

Awareness And Practice Of Malaria Prevention Strategies Among Pregnant Women In Uyo, SouthSouth Nigeria

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Abstract

This cross sectional study was conducted at the maternity unit of the University of Uyo Teaching Hospital, Uyo. The aim was to determine the degree of awareness and practice of malaria prevention strategies among antenatal attendees in Uyo, South-South Nigeria. Semi-structured questionnaires were administered to two hundred and fifty pregnant women in the antenatal clinic. Majority of the respondents were 21-30 years (67.6%), married (98.8%) and 90.0% had at least secondary level education. About 71.2% of the respondents knew that malaria had adverse effects in pregnancy ($p < .001$) while 76.0% of them had received treatment for malaria during pregnancy ($p < .001$). 76.4% of the respondents had heard of Insecticide Treated Bed Nets (ITNs) ($p < .001$) while only 16.4% had used them ($p < .001$). Only 40.8% of the patients had heard of Intermittent Preventive Treatment (IPT) ($p < .001$) while 12.0% received drugs under IPT. The level of utilization of ITNs and IPT in our environment is low. Involvement of the mass media in community enlightenment programs, ensuring the distribution of ITNs and drugs for IPT at no cost or highly subsidized rates in all antenatal clinic outlets, and organisation of regular updates on current trends in malaria preventive measures for all health staff involved in maternity care are advocated.

INTRODUCTION

Malaria remains the most devastating human parasitic infection in the world today ¹. Currently, it is estimated that between 1-2 billion people live in areas at risk of malarial infection and each year up to 500 million people contract the disease out of which 1.7 million to 2.7 million people die ². Several recent reports indicate that more than 90% of these casualties are from Africa, south of the Sahara where the most virulent species of the parasite *Plasmodium falciparum* thrives ^{3,4}. In Nigeria, available evidence indicates that malaria which is highly endemic remains a major public health problem and is the most common cause of hospital attendance in all age groups ⁵.

Malaria infection during pregnancy has been shown to pose substantial risk to the mother, her fetus and the newborn ⁶. Due to the reduced immunity occasioned by pregnancy, pregnant women are particularly vulnerable to malaria and tend to develop more frequent and severe episodes of clinical malaria ⁷. They also have an increase in the frequency and density of peripheral parasitemia during episodes ⁸.

Malaria during pregnancy has been associated with increased incidence of anaemia, spontaneous abortions,

preterm labour, fetal distress, congenital infections, fetal death in- utero, still births and intrauterine growth restriction⁹. In-addition, placental parasitemia ,severe anaemia and intrauterine growth restriction (IUGR) all contribute to low birth weight (LBW) which is the single greatest risk factor for neonatal and infant mortality ⁶. Babies born with LBW are four times more likely to die as infants than are babies born with normal birth weight ¹⁰.

In order to prevent the deleterious effects of malaria during pregnancy, intermittent preventive treatment (IPT) of asymptomatic pregnant women, use of insecticide treated bed nets (ITNs) and prompt and effective case management of malaria have been recommended by the world health organisation (WHO) as a three pronged approach to the prevention and control of malaria during pregnancy in areas of stable transmission ¹¹.

Due to the paucity of data on malaria preventive measures among pregnant women in our environment, we carried out a cross sectional study to determine the awareness and practice of malaria prevention strategies among pregnant women in Uyo, South-South Nigeria. It is hoped that the findings of this study will enable us suggest measures that will enable pregnant women in our environment to adequately protect

themselves from malarial infection.

SUBJECTS AND METHODS

STUDY SETTING

This study was carried out between 1st October 2007 and 31st December 2007 at the maternity unit of the University of Uyo Teaching Hospital (UUTH) located in Uyo, the capital of Akwa Ibom State in the South-South geopolitical zone of Nigeria. The hospital is a newly established teaching hospital and the only tertiary health facility in the state which has an estimated population of about 3.92 million people (2006 National census figures).

RESEARCH SUBJECTS

Two hundred and fifty consecutive pregnant women who attended the antenatal clinic of the hospital and gave their informed consent were included in the study. Pregnant women who were severely ill and also those who were health staff (doctors, nurses, pharmacists and medical laboratory scientists) were excluded from the study. Voluntary informed consent was obtained after each pregnant woman was given information regarding the research objectives and assurance of confidentiality. The study was approved by the ethical committee of the hospital. Semi-structured questionnaires containing open and close ended questions were administered by trained resident doctors in the department of Obstetrics/Gynaecology. The questionnaires contained questions on socio-demographic characteristics of the respondents, knowledge of effects of malaria in pregnancy, knowledge and use of ITNs and knowledge and use of IPT, and use of antimalarials in pregnancy.

STATISTICAL ANALYSIS

Data entry and analysis was with Epi-info 3.22(CDC, Atlanta, Georgia, USA) statistical software. Significance level was placed at < 0.05.

RESULTS

Socio-demographic characteristics of the respondents

The socio-demographic characteristics of the respondents are shown in Table I. Their ages ranged between 16-40 years with mean age being 28 ± 5 SD. Majority of the respondents were 21-30 years (67.6%), had at least secondary school education 235 (90.0%) and were married 247 (98.8%) . All the respondents were Christians (100.0%), 141 (56.4%) were multiparous while 73.2% of them were civil servants and

traders.

Figure 1

Table 1: Socio-demographic characteristics of the respondents N=250

Variable	No (%)	95% CI
Age		
16-20	13 (5.2)	2.8-8.7
21-25	64 (25.6)	20.3-31.5
26-30	105 (42.0)	35.8-48.4
31-35	54 (21.6)	16.7-27.2
36-40	14 (5.6)	3.1-9.2
Educational status		
Primary	25 (10.0)	6.6-14.4
Secondary	89 (35.6)	29.7-41.9
Tertiary	136 (54.4)	48.0-60.7
Parity		
P ₀	109 (43.6)	37.4-50.0
P ₁₋₄	139 (55.6)	49.2-61.9
≥P ₅	2 (0.8)	0.1-2.9
Marital status		
Married	247 (98.8)	96.5-99.8
Single	3 (1.2)	0.2-3.5
Religion		
Christianity	250 (100.0)	98.5-100
Occupation		
Professional	67 (26.8)	21.4-32.7
Civil servant	83 (33.2)	27.4-39.4
Trader	100 (40.0)	33.9-46.4

KNOWLEDGE OF THE EFFECTS OF MALARIA IN PREGNANCY

One hundred and seventy-eight respondents (71.2%) knew that malaria had adverse effects in pregnancy while 72 (28.8%) did not. This was statistically significant ($p < 0.001$ OR = 6.11)

Adverse effects of malaria in pregnancy documented by the respondents included harm to the baby 71 (39.9%), causing ill health in the mother 45 (25.3%), miscarriages 23 (12.9%), jaundice in the baby 20 (11.2%), poor fetal growth 15 (8.4%) and premature labour 4 (2.2%).

TREATMENT OF MALARIA DURING PREGNANCY

One hundred and ninety respondents (76.0%) had received treatment for acute malarial infection during the pregnancy while 60 (24.0%) had not. This was statistically significant ($p < 0.001$ OR=10.03).

Most of the patients received the treatment for malaria in the antenatal clinic 182 (95.8%). Other respondents received theirs in mobile clinics 3 (1.6%), patent medicine shops 1 (0.5%) while 4 (2.1%) had self medication.

AWARENESS AND USE OF ITNS

One hundred and ninety-one respondents (76.4%) had heard of ITNs while 59 (23.6%) had not. This was statistically significant ($p < 0.001$ OR=10.48).

Only 41 respondents (16.4%) ever used ITNs. This was statistically significant ($p < 0.001$ OR=0.04).

Ninety-nine (47.4%) of the respondents had no reason for not using ITNs. Reasons given by the other respondents included unavailability of ITNs 46 (22.0%), high cost of nets 21 (10.0%), 16 respondents (7.6%) did not use them because they always sprayed their rooms with insecticides, 9 (4.3%) felt ITNs were not necessary as mosquito nets were on their doors and windows. Other reasons volunteered by the respondents included, uncomfortable to sleep in 8 (3.8%), no room for storage 3 (1.4%), not used in pregnancy 3 (1.4%) and because the respondents hardly had malaria 4 (1.9%).

Among the respondents who were aware of ITNs, their sources of information included the antenatal clinic 77 (40.3%), the electronic media (television and radio) 64 (33.5%), and friends/relatives 25 (13.1%). Others were seminars 10 (5.2%), churches 7 (3.7%), the print media 4 (2.1%) and books 4 (2.1%).

AWARENESS AND USE OF IPT

One hundred and two respondents (40.8%) admitted to having heard of IPT while 148 (59.2%) had not heard. This difference was statistically significant (OR=0.47 $p < 0.001$).

Thirty patients (29.4%) had received drugs in hospital to prevent malaria in pregnancy under IPT, 52 (51.2%) had not, while 20 (19.6%) did not know if they were given drugs under IPT.

Drugs mentioned by the respondents that could be used for IPT included fansidar (sulfadoxine+pyrimetamine) 44

(43.1%), metakelfin (sulphametopyrazine+pyrimetamine) 10 (9.8%), artesunate 9 (8.8%), daraprim (pyrimetamine) 3 (2.9%), paludrine (proguanil) 3 (2.9%), coartem (artemeter+lumefantrine) 3 (2.9%) and laridox (sulfadoxine+pyrimetamine) 3 (2.9%). Thirty-seven respondents could not mention any drugs used for IPT.

Among the respondents who were aware of IPT, their sources of information were the antenatal clinic 57 (55.9%), the electronic media 17 (16.7%), school 12 (11.8%), friends/relatives 10 (9.8%), books 3 (2.9%) and fellow pregnant women 3 (2.9%).

DISCUSSION

This study highlights the level of awareness and use of malaria prevention strategies among pregnant women in our environment. Majority of the respondents were aware that malaria had adverse effects in pregnancy. This is probably because malaria including its causes, effects and prevention are often discussed by midwives while giving health talks in the antenatal clinic of the hospital. In addition following the Roll back malaria initiative (RBM) in 1998 and the United Nations Millennium declaration and Abuja declaration in 2000, there has been a lot of public enlightenment particularly concerning adverse effects of malaria in children and pregnant women.

Majority of the respondents had been treated for acute malarial infection in the antenatal clinic. Malaria is holoendemic in Nigeria and transmission occurs throughout the year with seasonal peaks corresponding to the rainy seasons. Due to impairment of humoral and cell mediated immunity, when compared to non-pregnant women, pregnant women particularly primigravidae and secondigravidae have increased susceptibility to malaria and an increased incidence of malaria complications⁴. Case management of malaria illness which is an essential component of malaria prevention and control during pregnancy provides rapid and long lasting cure, reduces morbidity including malaria related anaemia, and prevents the progression of uncomplicated malaria to severe and potentially fatal disease.

Though majority of the respondents had heard of ITNs, disappointingly only 16.4% of them had ever used them. Several Nigerian studies have shown low use of ITNs among pregnant women^{12,13}. ITNs which are an important part of the RBM strategy are reported to be the most efficacious of all currently feasible interventions for malaria control in Africa

¹⁴. They are the only strategy to be used during the first trimester of pregnancy when IPT is not applicable and most drugs are contraindicated ¹⁵. They reduce human-vector contact by physically excluding vector mosquitoes, repelling them and also killing them if they land on the nets. Available evidence indicates that proper use of ITNs reduces the risk of maternal related illness, death and LBW ⁶¹⁶. Though majority of the respondents had no reason for not using ITNs, the most common reasons given were their non-availability and cost. Hence in-order to ensure that most pregnant women have access to and consistently use ITNs which currently cost about \$16-\$21 in Nigeria, Government and other stakeholders including those in the private sector should collaborate effectively and ensure ITNs are available and distributed free of charge or at highly subsidized rates to pregnant women in all antenatal clinic outlets.

Only 40.8% of the respondents had heard of IPT out of which 29.4% of them had received drugs under IPT. Studies from Nigeria and other sub-Saharan countries have also shown low knowledge and practice of IPT among pregnant women attending formal antenatal clinics ¹²¹⁷¹⁸. IPT (the administration of full treatment doses of an effective, preferably one-dose antimalarial for the prevention of malaria at predefined intervals) is a key intervention in the national strategy for malaria control in Nigeria and has been shown to have beneficial impacts on maternal and infant health with significant reductions in the prevalence of maternal anaemia, placental parasitation and LBW ¹⁹. At the time of this study, sulfadoxine-pyrimethamine (SP) was given to pregnant women for IPT at no cost in the antenatal clinic. However its issuance depends on regular supply of the drugs and their prescription by doctors. Previous studies in Nigeria and other sub-Saharan countries have shown that reliance on pyrimethamine and proguanil for chemoprophylaxis by health care providers, their fear of side effects and inadequate knowledge of the correct dose of SP, and lack of steady supply are responsible for low use of SP for IPT by pregnant women ¹⁸²⁰.

This study also showed that about 43.1% of the patients who received IPT correctly identified SP as the drug used for IPT. Currently, because of its safety profile, effectiveness in reproductive age women and manageable program feasibility SP is the most effective drug for IPT ⁶. In addition it can be delivered as a single dose under direct observation by a health worker. Currently, two-three doses of IPT four weeks apart after quickening is recommended ¹⁹.

Though the electronic media was the second most common source of information about IPT, when considering its important role in creating awareness and changing the values, ideas and attitudes of people to serious life threatening infections ²¹, the percentage of women who obtained information from them was relatively low. In low resource settings like ours, the radio and also the print media have been found to be extremely useful in disseminating health related messages particularly in rural areas ²¹ where majority of the people reside and malaria is more prevalent, and where electricity may be non-existent.

Though this study was hospital based and the sample size was small, women who book for ANC in our center are unselected. Hence the findings of this study probably reflect what obtains in the general population.

In conclusion, though this study shows a high level of awareness of adverse effects of malaria in pregnancy and ITNs among the women, their level of utilisation of ITNs and IPTs is low. To stem this tide, there is need to involve the mass media in community enlightenment programs particularly at the grass root level. Government and other stakeholders should strive and ensure ITNs and SP are distributed at no cost or at highly subsidized rates to pregnant women in all antenatal clinic outlets. Respective organisations involved in malaria prevention should ensure health staff involved in maternity care have regular updates on the current trends in malaria prevention strategies.

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