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STUDY ON AGE DISTRIBUTION OF *PLASMODIUM* INFECTION AMONG PREGNANT WOMEN

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ABSTRACT

The study was done to determine the prevalence of malaria infection among the pregnant women in Enugu Metroplis based on age pattern. Eight hundred pregnant women of the study population and residents of Enugu, who attended antenatal clinics of University of Nigeria Teaching Hospital (UNTH) and mother of Christ Hospital both in Enugu metropolis were assessed parasitoloically to determine the prevalence of *Plasmodium* infections. The study showed that pregnant women of the age group 21-30 years had the highest prevalence of malaria (25.8%), followed by 11-20 years (21.7%), 31-40 years (10.6%), 41-50years(8.6%), 51-60 years and 0-10years had (0.0%) respectively. The work showed that age group of 21-30 years were more exposed to infected mosquitoe bites and probably had low immunity, and was followed by age group 11-20 years. Women of reproductive ages of 21-30 years should receive adequate medical care with special malaria control measures to prevent and reduce complications of malaria in pregnancy. The study provided a guide to aid the gynecologists during antenatal visits, as to ensure safe deliveries of babies and to reduce the rate of morbidity and mortality among pregnant women.

KEYWORDS: *age distribution, Plasmodium infection, pregnant women.*

INTRODUCTION

Four parasitic protozoa of the genus *Plasmodium* (P) which include *P.* ovole. *P.* vivax *P. malariae* and *P* falciparum cause human malaria. *Plasmodium* falciparum cause the most severe morbidity and mortality, are found throughout tropical Africa, Asia and Latin America (Nwoke *et al.,* 1993). All the four species are transmitted to man through the bite of an infected female. *Anopheles* mosquito species of gambiae *complex*, funestus *and* darling (Okoro, 1993). Other less common routes of infection are through blood transfusion and Maternal-fetal transmission. Malaria remains an enormous international medical issue, being one of the commonest, oldest and extensively researched tropical diseases of our time, with high morbidity and mortality rates. Globally, 300 - 500 million deaths occur annually. Ninety percent of deaths each year come from rural Sub Saharan African (Fernandez and Bobb, 2001). All age are affected. Malaria contributes to maternal deaths. Complications of malaria include cerebral malaria, pulmonary oedema, rapidly developing anemia, vascular obstruction. Black –water fever, hyperpyrexia, algid malaria, severe gastroenteritis, nephritic sydrome, tropical splenomegaly and low birth weight in babies whose mothers have heavy malaria parasitization of the placenta (Ekanem, 199I), In fact, the management of malaria infection become a major challenge to public health especially with the emergence of chloroquine resistant *Plasmodium* faciparum (CRPF) malaria (Umotong *et al.,* 1991., Ezedinachi *et al.,* 1991., Esimai and Njoku, 1994).

The study aimed to determine the age specific pattern of infections with special reference to pregnant women.

MATERIALS AND METHODS

Study Area

The study was carried out Enugu, the capital of Enugu State.

Sample collection

Permissions were requested from the doctors, nurses, health workers and medical laboratory scientists in the health-facilities to carry out the study. The consent of the patients was also solicited most collections were carried out at the laboratory section of the hospital. Study areas were visited repeatedly on regular basis for collection of simples.

Constraints were mostly on transportation due to increase in fuel pump price and fuel scarcities. It involved hiring of taxis, joining buses for intra-city movements, and sometimes it led to trekking. With heavy down pours experienced during the rainy seasons, collections of sample were carried out most judiciously and with great commitments.

Laboratory Investigation

With sterile lancet, blood was collected from the ball of the third finger expressing the first drop of blood after cleaning with 70% alcohol. Thick and thin films were prepared and stained with 10% Giemsa solution for microscopical examination (Field, 1973). The presence of parasites and species were identified.

Adequate records were maintained for data analysis. Patient's name, number, sex, age, address, location of sample collection, period of season collected, date and result were noted. Data entry, coding and tabulation were carried out, using computer to maintain adequate record for each sample tested.

METHODOLOGY

Eight hundred pregnant women of the study population and residents of Enugu, who attended antenatal clinics of University of Nigeria Teaching Hospital (UNTH) and mother of Christ Hospital both in Enugu metropolis were, assessed parasitoloically to determine the prevalence of *Plasmodium* infections. The women were confirmed pregnant by the doctor either through the last menstrual periods or by early ultrasound scans. In fact their gestational age was established by the doctor.

The gravid women were recruited at various times of the study. The women on registration presented with nausea, weakness, vomiting, pyrexia and some with general debility, most of which mimicked malarial symptoms. The women were tested for the presence of malarial parasites as in the former.

Parasitologic Procedure

Thick films were made and stained with 10% Giemsa solution in buffered distilled or deionized water, pH 7.2 for 5-10 minutes.

Gently, the stain was flushed off to avoid deposit of scum over the film. Parasites count on thick film was based on the number of parasites per ml of blood or per 200 white blood cells. These were counted in relation to a predetermined number of leukocytes. An average of 8,000 Leukocytes per ml was taken as standard, despite inaccuracies due to variation in the number of laukocytes in animal model, in normal health, and greater variation in ill-health. The equivalent of 0.025ml of blood (25 per microlitre) about 100 fields and using x 7 occular, and X 100 oil immersion objective, the number of parasites were determined. The parasite per ml or parasitaemia was noted by simple mathematical formula (WHO, 1983).

$$\frac{\text{No. of parasite counted x 8.-000}}{\text{No. of Leukocytes counted}}$$

RESULTS

Table 1: Age Distribution of *Plasmodium* infection Among Pregnant women.

Age-group (in years)	No examined	No positive	Percent positive
0-10	0	0	0
11-20	92	20	21.7
21-30	310	80	25.8
31-40	282	30	10.6
41-50	116	10	8.6
51-60	0	0	0
Total	800	140	17.5

The study showed that pregnant women between the age bracket of 21-30 years had the highest prevalence of malaria (25.8%) followed by 11-20 years (21.7%), 31-40 years (10.6%), 41-50 (8.6%) and (0%) for 51-60 years and 0-10years respectively. The work showed that the age group 21-30 years were more exposed to the bites of infected mosquitoes and probably had low immunity which was followed by age group 12-20 years.

DISCUSSION

The study showed that malaria is a worrisome disease as the infection was recorded all year round. A high prevalence of 67.9% was recorded to coincide with the rainy season, confirming the work done by Okoyeh *et al.* (1994) that the peak transmission in the tropics coincided with the rainy season May –October.

The low prevalence of infection in pregnant women of the study group revealed great awareness of disease prevention through prophylactic measures. There was high prevalence of infections in gravid women of the second and third trimesters which may indicate susceptibity of infections. Most of these women were recruited late for the antenatal clinic and had no prophylaxis. Most of them were multigravid women who decided to have a very short period of antenatal care before delivery. There was a low prevalence of infection in the first trimester which included mostly the adolescent pregnancy. They had early antenatal care and were less exposed to the infection. The work confirmed the study carried out by Silver, (1997) on susceptibility of malarial infections on pregnant women of the second and third trimesters.

The study showed that pregnant women of age group 21-30 had the highest prevalence of malaria (25.8%), followed by 11-20 years (21.7%), followed by 31-40 years (10.6%) and finally, 51-60 years and 0-10years had (0.0%) respectively. The work showed that age group 21-30 years were more exposed to infection followed by age group 11-20 years which could be due to low immunity, occupational exposures and hyperactivities during these age group.

CONCLUSION

he work showed that those at 21-30 years and 11-20 years were more exposed to Plasmodium infections due to the bites of infected female Anopheles mosquitoes and probably had low immunity followed by 11-20 years. Those at 21-30 years are the reproductive ages of women and should be given adequate attention and special malaria control measures adopted to reduce the complications of malaria on these women. This study will guide the gynaecologsts during antenatal visits and ensure safe deliveries of their babies and reduced moratlity and morbidity rates among the pregnant women.

REFERENCES

1. Ekanem, O.J., (1991)., Malaria in Nigeria. Epidemiology and control. Nigeria Bulletin of Epidemolo, 1(3): 4-19.
2. Esimai, B.N., Njoku, O.O., (1994). Chloroquib resistant falcparum malaria in Enugu, Enugu State. The Nigeria Journal of parasitology, 15: 59-63.
3. Fernadez, M. C., Bobb, B.S., (2001). Medicine/Infectious Diseases. Journal, 2: 7.
4. Field, J.W., (1963). The microscorpical diagnosis of human malaria, Kuala Lumpur, Malaya, Institute of Medical Research
5. Nwoke, B.E.B., Nwalozie, M. C., Ogbonnaya, C. I., (1993)., Aflatoxins in Human Diseases 11 (Malaria. Medicare, 5(9): 7-9.
6. Okoro, B. A., (1993). Malaria: An update on its changing patterns. Medicare, 5(9): 3-7.
7. Okoyeh, J. N., Lege-Oguntoye L., Ahmed, I.B., (1994). Presumptive Treatment of malaria: A Possible cause of the Emergence of Muti – Drug Resistant *Plasmodium* falciparum strains in Zaria, Northern Nigeria. The Nigerian Journal of Parasitolology, 15: 51-57.
8. Silver, H. M., (1997). Malaria infection during Pregnancy. Infect. Dis Clin. North Am, (1): 99–107.
9. Umotong, A.B., Ezedinachi, E.N., Okerengwo, A.A., Usenga, E.A., Udo, J, J.,. Willians, A.I., (1991).' Correlation on between in-vivo and in-vitro response of Chloroquine-res oongsuman, S., Cox, H.W., resisant.
10. World Health Organization Release (1983). Method of Counting malaria parasite in thick film. WHO secretariat for co-ordination of malaria training in Asia an the Pacific P. 45.