THE STUDY OF INTERMITTENT PREVENTIVE TREATMENT (IPT) IN THE CONTROL OF MALAIA IN PREGNANCY AT THE MATERNITY HOSPITAL KATSINA, NIGERIA

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Abstract
A total of 1200 pregnant women who were given the intermittent preventive treatment (IPT) were examined with a qualitative test kits for malaria, the malaria HRP2 that works on the principle of immuno-chromatographic assay. The work is carried out over a period of 12 weeks, and 100 pregnant women were tested every week during ante-natal sessions at the Maternity Hospital Katsina. The results obtained shows that 192 pregnant women out of 1200 examined tested positive for malaria accounting for only 16% of malaria in pregnancy.

Keywords: Malaria, pregnancy, control, IPT

Introduction

Katsina city, is the capital and administrative headquarters of Katsina State. It is geographically located at Latitude B/W 11^{o} 07' 49"N 13' 022' 57"N longitude B/W 6^{o} 52' 03" and 99^{o} 02' 40" E (Sani, 1997). The maternity hospital is located within the Katsina General Hospital in the old city. Hausas are the major inhabitants of the city and Islam is the major religion. Although being a state capital, almost all the major tribes of Nigeria are also found in the city (Sani, 1997).

According to a study carried out by SuNMaP in 2009, malaria account for 70% of the basic out-patient consultations in all the health facilities in the state. Apart from providing other maternity services, the maternity hospital Katsina conduct ante-natal clinic session three times a week (Tuesday, Wednesday and Thursday) attending to over 150 pregnant women weekly. As part of malaria control, intermittent preventive treatment in form of sulphodoxine-pyrimethamine (Fansidar) is given to pregnant women on monthly basis free of charge as a preventive or prophylactic measure. In addition long-lasting insecticide nets were also distributed. Pregnant women with confirmed cases of malaria are treated with artemisinin-based combination therapy (ACT). Coartem is the common ACT.

It is the objective of this study to determine if the IPT administration is reducing the burden of malaria during pregnancy. The study was conducted over a period of three months (12 weeks). One hundred women were examined for malaria using the rapid diagnostic test kits HRP2 (Histidine rich protein 2).

Literature review

Malaria is an infection of the blood by haemoglobin-digesting single called protozoan of the genus *Plasmodium* (WHO, 1995). The parasite is transmitted by the bite of female Anopheles mosquito that require blood meal for its eggs development (Paniker, 2007). *Anopheles gambiae* complex are the main vectors of malaria in Nigeria (FMH, 2010). *A. Funestus* and *A. arabionsis* are also commonly encountered. *A. melas* is found in the coastal areas (FMH, 2010).

Four species of the parasite causes human malaria: *P. Falciparum, P. malariae*, *P. vivax* and *P. ovale* (Ukoli, 1991). Out of the four species, *P. falciparum* enjoys the reputation of being the most virulent and most deadliest. It account for about 98% of malaria cases in Nigeria (FMH, 2010). A SuNMaP study of 2009 in Katsina State reported that 97% of all malaria cases in the State were due to *P. falciparum.*

Apart from young children of between six month to five years of age, pregnant women are the second category of people most at risk of suffering from malaria (WHO, 1995). This is because immunity is depressed during pregnancy in order to protect the foetus from rejection as foreign tissue by the immune system (WHO, 1995). Malaria transmission is stable in Nigeria. Children under the age of five, pregnant women and non-immune from non-endemic areas are particularly more susceptible than the general population (FMH, 2011). Malaria has severe negative effect on maternal health and birth outcomes. It causes maternal anaemia, increases miscarriage and low birth weight (FMH, 2010). Sani in 1997 reported 21 deaths due to malaria in General Hospital Katsina, of which one of the

dead was a pregnant woman, who suffered a serious anaemia due to malaria. Her PCV reading was just 6% (Sani, 1997).

When malaria causes anaemia in pregnant women, the result is sometimes low birth weight due to prematurity and intra-uterine growth retardation. Most of the complications of malaria are caused by *P. falciparum* (Davidson, 2008). The administration of the intermittent preventive treatment to pregnant women is a component of the rollback malaria programme (FMH, 2005). This is the current strategy in the control of malaria launched by WHO in the year 2000.

Materials and methods

The samples already administered with IPT (Fansidar) were examined for malaria parasites, using the method described by Cheesbrough 1999. This is the rapid diagnostic test using the histidine-rich protein 2 (HRP 2) malaria kits, manufactured by Access Bio, Incorporation (www.accessbio.net). The test is highly sensitive and specific to the antigen (protein) of *P. falciparum* and works on the principle of chromatography (immunochromotographic assay). One hundred samples were examined every week during the three days ante-natal sessions. The study was conducted over the period of 12 weeks.

Results

Table 1**:** Weekly malaria cases among pregnant women attending ante-natal session in Maternity Hospital Katsina for a period of 12 weeks

Week	Malaria cases	Weekly attendance
1	15	100
2	17	100
3	18	100
4	16	100
5	18	100
6	17	100
7	15	100
8	13	100
9	12	100
10	18	100
11	14	100
12	19	100
Total	192	1200

Statistical analysis

Chi-square

$$X^2 = \frac{(O-E)^2}{E}$$ where O = observed value and E = expected values.

Weeks	O	E	$(O-E)^2/E$
1	15	16	0.0625
2	17	16	0.0625
3	18	16	0.2500
4	16	16	0.000
5	18	16	0.2500
6	17	16	0.0625
7	15	16	0.0625
8	13	16	0.5625
9	12	16	1.000
10	18	16	0.2500
11	14	16	0.2500
12	19	16	0.5625
	192	192	3.9375

H_o: There is no significant relationship between observed malaria case among pregnant women and weeks.

H_1: The relationship between observed malaria cases and weeks is significant.

$X^2_{calculated} = 3.9375$

$X^2_{tabulated}$ at 0.05(11) = 19.675

df = n - 1 = 12 - 1 = 11

Decision

As $X^2_{cal} < X^2_{tab}$, Ho is accepted and therefore there is no significant relationship between observed malaria cases and the weeks in which such observations made.

Conclusion and recommendation

In conclusion, it can be said that administration of the intermittent preventive treatment to pregnant women has reduced significantly the burden of malaria in pregnancy. From 30% in the previous years according to the midwives to 16% based on this work. It is therefore recommended that this IPT administration be extended to all health facilities across the State.

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References

Davidson (2008) *Principle and Practice of Medicine*, 19th Edition, United Kingdom: Longman Group Ltd

Cheesbrough, M. (1999) *District Laboratory Practice in the tropics*, Low Price Edition, United Kingdom: Longman, United Kingdom

FMH/National Malaria Control Programme (2010) *National Policy on Malaria Diagnosis and Treatment* pp. 4 – 15.

FMH/National Malaria and Vector Control Division (2011) *National Guidelines for Diagnosis and Treatment of Malaria* pp. 1 – 10.

FMH (2005) National Antimalarial Treatment Policy. *National Malaria and Vector Control Division*, Abuja, Nigeria. Pp. 5 - 8

Paniker, C.K.J. (2007) *Textbook of Medical Parasitology*, 6th Edition, New Delhi, India: Jaypee Brothers Medical Publishers, pp. 66 – 69.

Sani, M. (1997) Clinical land Haematological Studies of Malaria Among Various Age Groups in Katsina Town, Nigeria. M.Sc Thesis Bayero University Kano, Nigeria pp./ 4 – 28.

SuNMaP (2009) Rapid Baseline Study of Capacity for Malaria Control and State and LGA Level in Katsina State pp. 2 - 15.