

Original Research Article

Compliance Rate of Pregnant Women on Intermittent Preventive Therapy (Sulphadoxine Pyrimethamine) in University of Calabar Teaching Hospital, Calabar

Oyira, Emilia James^{1*} and Ojong, Mary²

Abstract

¹Department of Nursing Science,
College of Medical Science, University
of Calabar, Calabar

²Department of Nursing, Madonna
University, Elele, Port - Harcourt

*Corresponding Author's E-mail:
emioyira@yahoo.com

Sulphadoxine pyrimethamine treatment has proven efficacious in reducing the burden of malaria associated with pregnancy. This study was undertaken to assess the compliance rate of pregnant women and its effectiveness on pregnancy in University of Calabar Teaching Hospital, Calabar. To give this study a focus, two(2) specific objectives were formulated; two research questions and two research hypothesis were generated based on the stated objectives. The population was 5500 and a sample size of 904 was used for the study, data were analyzed using descriptive statistics in form of percentage calculations. Each of the hypotheses was tested at 0.05 level of significance at 99df. The findings revealed that there was a significant relationship between intermittent preventive therapy and compliance rate of pregnant women to SP. There was a significant relationship between intermittent preventive therapy and level of occurrence of malaria on pregnant women. There was a significant relationship between intermittent preventive therapy and extent of malaria resistance on women using IPT/SP. It was therefore concluded that, the compliance rate to IPT among pregnant women is high. Based on those findings proper record keeping, provision of SP as an antenatal package, provision of facilities of proper implementation of IPT, proper supervision and administration of SP at 16 weeks might go a long way to enhance compliance and effectiveness to Intermittent preventive therapy IPT.

Key word: Compliance, Intermittent preventive therapy, Pregnant Women

INTRODUCTION

Malaria in pregnancy is an important preventable cause of maternal and perinatal morbidity and mortality rate in areas where malaria transmission occurs all year round, natural resistance to infection and disease (Immunity) develops over the first few years of life and in older children.

Brabin (2000) observed that during pregnancy, previously developed natural resistance to malaria is lowered and the risks of severe maternal anemia and low birth weight are increased by malaria infection. WHO (2002) stated that malaria infection in pregnant women with semi-immunity is often asymptomatic, for these reasons, protection of pregnant women against malaria is

an important public health priority and a major objective. Preventive strategies such as regular intake of suppressive dose of anti-malarial (chemoprophylaxis) or intermittent treatment with anti-malaria have been recommended in pregnancy.

Increasing chloroquine resistance in eastern and southern Africa has necessitated changing the first line anti-malaria drug to sulphadoxine pyrimethamine (SP) in many countries in the two sub-African regions.

Consequently, SP is now operationally used. Drug sensitivity tests conducted recently by the East Africa network for monitoring. Anti-malaria treatments have shown SP-treatment failure rate of 25% at several sites,

threshold level of drugs resistance recommended by WHO for changing an anti-malaria drug policy. The usefulness of SP at such levels of resistance is unclear. Efficacy and effectiveness studies of this intervention are urgently needed under different levels of malaria transmission and resistance (Eanmat, 2001).

Malaria is a major cause of maternal perinatal and neonatal morbidity in high transmission setting in sub-Saharan African, intermittent preventive treatment with sulphadoxine pyrimethamine treatment (SP-IPT) has proven efficacious in reducing the burden of pregnancy associated with malaria but increasing levels of parasite resistance mean that the benefits of national SP-IPT programmes may soon be seriously undermined in much of the region. Hence, there is an urgent need to develop alternative drug required for IPT in pregnancy (Malar, 2007).

Rogerson (2001) noted that, adherence of pregnant women to recommend doses for IPT is low as was the case with chloroquine chemoprophylaxis. Among 1623 women, delivering at Queen Elizabeth Central Hospital in Malawi: although 15% of them received the recommended 2 doses. This is wrongly especially considering that the intervention in Malawi had been running for 6 years, and this low compliance rate would not have any significant impact on malaria in pregnancy. There are no strong reasons to believe the rate would have been higher in any other African country. The socio-economic status of families, cultural beliefs and behavioural factors are probably the major determinants.

In few countries with good health care infrastructure and high utilization rate of antenatal health care, direct observed therapy (DOT) is worthy trying, as it would improve the compliance rate.

Data obtained from the University of Calabar Teaching hospital reveals that, most pregnant women are aware of SP treatment but will not avail themselves for the treatment. Nurses and other health care worker have try as much as possible to talk during antenatal clinic to pregnant women concerning SP treatment but the compliance rate is still not encourage among the pregnant women in UCTH. Observation has shows that there is a high rate of malaria parasite among the pregnant women in UCTH but the compliances rate to SP is very low among pregnant women in UCTH. This is why the researcher dim it fit to assess the level of compliance and its effectiveness in pregnant women in UCTH, Calabar.

Literature review

Compliance rate of pregnant women on intermittent preventive therapy (suphadoxine pyrimethamine)

Easy access and perceived gains from antenatal care are enough motivation for women to utilize existing antenatal

clinics. The socio-cultural determinants of compliance of drugs also play a role in the optimal utilization of existing health care facilities. These factors should be studied in a problem solving approach to improves facilities utilization with consequent increase in the population of women participating in the intermittent preventive treatment intervention. At the same time, ministries of health should ensure an adequate number and good distribution of antenatal clinics per unit are that are well staffed and equipped, presently, health facilities and personal are concentrated in urban setting when the large part of the population lives in rural areas. (Mutabigwa, 2002).

According to Rogerson (2001) malaria is an enormous global health problem affecting mainly young children and pregnant women. Malaria infection during pregnancy poses substantial risk to the mother's her foetus and the neonate because pregnant women appear to be less capable of coping with and clearing malaria infections. The adverse malaria impact in pregnant women is largely due to plasmodium falciparum. Deborah (2007) says despite the toll that malaria exacts on pregnant women and their babies, malaria control during pregnancy has not received adequate programme support. This is because malaria infection in women is largely asymptomatic in hyper endemic countries like Ghana and therefore generally not recognized as a health risk. The back of effective linkage between malaria control and antenatal care programme has also limited the success of malaria control during pregnancy.

Shulman (2002) stated that, in Ghana, among pregnant women, malaria account for 13.8% of outpatient department attendance, 10.6% of admissions and 9.4% of deaths. The current anti-malaria drug policy promotes chloroquine chemoprophylaxis throughout pregnancy and six weeks post-partum, the compliance rate is low due to unfounded fear on the part of pregnant women that chloroquine causes abortion, the unpleasant itching due to chloroquine, the bitter taste and the fact that; they have swallow too many tablet. This is couple with the fact that resistance to chloroquine is becoming increasingly high.

According to WHO (2000) recommend a multi-pronged approach to reduced the burden of malaria infection among all pregnant women.

Use of insecticide treated nets (ITNs): Sleeping under an insecticide treated net is probably the most effective method for preventing mosquito bite because mosquito bites at nigh when the pregnant women are asleep. Insecticide treated nets prevent mosquito by repelling or killing them.

Use of intermittent preventive treatment: IPT of malaria during pregnancy is based on the assumption that every pregnant woman is areas of high malaria transmission has malaria parasites in her blood or placenta whether or not she has symptoms of malaria.

Case management of malaria illness: Williams (2000) says despite preventive measure, some pregnant women will still become infected with malaria. These women

should adequately be treated to prevent them getting complicated malaria. Complicated malaria is more difficult to manage and therefore requires immediate referral.

More than 90% of pregnant women attend antenatal clinic (ANC) at least once during their pregnancy, making a clinic based prevention approach flexible. The World Health Organization (WHO) 20th malaria expert committee designated intermittent preventive treatment (IPT) using an efficacious preferable simple dose, anti-malaria drugs as the preferred approach to reduce the adverse consequences of malaria during pregnancy. IPT involves the administration of full curative treatment doses of an effective anti-malaria drug at predefined intervals during pregnancy, beginning after 16 weeks or after quickening. (WHO, 2000).

Intermittent preventive treatments provide a highly effective base for programme through use of safe and effective anti-malaria drug in treatment dose, which can be linked to antenatal clinic visits. The potential of IPT to attain high levels of programme coverage and its benefits in reducing maternal anemia and low birth weight (LBW) makes it a preferred strategy to the failed strategy of weekly chloroquine chemoprophylaxis (Slutsker, 2002).

Level of occurrence of malaria on pregnant women using intermittent preventive therapy sulphadoxine pyrimethamine

McFarland (2001) states that the level of endemicity of malaria in Africa varies from country to country and sometimes from one part to another within the same country. Some of the factors responsible for the variations in endemicity include:

- rainfall pattern
- attitude
- temperature

High Rainfall Pattern: Is associated with high malaria transmission while places with high attitude and low temperature tend to be associated with lower rates of transmission. These are the only factors affecting the occurrence but not necessarily the severity of malaria (WHO, 2000).

Stable malaria: Where malaria is transmitted all year round, but may have seasonal variation. Pregnant women living in these areas usually acquired some protection against malaria and may be less likely to get severe malaria.

Unstable malaria: It is characterized by intermittent transmission that may be annual, bi-annual or variable epidemic due to poor immunity against malaria (Chaluluka, 2000).

Malaria free areas: Usually the population has no immunity whatsoever against malaria and therefore all age groups are prone to severe if exposed to the parasite. (WHO, 2000).

Rogerson (2001) states that; in Nigeria, malaria is stable

practically everywhere including the far north, but the possibility in break in transmission in the Saharan areas, of up to 2 years, leading to epidemic transmission should be borne in mind.

Models factors influencing malaria in pregnancy

The models for studying the social science aspects of malaria in pregnancy; the malaria in pregnancy treatment model. These are a conglomerate of different psychological and socio-behavioral models based on field research experience and a literature review; the underlying original models were developed for a variety of research questions most deriving from western society. We believed that the adapted models are able to comprehensively and holistically elicit the most relevant factors involved in malaria and pregnancy (Heymann, 2000).

For reasons of comprehensive, the models are limited to (A) treatment and (B) prevention with intermittent preventive treatment through antenatal care. The two should be considered basic, potentially generic models, adaptable to variations beyond malaria and pregnancy (WHO, 2001).

According to Shulman (2002) the treatment model can be amended to other single level interventions, where direct relations exist between the different factors e.g. IPT through community based channels, chemoprophylaxis or other drug interventions. The prevention model lays the basis for addressing multiple level interventions where different interventions relate to and might influence each other e.g. new intervention added to the expanded program of immunization (EPI). The added value of the proposed models when compared to other –socio-cultural work about malaria and pregnancy is that a set of factors rather a single one are considered. They are therefore based on a selection of elements, all intricately interwoven from different psychological and behavioural models applied for general malaria prevention and treatment (McFarland, 2001).

The model comprise of socio-demographic and socio-cultural variables including recognition and perception factors, the A factors i.e. availability, accessibility, affordability and the time lost due to prevention and treatment seeking while availability and accessibility are primarily health provider factors, not under direct influence of the users (pregnant women) all the other factors are user-related (Steketee, 2002).

The treatment model

- Socio-cultural and demographic variable social context: The socio-cultural and demographic variables helps to distinguish different groups, according to age/age group, number of pregnancies, socio-economics

status, marital status, religion and magico-religious beliefs, ethnicity and can include other factors which may differentiate groups of people according to relevant criteria. The list is not complete, but rather gives the classical variables that serve as a basis for designating social categories that can be compared and possibly individually targeted. Depending on the specific setting, other socio-cultural and demographic variables might be relevant (Dorman, 2000).

- Recognition of malaria and anemia during pregnancy: While community knowledge about the malaria mosquito link can be considered fundamental in determining the use of insecticide treated nets, prompt and effective treatment depends on illness recognition. Yet, malaria-related symptoms can be easily confused with pregnancy-related symptoms. No publication was found that explores the way pregnant women distinguish malaria signs from general malaise and other common symptoms (e.g. nausea, vomiting, weakness etc), during pregnancy, furthermore, there is the need to know whether pregnant women susceptibility to anemia is of common knowledge, and if people make the link between anemia during pregnancy and malaria (Garham, 2002).

- Perceived severity: perceived severity is a key factor in the health belief model-the most widely used model in public health, in socio-behavioural models and in anthropological decision-making models. Studies have shown that malaria is often not perceived as severe, but rather as a mild, self-limiting illness which does not require immediate treatment. In this way, studies should focus on:

- The perceived severity of malaria for the mother, with emphasis on knowledge regarding anemia and maternal mortality.

- For the fetus, and the recognition of the risk for abortion.

- The perceived severity of the illness for the newborn, including the association of low birth weight and increased vulnerability to other illness (Kanjala, 2001).

- Perceived susceptibility: perceived susceptibility is another key factor taken from the health to client model. With regard to malaria, perceived susceptibility is related to two factors.

- The perceived propensity to develop clinical malaria due to idiosyncratic features of the person (pregnant women, children, weak persons).

- The perceived level of exposure. For instance where malaria is associated with mosquitoes and rainfall, perceived susceptibility of contracting malaria seems to be necessarily lead to two research questions regarding perceived susceptibility to malaria during pregnancy.

- When are they perceived to be more susceptible (i.e. related to seasonality or risk activities) (McGregor, 2001).

- Perceived benefits: Perceived benefits of treatment (or preventive measure) are another important factor of the health belief model. Perceived benefit need to be studied in relation to:

- The perceived efficacy of a product or an intervention (determined not only by the empirical experience, but also by the persuasiveness of the message).

- The perceived cost/benefits, understood not only in economically and health related terms, but also socially and psychologically. In this sense, factors such as the evaluation of the distance to treatment facilities, the waiting time or the behaviour of health staff can play an important role. It is also important to consider the perceived complementary benefits of a specific treatment. Insecticide treated nets are a classical example because they are perceived as additional beneficial for avoiding the nuisance of mosquito bites, rather than for preventing malaria. Hence, comfort rather than health constitutes the perceived benefits (Cutts, 2002).

- Perceived risk: perceived risks of treatment are among the central factors for understanding treatment acceptance and use. Just as with perceived severity and perceived benefits, perceived risk refer to mother, fetus and newborn, perceived risk are related to.

- Perceived introgenic effect of treatment

- Perceived side-effects of anti-malarias;

- Perceived risk of under and over dosage of anti-malarias e.g. of perceived risk is the fear of adverse drug reactions if the pregnant woman is possessed by a spirit that rejects western pharmaceuticals (Cisse, 2000).

- Perceived control and decision-making: perceived control and decision-making should nor be understood as a factor but rather as a space where different factors come into play. A tension exists, and must be taken into consideration between.

- the perceived control over action, determined by perceived and real access to the necessary resources for successful action (information assets, abilities, social network, opportunities etc).

- The perceived obstacles and structural limitation (social institution, economics) to the planned action (WHO, 2001).

- Availability

- Accessibility

- Time loss

Availability, Accessibility and Time: Losses are important factors accounting for therapeutic delay. Availability implies among other things, that the health facilities are equipped with drugs and are recognized as competent for diagnosis and treatment. Concerning access to treatment, it should be noted that rural women may need to work and live on fields situated far away from the health centers or waiting at the health centres clearly influence treatment seeking in relation to the labor situation of the women, with regard to child care and intra-domestic labour substitution. Perception of time loss pertains to perceived and real loss of productivity during treatment seeking and at the same time, it linked to the perceived impact and severity of the illness (Garham, 2002).

- Direct and indirect cost: the few studies that contemplate costs only consider the medical cost involved in treatment. However, other non-medical direct and indirect costs are essential to understand the total cost of a malaria episode, such as non-medical direct cost consist of transport costs refer to productivity loss of the patient and care takers, encompassing those due to time lost traveling to a health centre and work lost while hospitalized, both for patients and their caretakers. (Swartz, 2007). The general cost for pregnant women are especially relevant because:

- women are at the same time caretaker, worker and patient

- low birth weight infant are more likely to contract illness, meaning a considerable increase in health care expenditures for the house hold (Houck, 2002).

Prevention with intermittent preventive treatment represents an intervention that encompasses two levels, the administration of intermittent preventive treatment and the structural care (ANC). For the intermittent preventive treatment part, the above mentioned factors 1-7 practically remain unaltered and are not repeated here. There are only a few alternation with regard to anti-malarias used as a preventive rather than treatment measure. Factor 8-10 availability, accessibility, time loss and cost factor are similar to those mentioned in the treatment model with the different that they directly related to antenatal care rather than to malaria treatment and perceived adequacy of curative care. It its worth emphasizing that even when ANC is free of charge, direct non-medical and indirect cost, especially those for transport are still considerable and might hinder access (David, 2007).

Social values perception and attitude towards pregnancy and pregnancy related risk: ANC facilities are public spaces, where women unavoidably reveal their pregnancy to other community members. Fear of gossip and humiliation due to socially unacceptable and shameful pregnancies e.g. adolescent or out of wedlock pregnancies, can be a reason for delaying prenatal care or even deterring pregnant women from attending ANC. Another reason of avoiding public exposure of their pregnancy during the 1st month is the fear of sorcery related harm to mother or foetal. (Swartz, 2002). A further key factor is the perception of pregnancy and pregnancy related risks. It is based on:

- Cultural model of the physiology of pregnancy and foetal growth, including the symptoms of normal pregnancy and symptoms of alert.

- Social values concerning appropriate behaviour e.g if it is socially acceptable to publicly show suffering or fatigue. Perception of risks together with perceived benefits constitute the perceived need to attend ANC (WHO, 2001).

Perceived benefits of antenatal care: it is important to know women's perception of the different services offered as antenatal care-control of foetal development; control of

infective diseases (AIDS and other STDs etc) preventive measures such as administration of iodine, iron and folic acid complements; tetanus immunization; breast feeding counseling and birth preparation, since some of these services might be valued more than others. In this sense, while some might encourage, others might discourage ANC attendance (Paul, 2003) perceived benefit of antenatal care should be studied taking into consideration perceived obstacles for attendance. Obstacles e.g. work load lack of transport, limited amount of money, may play a stronger role for routine visits than for visits under circumstances of perceived risk (Novick, 2000).

Acceptability of and satisfaction with antenatal services: acceptability, particularly satisfaction with antenatal care, is usually related to:

- The perceived behaviour of health personnel

- The perceived quality of services. Common complaints on health personnel misbehaviour include claims or medical neglect, patient humiliation (Paola, 2002).

Social support for attending antenatal care: with regard to access to antenatal care, social network support has two important dimensions.

- Social support: when giving advice to the pregnant women, particularly in pregnancy actuals where exist; accompanying the woman to antenatal care.

- Economic support: contributing to ANC cost and other direct and indirect costs.

RESEARCH METHODS

Research design

The study adopted was a descriptive survey design. The main aim of this study was to access the level of compliance of pregnant women to IPT and its effectiveness in pregnancy in University of Calabar Teaching Hospital, Calabar.

Research setting

This study was carried out in University of Calabar Teaching Hospital, Calabar. University of Calabar Teaching Hospital is a Tertiary Health Institution, founded in 1979; and is located at the south-east of Calabar. The hospital is made of three (3) annexes; permanent site, maternity and comprehensive health care Okoyong. The hospital renders the following services, clinical, man power development (teaching of nursing, paramedical and medical students) and research.

The permanent site being the main study area is the heart of the hospital and comprises of both the administrative offices and the clinical wards of the hospital exception of the maternity wards like labour

Table 1. Socio-demographic data of respondents (n=100)

Demographic variable	Frequency	Percentage
Age:		
20-30 years	58	58.0
31-40 years	34	34.0
41 & above	8	8.0
Total	100	100.0
Marital status:		
Single	27	27.0
Married	66	66.0
Divorced	3	3.0
Separated	4	4.0
Total	100	100.0
Occupation:		
Civil servant	46	46.0
Farming	8	8.0
Trader	22	22.0
Student	13	13.0
House wife	11	11.0
Total	100	100.0
Religion:		
Christianity	93	93.0
Islam	3	3.0
Pagan	4	4.0
Total	100	100.0
Educational status:		
FSLC	4	4.0
SSCE	7	7.0
NCE	22	22.0
Diploma	21	21.0
HND	26	26.0
Degree	18	18.0
Total	100	100.0

ward, antenatal, post-natal, special baby care unit and gynae ward which are located at the maternity annex at Moore Road. Permanent site is located along Eastern high way behind University of Calabar. The permanent site of the hospital is bounded on the east by Unical Hotel, on the west by Qua River (Esuk Atu) and on north by Calabar International Airport.

The University of Calabar Teaching Hospital is currently made up of 600 beds which are distributed among the units and has staff strength of about 550 nurses.

Population of the study

The target population of this study comprised of all the pregnant women that reported in the antenatal clinic between 2008-2011. 5500 pregnant women registered in the antenatal clinic. Out of this number, 904 women were used.

Sample and sampling technique

The sample size for this study was 904 pregnant women who receive sulphadiazine pyrimethamine using records

and 100 questionnaire constructed and issue out for respondent to answer.

The researcher used direct observation of record in which the total number pyrimethamines were sampled out of record cases of pregnant women within a four year period. A random sampling technique was used to obtain the required sample for mothers who participated in the study. This was done to give each women equal opportunity of being selected.

Data collection

The instrument used for data collection was direct observation of records. The researcher also used structure questionnaire to obtain supplementary data collection from respondents.

Data analysis and discussion

This section deals with presentation and analysis of result. 100 questionnaires were administered to 100 respondents as the sample sizes which were completely filled and reined.

Table 1 shows the summary of demographic data of

Table 2. Summary of the result of one sample t-test of compliance rate of pregnant women on IPT (n=100)

Variable	N	X	SD	df	t.cal	t.crit
Rate	100	13.08	2.50	99	2.32*	1.66

*Significant at 0.05 level, df=99, t.crit = 1.66

Table 3. Summary of the result of one sample t-test of level of occurrence of malaria on pregnant women using IPT (n=100)

Variable	N	X	SD	df	t.cal	t.crit
Level of occurrence	100	14.51	1.94	99	10.36*	1.66

*Significant at 0.05 level, df=99, t.crit = 1.66

respondents on the level of compliance of pregnant women to IPT. It shows that 100 pregnant women received sulphadoxine pyrimethamine during antenatal care in University of Calabar Teaching Hospital, Calabar. In age 58(58.0%) were 20-30 years, 34(34.0%) were between 31-40 years, 8(27.0%) were between 41 and above. In marital status, 27(27.0%) were single, 66(66.0%) were married, 3(3.0%) were divorce, 4(4.0%) were separated. In occupation 46(46.0%) were civil servant, 8(8.0%) were farmers, 22(22.0%) were trader, 13(13.0%) were student, 11(11.0%) were house wife. In religion, 93(93.0%) were Christian, 3(3.0%) were Islam, 4(4.0%) were Pagan. In educational status, 4(4.0%) were FSLC, 7(7.0%) were SSCE, 22(22.0%) were NCE, 21(21.0%) were Diploma, 26(26.0%) were HND, 8(8.0%) were Degree.

RESULTS FOR RESEARCH HYPOTHESES

Hypothesis 1

Hypothesis one state that, there is no significant relationship between intermittent therapy and compliance rate of pregnant women. To test this hypothesis one sample t-test using the test half 12.5 was used. The result of the analysis is presented in table 2.

The null hypothesis which states that the compliance rate of pregnant women on intermittent preventive therapy/sulphadoxine pyrimethemine was rejected since the calculated t-value (t=2.32, df=99 at 0.05) was greater than the critical t-value (t=1.66, df=99 at 0.05). This implies that the compliance rate of SP is quite high and there is significant relationship between the compliance rate of pregnant women on IPT due to awareness of the drug antenatal care clinic.

Hypothesis 2

Hypothesis two states that there is no significant relationship between intermittent therapy (IPT) and level

of occurrence of malaria on pregnant women. To test this hypothesis one sample t-test using the test value 12.5 was used. The result of the analysis is presented in table 3.

The null hypothesis which states that the level of occurrence of malaria on pregnant using intermittent preventive therapy was rejected since the calculated t-value (t=10.36, df=99 at 0.05) was greater than the critical t-value (t=1.66, df=99 at 0.05). This implies that the level of occurrence of malaria on pregnant women is quite high in University of Calabar Teaching Hospital, Calabar because inadequate intake of the drug by the client with reasons of the side effect e.g. nausea and vomiting.

DISCUSSION OF FINDINGS

In this study, data presenting 100 mother aged 20 years and above who attained antenatal clinic in University of Calabar Teaching Hospital between 2008-20011 was use for the study. Results obtained shows that there was a significant relationship between the compliance rate of pregnant women on IPT due to the awareness of drug at antenatal care clinic.

Relationship between intermittent preventive therapy and compliance rate of pregnant women

Table 2 showed that there was a significant relationship between intermittent preventive therapy and compliance rate of pregnant women. This findings support the report of Rogerson (2001) malaria is an enormous global health problem affecting mainly young children and pregnant women. Malaria infection during pregnancy poses substantial risk to the mother's her foetus and the neonate because pregnant women appear to be less capable of coping with and clearing malaria infections.

Relationship between preventive therapy (IPT) and level of occurrence of malaria on pregnant women

Result reveal that the level of occurrence of malaria on pregnant women is quite high in University of Calabar Teaching Hospital, Calabar because of inadequate intake of the drug by the client with reasons of the side effect e.g. nausea. This findings support of Macgregor (2001) showed that perceived propensity to develop clinical malaria due to idiosyncratic features of the person (pregnant women, children, and weak persons) whether pregnant women are considered particularly susceptible to malaria. When they perceived to be more susceptible (i.e. related to seasonality or to risk activities).

Summary of records collected of women on intermittent preventive therapy

Result in table 3 revealed that, the number of pregnant women receiving intermittent preventive therapy (IPT) was fluctuating with 20.06% of 997 clients receiving SP in 2008, 251 (25.82%) receiving SP in 2009 shows the highest in that year, but later drop in 2010 and 2011 with 13.53% out of 1626 and 12.23% out 1902 clients respectively.

This fluctuating record could be associated with poor record keeping. This support the findings of Eanmat, (2001) showed that sulphadoxine pyrimethamine is sensitive tests conducted recently by the last African network for monitoring ant malarial treatment, that about 25% failure of sulphadoxine pyrimethamine at several site.

Summary of the study

The purpose of this study is to find out IPT: assessment of the level of compliance and it's effective in pregnant women in University of Calabar Teaching Hospital, Calabar.

- The result of the analysis indicated that there was a significant relationship between IPT and compliance rate of pregnant women.
- There was a significant relationship between IPT and level of occurrence of malaria on pregnant women.
- There was a significant relationship between extents of relapse of women with malaria.
- The extent of malaria resistance on women using IPT was not significant.

Descriptive survey was used and abbreviation from records kept between 2008-20011. Questionnaire distribute to all pregnant women in University of Calabar Teaching Hospital, Calabar.

CONCLUSION

This study was conducted to determined intermittent preventive therapy: assessment of the level of compliance and it's effectiveness on pregnant women. Based on the finding of this study it was therefore concluded that the compliance rate of SP by pregnant women is high. Relapse of women is on intermittent preventive therapy with sulphadoxine pyrimethamine due to malabsorption syndrome minor side effect.

RECOMMENDATIONS

Based on the findings derived form the study, the following recommendations were made.

- 1) Proper record should be kept on pregnant women using intermittent preventive this would assist in assessment of the effectiveness of the drug.
- 2) Various clinics and hospitals should be provided with intermittent preventives therapy.
- 3) Intermittent preventive therapy should be made available for all pregnant women during antenatal care clinic visit.
- 4) Pregnant women should take intermittent preventive therapy form 16 week to weeks of pregnancy.
- 5) The nurses should ensure that the pregnant women drink the SP with their supervision.
- 6) The government should provide health facilities with IPT pregnant women.

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