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PERCEPTION AND PRACTICE OF INTERMITTENT PREVENTION TREATMENT OF MALARIA AMONG PREGNANT WOMEN ATTENDING ANTE-NATAL CLINICS IN IBADAN NORTH EAST LOCAL GOVERNMENT AREA

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ABSTRACT: Malaria contributes to 11% of maternal deaths in Nigeria (McGregor, 1984). These women are infected with *Plasmodium falciparum*, the most virulent Plasmodium with serious health consequences.
This study therefore was designed to assess the perception and practice of Intermittent Prevention Treatment of malaria among pregnant women attending ante-natal clinics in Ibadan North East Local Government Area.
The study was a cross sectional surveys in which 99 respondents were interviewed. Data on demography, perception, practice, knowledge and barriers to the use of IPT were collected and were analyzed using descriptive statistics.
Thirty three (33.3%) of the respondent are between the ages of 31-35 years, while 25(25.3%) are within the age range of 26-30 years. Perception of pregnant women receiving IPT for malaria shows that IPT is very effective 32 (32.3%), while 60(60.6%) agrees that IPT drugs are readily available for pregnant women. Also, the study shows that71 (71.7%) had benefited from the program of IPT before, and 39 (39.4%) often attends seminars on malaria. On knowledge of pregnant women on IPT for malaria, 56(56.6%) reveals reliability of IPT materials, 61(61.6%) agreed that SP-drugs has no side effect on them, and 58(58.6%) said low birth weight, still birth are effects of malaria in pregnancy. Moreover, the barriers to the use of IPT for malaria among pregnant women include inadequate information about its use 30(30.6%), inadequate storage facility 43(43.4%), abuse of SP-drugs 51(51.5%), and, hoarding of IPT materials by medical staff 25(25.3%).
The study therefore recommends that government should ensure that IPT program for malaria is properly monitored and adequate supplies should be made.

KEYWORDS: Antenatal clinic, Malaria, Intermittent preventive therapy, Sulphadoxine-Pyrimethamine.

1 INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Malaria in pregnancy (MiP) is a major health concern in Nigeria. Malaria infection is more dangerous during pregnancy, and adverse effects are more serious for the pregnant woman as well as the foetus and newborn. In endemic areas such as Nigeria, women have high levels of immunity and so may not experience fever or other malaria symptoms (Ndyomugyenyia et al., 2009). During pregnancy, however, their immunity is altered and they are more vulnerable to complicated and severe malaria. Meta-analysis of intervention trials in Sub-Saharan Africa suggests that in endemic areas, MiP is largely undetected and untreated, and this leads to 100,000 infant deaths per year due to malaria-associated, low birth weight (Breman et al., 2004; Shulman et al., 1996; Steketee et al., 1996). Malaria-related anaemia may cause up to 10,000 maternal deaths per year. In Nigeria, a large proportion of pregnant women do not go to a health facility even when they have malaria symptoms (Marchesini and Crawley, 2004). This is especially true in States where many Muslim women are in seclusion and do not make their own decisions about attending a health facility.

Intermittent treatment of malaria in pregnancy is a strategy where all pregnant women are given full dose of sulphadoxine-pyrimethamine (SP) at least twice during pregnancy, regardless of whether they have malaria. Starting as early as possible in the second trimester, IPT-SP is recommended by the World Health Organization (WHO) for all pregnant women at each scheduled antenatal care (ANC) visit until the time of delivery, provided that the doses are given at least one month apart (Parise et al, 1998; Shulman et al., 1999). Sulphadoxine-pyrimethamine should not be given during the first trimester of pregnancy; however, the last dose of IPT-SP can be administered up to the time of delivery without safety concerns (Schultz et al., 1994; Verhoeff et al., 1998). The effectiveness of IPT-SP in improving birth weight and reducing prevalence of pre-term deliveries and maternal anaemia in Nigeria has been documented (Verhoeff et al., 1998; Hill and Kazembe, 2006).

1.2 MAIN OBJECTIVE

The main objective is to assess, document and establish the perception and practice of intermittent prevention treatment of malaria among pregnant women attending ante natal clinics in Ibadan north east local government area.

2 LITERATURE REVIEW

Based on WHO's fact sheet it has been established that pregnancy quadruples a woman's risk to malaria illness and doubles her risk of death (Vallely L, Ahmed Y, Murray SF (2005).. Malaria alone increases the risk of maternal anemia up to 15%, increases the risk of preterm up to 36%, intrauterine growth retardation up to 70%, low birth weight up to 14% and infant death up to 8% (Tranbarger G (2003). Maternal anemia contributes significantly to maternal mortality causing an estimated 10,000 deaths per year (Marchesini and Crawley, 2004). In areas of high or moderate transmission, most malaria infections in pregnant women are asymptomatic and infected women do not present for treatment. In such areas, the World Health Organization recommended a combination of interventions to prevent malaria in pregnancy including insecticide-treated nets (ITNs), intermittent preventive treatment in pregnancy (IPT) and effective case management and treatment (Nahlen, 2000; WHO, 2004).

Intermittent Preventive Treatment of Malaria in pregnancy (IPT) provides significant protection against maternal anemia and low birth weight, and reduces significantly the risk of abortion, still birth, pre-term deliveries and maternal mortality. Studies in Kenya on intermittent prevention treatment of malaria among pregnant women. (Parise et al, 1998; Shulman et al., 1999) and Malawi on intermittent prevention treatment of malaria among pregnant women. (Schultz et al., 1994; Verhoeff et al., 1998) have shown that IPT using SP when delivered as part of antenatal care significantly reduces the prevalence of maternal anemia, placental parasitemia and the incidence of low birth weight. Many countries in sub-Saharan Africa including Nigeria have introduced SP-IPTp into national malaria control programmes (Verhoeff et al., 1998; Hill and Kazembe, 2006).

The Federal Government of Nigeria through the Federal Ministry of Health demonstrated a strong political will and commitment in adopting IPT with SP as the National strategy for malaria control in pregnancy (Federal Ministry of Health, 2005). Following the National Guidelines and Strategies for Malaria Prevention and Control (2005) during pregnancy promulgated by the Federal Ministry of Health, there has been inadequate documentation on the implementation of IPT as part of this strategy. In order to successfully prevent malaria in pregnancy there is a need to monitor the implementation of the three-pronged approach (of which Intermittent Preventive Treatment is an essential part) in preventing malaria in pregnancy.

In May 2000, African leaders in Abuja under the Roll Back Malaria (RBM) partnership set the target that by 2005 at least 60% of all pregnant women who are at risk of malaria, especially those in their first pregnancies should have access to chemoprophylaxis or IPT. The WHO (2010) reports that at the end of 2008, 35 out of 45 sub-Saharan African countries had adopted IPT as national policy. However, coverage has remained far from the target in many countries including Nigeria. (WHO 2010)

In 2001, Nigeria instituted intermittent preventive treatment using SP for pregnant women in the second and third trimesters of pregnancy. However, both first and second dose coverage remains low being 8.0% and 4.6% respectively in Nigeria and 9.9% and 5.4% in south-east Nigeria (Nwogu, 2009). The use of IPT in Nigeria involves the administration of at least two of SP during pregnancy, regardless of whether the woman is infected. The first dose is taken after quickening and there should be at least one month between the two doses, (WHO 2004). However, although the WHO guideline allows the administration of IPT all through the third trimester, the policy in Nigeria recommends otherwise, stating that *'the last dose should be given not later than one month before the expected date of delivery'*. (Vander, H. W.2005) Direct observed treatment (DOT) by a qualified health worker was also incorporated to ensure compliance by pregnant women. Compliance is further enhanced by the single dose treatment of SP.

Successful use of IPT is dependent on the utilization rates of antenatal care (ANC) services amongst pregnant women. Attendance at ANC is high in most Sub-Saharan African countries, but up to 25% of pregnant women pay the first visit in the 3rd trimester (Akinleye S.O 2009). This may affect the impact of ANC and IPT related services as delivery of the second dose of SP is substantially reduced and envisaged protection for mother and foetus is lost (Falade C.O, Ajayi I.O 2009)

A woman that attends ANC needs to do so at appropriate times for delivery of IPT, which is best given when the growth of the foetus is occurring at its highest velocity (16th - 24th week) as this helps to reduce placental parasitaemia, foetal growth reduction and the resultant low birth weight. Whether a woman starts early or late, each visit should count so that opportunities created by her attendance to ANC are not missed for the delivery of relevant interventions.

2.1 INCIDENCE OF MALARIA

Incidence of malaria varies by weather, which affects the ability of the main carrier of malaria parasites, Anopheles mosquitoes, to survive or otherwise (Mwangagia et al., 2007). Tropical areas including Nigeria have the best combination of adequate rainfall, temperature and humidity allowing for breeding and survival of anopheline mosquitoes (Okwa et al., 2009; Onyabe and Conn, 2001). in the south but is more seasonal in the northern regions (WHO, 2010). Malaria transmission, based on climatic parameters occurred between April and October in Anambra state (Ayanlade et al., 2010), which shows that rainfall plays an important role in the distribution Malaria transmission in Nigeria takes place all year round of breeding sites for the mosquito vector thereby influencing malaria transmission (Okwa et al., 2009). In Nigeria, the peak malaria transmission coincides with the appearance of stagnant water collections just after the rainy season (Okwa et al., 2009).

Although malaria is one of the most climate-sensitive vector-borne diseases (Morse, 1995), several other factors have been identified as contributing to its emergence and spread. These include environmental and socio-economic changes, deterioration of health care and food production systems, and the modification of microbial/vector adaptation (McMichael et al., 1998; Morse, 1995). In malaria endemic areas, factors such as poverty, poor socioeconomic status, poor education, lack of enlightenment and poor environmental sanitation have been attributed to availability of mosquito-friendly environment- conditions which allow for survival and proliferation of the vector and pathogenic parasite (McMichael et al., 1998).

Increase in population density led to an increase in human exposure and more pressure on limited productive land (Lindsay and Martens, 1998). Pressures on productive land, force farmers to clear forests and reclaim swamps. Puddles and elevated temperatures result from lost tree and ground cover, providing ideal breeding sites for mosquitoes (Walsh et al., 1993). According to Warsame et al., (1995), increased flooding could facilitate the breeding of malaria carriers in formerly arid areas. Small geographical changes in the distribution of malaria may expose large numbers of people to infection (Warsame et al., 1995).

3 METHODOLOGY

3.1 STUDY DESIGN

The study is a descriptive one which involves the administration of questionnaire to determine the perception and practice of intermittent prevention treatment of malaria among pregnant women attending antenatal clinics in Ibadan North East Local Government Area of Oyo State.

3.2 SAMPLING PROCEDURE

A systemic and random sampling technique was used in selecting the respondent in the three (3) Primary Health Centre's in the Local Government Area in the ratio of 2:1:1.

3.3 SAMPLE SIZE

The sample size for the study was 100 pregnant women attending antenatal clinics in the Local Government Area in the ratio of 2:1:1.

3.4 DATA COLLECTION INSTRUMENT

A structured questionnaire that comprised of close ended questions was used for data collection.

3.4.1 DATA MANAGEMENT AND ANALYSIS

Completed questionnaires were collected, coded and entered into the computer using the Statistical Packaged for Social Science (SPSS) version 15.0. The results were presented in frequencies, percentages and charts.

4 RESULTS

4.1 DEMOGRAPHIC CHARACTERISTICS OF THE RESPONDENTS

Table 1 shows that 33(33.3%) of the respondent are between the ages of 31-35 years, while 25(25.3%) are within the age range of 26-30 years. Also 21(21.2%) of them fall within the age range of 36-40 years and 15(15.2%) are within 20-25 years. The remaining 5(5.1%) of them fall within the age range of 41years and above.

It also shows that 60(60.6%) of the respondent are Muslim, while the remaining 39(39.4%) are Christian. It further reveals that 32(32.3%) are civil servant, while 31(31.3%) are as petty traders and 25(25.3%) are business women. The remaining (11.1%) are either religious worker or engage in one activity or the other.

Moreover, the result shows that 55(55.6%) has 3-5 children, while 26(26.3%) has 1-2 children and the remaining 18(18.2%) have 6-8 children. Also, 57(57.6%) of the respondent are 4-6 months pregnant, while 24(24.2%) of the respondent are 7-9 months pregnant. Also 16(16.2%) of the respondent are 1-3 months pregnant.

In addition, the result shows that 40(40.4%) of the respondent are graduate, while 21(21.2%) post graduate degrees and 20(20.2%) are secondary school certificate holders. Also, 12(12.1%) has primary school certificates. The remaining 6(6.1%) of the respondent has no formal education.

Table 1: Demographic characteristics of the respondents

Personal characteristic of the respondent	Frequency	Percentage (%)
Age		
20-25 years	15	15.2
26-30 years	25	25.3
31-35 years	33	33.3
36-40 years	21	21.2
41 and above	5	5.1
Religion		
Christianity	39	39.4
Muslim	60	60.6
traditional	-	-
Occupation		
Civil servant	32	32.3
Business	25	25.3
Petty traders	31	31.3
Others	11	11.1
No of children		
1-2	26	26.3
3-5	55	55.6
6-8	18	18.2
Month of Pregnancy		
1-3 month	16	16.2
4-6 month	57	57.6
7-9 month	24	24.2
Educational status		
Primary school	12	12.1
Secondary school	20	20.2
Tertiary	40	40.4
Post graduate	21	21.2
Others	6	6.1

4.2 PERCEPTION OF IPT OF MALARIA AMONG PREGNANT WOMEN

The result in table 2 shows the perception of IPT of malaria among pregnant women, thirty two respondent (32.3%) strongly agree that IPT is very effective, while 60(60.6%) agrees that IPT drugs are readily available for pregnant women and 46(46.5%) strongly disagree that malaria can be transferred from mother to fetus during pregnancy. Also 43(43.4%) disagree that all pregnant women respond negatively to intermittent preventive treatment for malaria.

Table 2: Perception of IPT of malaria among pregnant women

Perceptions	**SA Freq(%)**	**A Freq(%)**	**SD Freq(%)**	**D Freq(%)**
IPT is very effective during pregnancy	32(32.3)	59(59.6)	3(3.0)	5(5.1)
IPT drugs are readily available for Pregnant women	16(16.2)	60(60.6)	14(14.1)	9(9.1)
Doses of drugs given are usually taking as prescribed	11(11.1)	43(43.4)	21(21.2)	24(24.2)
Malaria is endemic in this region	26(26.3)	52(52.5)	15(15.2)	6(6.1)
Federal government provides adequate Sulphadoxine-Pyrimethamine (SP) supplies	9(9.1)	43(43.4)	38(38.4)	9(9.1)
All pregnant women respond positively to Intermittent Preventive Treatment (IPT) for malaria	8(8.1)	48(48.5)	29(29.3)	14(14.1)
SP are given in all antenatal clinics	3(3.0)	34(34.3)	26(26.3)	36(36.4)
All pregnant women respond negatively to Intermittent Preventive Treatment (IPT) for malaria	4(4.0)	22(22.2)	30(30.3)	43(43.4)
Other methods of IPT of malaria such as bed net, use of propellant are more useful than using SP-drugs	13(13.1)	50(50.5)	18(18.2)	18(18.2)
Malaria is the only severe sickness during pregnancy	5(5.1)	49(49.5)	23(23.2)	22(22.2)
Malaria can be transferred from mother to foetus during pregnancy	1(1.0)	23(23.2)	46(46.5)	29(29.3)
Malaria causes death of most pregnant women during pregnancy and delivery	10(10.1)	23(23.2)	43(43.4)	23(23.2)
All pregnant women attend antenatal clinics for IPT of malaria.	1(1.0)	24(24.2)	36(36.4)	38(38.4)
Malaria contribute to maternal death	24(24.2)	49(49.5)	13(13.1)	13(13.1)
The physiological changes of pregnancy and pathological changes due to malaria have a synergetic effect.	11(11.1)	46(46.5)	31(31.3)	11(11.1)
Maternal malaria often result in maternal aneamia, still birth, low birth weight, premature delivery etc.	18(18.2)	47(47.5)	27(27.3)	7(7.1)
Women develop increasing resistance to malaria infection over successive pregnancies.	40(40.4)	-	32(32.3)	27(27.3)
Malaria transmission in Nigeria takes place all year round.	9(9.1)	57(57.6)	17(17.2)	16(16.2)
Human malaria is not transmitted by female mosquitoes of the genus Anopheles from human to human.	11(11.1)	39(39.4)	35(35.4)	14(14.1)
Premature birth results only from symptomatic malaria and is usual in severe malaria.	16(16.2)	38(38.4)	22(22.2)	23(23.2)

4.3 PRACTICE OF PREGNANT WOMEN IN USING IPT FOR MALARIA

Table 3 shows result on the practice of pregnant women in using IPT for malaria. Thirty nine respondent (39.4%) attend seminar on malaria, 71(71.7%) of them said they benefited from the program and 53(53.1%) said it was effective, out of the respondents, 35(35.4%) preferred the use of repellant to prevent mosquito bites and 28(28.3%) know how to control mosquitoes in their surroundings.

Table 3: Practice of pregnant women in using IPT for malaria

Practice of pregnant women in using IPT for malaria	Frequency	Percentage(%)
Attendance of seminar on malaria		
Often	39	39.4
Frequently	33	33.3
Seldom	27	27.3
Benefit from IPT program for malaria		
Yes	71	71.7
No	28	28.3
Effectiveness IPT program for malaria		
Very effective	37	37.4
Partially effective	53	53.5
Not effective	9	9.1
Preference of method of IPT for malaria		
SP-drugs	33	33.3
Insecticide-treated nets (ITNs)	35	35.4
Repellant	31	31.3
Control of mosquitoes in your surroundings		
Insecticide	16	22.5
Bed nettings	20	28.2
Repellant	13	18.3
Cleaning of surroundings	9	12.7
Use of drugs	13	18.3

4.4 KNOWLEDGE OF PREGNANT WOMEN IN USING IPT FOR MALARIA

The result in table 4 shows knowledge of pregnant women in using IPT for malaria. Eighty two (82.8%) respondents agreed that IPT is effective, 43(43.4%)said the drugs is easily available and 72(72.7%) said the health workers has good interpersonal relationship with them. Also,56(56.6%) of the respondents said IPT is reliable, 62(62.6%) agreed that introduction by the government is good and that all health centres practice IPT – 39(39.4%).

Moreover, 61(61.6%) respondents said SP-drugs has no side effects and 45(45.4%) opined that ITNs is more effective than SP-drugs. Out of the respondent, 34(34.3%) said anaemia is present in all pregnant women with malaria, and 58(58.6%) opined that low birth weight, still births are some of the side effects of malaria in pregnant.

Table 4: Knowledge of pregnant women in using IPT for malaria

Pregnant women knowledge on IPT	Frequency	Percentage(%)
Effective of IPT for Malaria		
Yes	82	82.8
No	17	17.2
Availability of drugs for malaria		
Yes	43	43.4
No	56	56.6
Attitudes of health workers in counseling on use of IPT drugs		
Yes	72	72.7
No	27	27.3
Reliability of prevention of malaria		
Yes	56	56.6
No	43	43.4
Benefit of government introducing IPT for malaria		
Yes	62	62.6
No	37	37.4
Practice of health centres on IPT for malaria		
Yes	39	39.4
No	69	60.6
Any side effect of SP on pregnant women		
Yes	61	61.6
No	38	38.4
Effectiveness of ITNs over SP		
Yes	45	45.5
No	54	54.5
Presence of anemia in all pregnant women with malaria		
Yes	34	34.3
No	65	65.7
Any side effects of malaria in pregnancy		
Yes	58	58.6
No	41	41.4

4.5 BARRIERS TO THE USE OF IPT FOR MALARIA AMONG PREGNANT WOMEN

The result in Table 5 shows the barriers to the use of IPT for malaria among pregnant women. Fifty three (53.5%) of the respondents agreed that government does not provide adequate assistance to the use of IPT for malaria, 62(62.6%) also strongly disagrees that the medical personnel's are not always available. Moreover, 38(38.4%) strongly disagree that SP-drugs is not always sufficient in health centres, also 36(36.7%) strongly disagree that there is inadequate information about the use of IPT for malaria among pregnant women. In addition, 51(51.5%) agree to the abuse of SP-drugs by pregnant women and 46(46.5%) strongly disagree that inadequate storage system for the IPT material is a barrier to the use of IPT for malaria. Also, 36(36.4%) strongly disagree that incompetency of personnel in handling IPT materials is a barrier and 31(31.3%) strongly agree that hoarding of IPT material such as ITNs, SP-drugs, repellant by medical staff is a barrier to the use of IPT for malaria.

Table 5: Barriers to the use of IPT for malaria among pregnant women

Barriers to the use of IPT for malaria	SA Freq(%)	A Freq(%)	SD Freq(%)	D Freq(%)	Mean	Standard deviation	Rank
Government does not provide adequate assistance to the use of IPT for malaria	12(12.1)	53(53.5)	21(21.2)	13(13.1)	2.35	0.86	7
Medical personnel are always not available	3(3.0)	26(26.3)	62(62.6)	8(8.1)	2.76	0.64	3
SP-drugs is not always sufficient in health centres	5(5.1)	37(37.4)	38(38.4)	19(19.2)	2.72	0.83	4
Inadequate information about the use of IPT for malaria among pregnant women	1(1.0)	30(30.6)	36(36.7)	31(31.6)	2.98	0.82	1
Abuse of SP-drugs by pregnant women	2(2.0)	51(51.5)	31(31.3)	15(15.2)	2.60	0.77	6
Inadequate storage systems for the IPT materials	2(2.0)	43(43.4)	46(46.5)	8(8.1)	2.61	0.67	5
Incompetency of personnel in handling IPT materials	4(4.0)	29(29.3)	36(36.4)	30(30.3)	2.93	0.87	2
Hoarding of IPT material such as ITNs, SP-drugs Repellant, etc. by medical staffs	31(31.3)	25(25.3)	28(28.3)	15(15.2)	2.27	1.07	8

5 CONCLUSION

The study reveals that majority of the respondent (33.3%) were between the ages of 31-35 years, showing that most are in their 30's. Higher percentage of the respondent (60.6%) were Muslim, most of the respondent (32.3%) were civil servant having number of children most frequent (55.6%) between 3-5 children. It was also discovered that more of the respondent (57.6%) are in their 4-6 months of pregnancy and most predominant educational status (40.4%) is graduate which makes them value the use of IPT for malaria

Also, the result shows that perception of the pregnant women receiving IPT for malaria agree that IPT is very effective, IPT drugs are readily available, moreover it was shown that majority of the pregnant women had benefitted from the IPT program for malaria and often attend seminar on malaria, also they agree that the method used are good.

In addition, the study reveals various knowledge of pregnant women about IPT for malaria. This include reliability of IPT material, SP-drugs has no side effect and also that ITNs is more effective than SP-drugs, and that low birth weight, still birth are effect of malaria in pregnancy. However the respondent believes /agrees that the barriers to the use of IPT for malaria among pregnant women include; hoarding of IPT materials such as ITNs, Repellant etc. by medical staffs and inadequate provision of assistance by the government to the use of IPT for malaria.

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