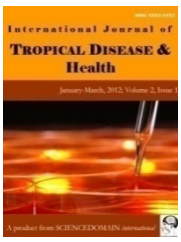

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Use of Intermittent Preventive Treatment for Malaria among Pregnant Women in Kubwa, Abuja, Nigeria

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Authors' contributions

This work was carried out in collaboration between all authors. Author LAA contributed to conception and design, data acquisition, analysis and interpretation. Involved in drafting the manuscript and revising it critically for important intellectual content; and have given final approval of the version to be published. Author AYI contributed to data analysis and interpretation. Involved in drafting and revising the manuscript critically for important intellectual content. Author MAJ contributed to data analysis and interpretation. Involved in drafting and revising the manuscript critically for important intellectual content. Author AAA contributed to data analysis and interpretation. Involved in revising the manuscript critically for important intellectual content. All authors read and approved the final manuscript.

Research Article

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ABSTRACT

Background and Aims of Study: Malaria in pregnancy remains one of the infectious diseases threatening the health of pregnant women and the unborn child in Africa. The use of Sulphadoxine-Pyrimethamine (SP) as intermittent preventive treatment of malaria

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in pregnancy (IPTp) has been shown to greatly reduce the impact of malaria in pregnancy and its complications when administered appropriately according to set protocol. The aim of this study is to ascertain the appropriate use of SP among pregnant women who received ante-natal care (ANC) and determine its relationship with feto-maternal outcome.
Place and Duration of Study: Daughters of charity Primary Health Center, Kubwa, Abuja, between January 2010 and June 2011.
Methodology: A retrospective study of 200 pregnant women, who attended ANC, delivered and followed-up to post-natal clinic at Daughters of Charity primary health centre and was administered SP between January 2010 and June 2011. Ante-natal records were retrieved and socio-demographic variable, number of doses of SP received as well as feto-maternal outcome were collected and analyzed.
Results: The use of IPTp among pregnant women in this facility is low, accounting for only 6% of the study population, while 79% were not administered IPTp throughout their pregnancy. Majority of the primigravida (61 out of 70) who were more vulnerable to malaria in pregnancy did not receive any dose of IPTp.
Conclusion: More effort is required to increase IPTp coverage in the community. This may be achieved by improving the awareness of IPTp among health care workers, pregnant women and the entire community at large.

Keywords: Intermittent preventive treatment; malaria; sulphadoxine-pyrimathamine; pregnant women; IPTp.

1. INTRODUCTION

Malaria in pregnancy is an important cause of various intrauterine and maternal complications [1]. It is responsible for intrauterine growth retardation, intra uterine death, still births, premature delivery, low birth weight and other neonatal morbidity and mortality [2,3]. In pregnant women, malaria causes maternal anaemia and post-partum mortality [4]. In Africa, inadequate nutrition, access to effective primary health care, obstetric care and poverty contribute largely to the complications recorded with malaria in pregnancy [5]. A study on the prevalence of malaria among pregnant women in Lagos by Okwa [6] reported 60% prevalence among pregnant women. As a result of the high incidence of malaria and associated complications among pregnant women in malaria endemic regions, the World Health Organization's Roll Back Malaria initiative in conjunction with African Heads of State, pledged that by 2005, 60% of pregnant women will receive malaria chemoprophylaxis or intermittent preventive treatment (IPT) [7]. This goal appears to be a mirage in Nigeria because coverage in most parts of the country is still very low or at best modest [8]. Intermittent preventive treatment (IPT) describes the administration of a full therapeutic course of an anti-malarial to at risk subjects at specified times regardless of whether they are infected or not [9]. At least 2 doses of Sulphadoxine-Pyrimethamine (SP) were recommended as IPT for all pregnant women whether or not the pregnant woman is infected. The first dose of SP is administered after quickening (first fetal movement at ≥ 20 weeks gestational age) and the second and third doses (where applicable) are prescribed 4-6 weeks thereafter. The effectiveness and safety of SP in prevention of malaria in pregnancy has been well documented [2,10,11]. The IPT is given along with other malaria preventive strategy such as use of insecticide treated nets (ITN) and environmental management [9].

This retrospective study on the use of IPT among pregnant women and its relationship with maternal Packed Cell Volume (PCV) and birth weight was carried out among 200 pregnant women in a Primary Health Centre, in Kubwa village Abuja. It is expected that the findings

from this analysis may assist in evaluating the compliance with the use of SP for prevention of malaria in pregnancy with a view of improving pregnancy outcome. It could also assist care providers/policy makers to design appropriate strategies aimed at reducing the morbidity and mortality associated with malaria in pregnancy.

2. METHODS

A retrospective review of antenatal records of pregnant women who received ante-natal care at the Daughters of charity (St Vincent) Primary Health centre, Kubwa was carried out. Clinical records from Two hundred, booked pregnant women who had ante-natal care, delivered and attended the 6th week post-natal clinic appointment in the Hospital from January 2010 to June 2011, were analyzed. The information collected from the case notes included patient's bio data, the use of IPTp and number of doses received, maternal packed cell volume (PCV) at term and birth weight. Ethical approval to access patient's clinical records was obtained from the hospital management. Data collected was analyzed using Graph pad prism 5 and expressed as percentages and means. Statistical significance was determined at p value < 0.05. For the purpose of this study, neonatal birth weight ≤ 2.5 kg is regarded as low birth weight (LBW) while a PCV reading of $\leq 30\%$ is considered as maternal anaemia.

3. RESULTS

The demographic characteristics of the study population were shown in Table 1. The mean age of the women in this study was 28.7 ± 0.31 (Mean ± SD). Majority of the women, 139 (69.5 %), were between 20 and 30 yrs. One hundred and thirty (65%) were multiparous, and majority (85%) booked for the ANC in the second trimester. Appropriate use of Sulphadoxine-pyrimethamine (SP) as intermittent preventive treatment in pregnancy (IPTp) in this study was 6%. Out of the 70 primigravida women in this study, only 2 received two doses of IPTp while majority of them (61 out of 70), did not receive any IPTp dose. Among the 130 multiparous women, 10 received 2 doses, while 98 women did not receive any IPTp dose. One hundred and fifty eight (79%) of the pregnant women did not receive any dose of IPTp while 30 (15%) had a single dose (Table 2). The Packed Cell Volume (PCV) of these women at term showed that 186 women (93%) had PCV $\geq 31\%$, while 14 women (7%) had PCV between 20 -30%. None of the women in this study had PCV of $< 20\%$ at term (Table 3). All the 12 women who had 2 doses of IPTp, have PCV at term $> 31\%$. The birth weight showed that 157 babies (78.5%) weighed between 2.6 – 3.4 kg, while 4 babies (2%) and 39 babies (19.5%) were underweight and overweight respectively (Table 4). All the 12 women who had 2 doses of IPTp delivered babies with birth weight > 3kg and the highest percentage of babies with birth weight > 3.5 kg was delivered by women who had complete 2 doses of IPTp. In contrast, the 4 babies weighing < 2.5 kg were delivered by women who did not receive any dose of IPT during their pregnancy (Table 5).

Table 1. Demographic characteristics of Pregnant women that attended ANC at the health centre in Kubwa

Characteristics	Number of pregnant women (n)	Percentage (%)
Age (years)		
< 20	3	1.5
20 – 30	139	69.5
31 - 40	57	28.5
>40	1	0.5
Total	200	100
Parity		
Primipara	70	35
Multipara (P_2- P_4)	130	65
Total	200	100
Gestational age at first antenatal booking		
< 14 weeks	13	6.5
14 – 28 weeks	170	85
>28 weeks	17	8.5
Total	200	100

Table 2. Number of IPT doses received during pregnancy by the women

IPT dose received	No of pregnant women (n)	Percentage (%)
0	158	79
1 dose	30	15
2 doses	12	6

Table 3. Maternal packed cell volume (PCV) at term

PCV (%)	No of pregnant women (n)	Percentage (%)
≤ 20	0	0
21 – 30	14	7
≥ 31	186	93

Table 4. Birth weight of babies delivered

Birth weight (kg)	No of births (n)	Percentage (%)
≤ 2.5	4	2
2.6 – 3.4	157	78.5
≥ 3.5	39	19.5

Table 5. Comparison of IPT dose with birth weight of babies delivered

Number of IPT dose	Birth weight			Total
	≤ 2.5 kg	2.6 – 3.4 kg	≥ 3.5 kg	
0	4 (2.5%)	130 (82.3%)	24(15.2%)	158
1	0 (0%)	21 (70.0%)	9 (30%)	30
2	0 (0%)	6 (50.0)	6 (50%)	12
Total	4	157	39	200

4. DISCUSSION

Majority of the women in this study registered for the ANC in the second trimester which provides them with a good opportunity to receive the complete 2 doses of IPTp and benefit from the protection this chemoprophylactic treatment is expected to provide against malaria in pregnancy and associated complications. The rate of appropriate utilization (complete two doses) of IPTp in this study is 6%, despite the early registration of women for the ANC. This figure is lower than the 18.4% recorded at University College Hospital (UCH), Ibadan, Nigeria [12]; 41% at University of Benin Teaching Hospital (UBTH), Benin city, Nigeria [13], 7.5% in Enugu, Nigeria [14] and 36% in Malawi [2], but relatively higher than 5.4% recorded in South eastern Nigeria [15]. The poor utilization of IPTp among pregnant women in this study suggests that many pregnant women are not benefiting from the laudable initiative aimed at reducing the level of maternal and neonatal mortality associated with malaria in pregnancy, despite the fact that these women register early for ante- natal care (85% registered at 14–28 weeks). Bearing in mind that Nigeria rank high among countries with high maternal and neonatal mortality rate [15] with malaria responsible for about 11% of maternal death in Nigeria [9], it is expected that awareness and utilization of IPTp would be high enough to curtail the adverse effects of malaria on maternal and neonatal morbidity and mortality. Despite the low utilization of IPTp in this study, the beneficial effects of this chemoprophylaxis is demonstrated by the fact that PCV was ≥ 31% in all the 12 women who had 2 doses of IPTp, compared to those that had incomplete dose or never received. Also fetal outcome was considerably more favourable in those that had complete doses of IPTp because their babies weighed > 3kg compared to those who had incomplete IPTp dose or never received. Ten out of the fourteen women, who presented with PCV of < 30%, did not receive any dose of IPTp. Although, other factors such as nutritional status and other health indices, aside from the use of IPTp, may have accounted for the low birth weight and maternal anaemia among women who did not receive IPTp in this study, the better pregnancy outcome in women who received IPTp can be considered as a positive effect of the use of IPTp [16]. It is noteworthy that majority of the primigravid women in this study (61 out of 70) did not receive any dose of IPTp, while 2 women received two doses and 7 women received only a single dose. This observation is worrisome as the primigravida are more vulnerable to malaria in pregnancy [17] and should benefit optimally from chemoprophylaxis against malaria [10]. The reason for the poor coverage of IPTp among the primigravida could be due to poor awareness about IPTp administration among health care providers and the wrong perception and fear among pregnant women of possible toxic effects or fetal abnormalities after using SP in pregnancy [14].

5. CONCLUSION

Despite the fact that IPTp is free to pregnant women, utilization remains poor as shown in this study, therefore there is need to increase awareness and provide update courses to health care providers in charge of ante-natal care so that they can scale-up the administration of IPTp to pregnant women and ensure that the drugs are swallowed under direct supervision [18]. Also, care providers should maximize each visit to administer the first dose of the IPTp as missed opportunities also contribute to failure to achieve full coverage. It is important to ensure effective prevention of malaria in pregnant women as the number of antimalarial drugs safe to be administered in pregnancy is limited. In addition, IPTp could be a highly cost-effective intervention for both prevention of maternal malaria and reduction of neonatal mortality which is a complication of malaria in pregnant women.

CONSENT

All authors declare that written informed consent was obtained from the management of daughters of charity health center, kubwa, for permission to use patient's clinical records for this publication.

ETHICAL APPROVAL

Not applicable.

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COMPETING INTERESTS

The authors declare that we have no competing interests.

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