Staining

The thin films were fixed with methanol and all films were stained with 3% Giemsa stain of ph 7.0 for 30 minutes. It was washed and air-dried [6].

Microscopy

The films were examined under light microscope using x100 objective and immersion oil. The thick films were used to determine the parasite density taking 8000 leucocytes per micro liter of blood as standard and the thin films were used to identify the parasite species and infective stages.

RESULTS

Out of 279 pregnant women examined for malaria parasite, 201 (72.0%) were positive while 78 (28.0%) were negative for malaria parasite infection. However, Plasmodium falciparum was the only malaria parasite observed from their blood samples.

The infection is more prevalent among the age group 20 – 25 (87.5%), 26 – 30 (80.2%), and 31 – 35(78.3%) as shown in Table 1. However, the distributions of malaria parasite according to educational status, where the illiterate pregnant women have the highest prevalence rate of 88.9% (Table 2). The distribution of malaria parasites according to residential areas was determined where Nayinawa ward has the highest prevalence rate of 88.4% (Table 3). It was also observed that pregnant women in their first trimesters are having the highest prevalence rate 87.4% (Table 4).

Table 1: Prevalence of malaria parasites in pregnant women according to their age groups

Sl. No.	Age-Group	No. Examined	No. Infected	% Prevalence of Infected
1	20 – 25	32	28	87.5
2	26 – 30	91	73	80.2
3	31 – 35	60	47	78.3
4	36 – 40	43	26	60.4
5	41 – 45	37	20	54.1
6	> 50	16	7	43.7
	Total	279	201	

Table 2: Prevalence of malaria parasites in relation to their education status

Sl. No.	Educational Status	No. Examined	No. Infected	% Prevalence of Infected
1	Tertiary education	56	28	50.0
2	Secondary education	82	56	62.3
3	Primary education	78	61	78.2
4	None of the above	63	56	88.9
	Total	279	201	

Table 3: Distributions of malaria parasites according to their residential areas

Sl. No.	Residential Area	No. Examined	No. Infected	% Prevalence of Infected
1	Nayi-nawa	129	114	88. 4
2	Abbari	89	57	64.0
3	Nasarawa	61	39	63.9
	Total	279	201	

Table 4: Distributions of malaria parasites according to their gestation period

Sl. No.	Gestation Period	No. Examined	No. Infected	% Prevalence of Infected
1	First Trimester	127	111	87. 4
2	Second Trimester	89	61	68.5
3	Third Trimester	63	29	46.0
	Total	279	201	

DISCUSSION

The overall prevalence of *Plasmodium falciparum* infections in this study was 72% which correlates with the work of Adefisoye *et al*. [7] who also report 72% prevalence rate of malaria parasites among pregnant women in Osogbo. However, it is higher than 7.3% reported from Port-Harcout [8] as well as 6.8% reported in Calabar [9]. The result is also high compared to 23%

reported in Mozambique [10] 26.75% in Malawi [11], 42% in Ghana [12] and 57.5% in Gabon [12]. This may probably be because Nigeria is malaria endemic country.

Literacy plays a significant role in the spread of the parasite in the study area where it was observed that the illiterate pregnant women had the highest prevalence rate of 88.9%. This may be attributed to poor understanding and non compliance with the preventive procedure of malaria infections. However, this percentage is high compared with 78.3% recorded by Adefisoye *et al*. [7] in Osogbo.

The 88.4% prevalence rate recorded at Nayinawa could be attributed to poor environmental sanitation in the area, because there is poor drainage system, indiscriminate waste disposal and flooding especially during the period of the study, above all the displacement of people resulting from insurgency of the state during the study contributed to the poor state of living.

The high prevalence rate observed among pregnant women that are in their first and second trimesters (87.4% and 68.5% respectively) most of which are primigraviidae agreed with the report of Beeson *et al*. [13] that malaria parasite infection in pregnant women has distinct antigenic and adhesive property than in non-pregnant women and elders. Furthermore the primigraviidae mothers are likely to become more parasitaemic than multigraviidae because antibodies are present at high concentration in multigraviidae [12-14] which implies that consecutive pregnancy enhance immunity against the parasite infection.

CONCLUSION

Pregnant women living in malaria endemic area are at high risk of malaria parasite infection that may lead to serious complication resulting maternal and neonatal death. A proactive step that can ensure complete eradication of the breeding site of the vector and other effective malaria control strategies would have a synergistic effect in controlling malaria infection not only among pregnant women but the community at large.

Recommendations

In view of the results obtained in this study, it is recommended that proper environmental sanitation coupled with the use of insecticide treated nets will go a long way in preventing malarial infection.

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