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# Malaria In Pregnancy Wad Medani Teaching Hospital Obs & Gyn

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## ABSTRACT

This is a prospective hospital – base study carried out in Wed Medani Teaching Hospital for Obs and Gyn (WMTHOG),during the period from 5th October 2003 to 30 December 2003. All pregnant women with malaria admitted to the hospital during that period were included in the study. Malaria was diagnosed by thick and thin blood film, Gemsa's stain. Sever falciparum malaria was diagnosed according to WHO criteria. The national protocol for treatment of malaria with pregnancy was adopted in the management of all women. The results were analysed using SPSS. The total number of pregnant women included in this study were 210. The main results of the study were: (I) severe falciparum malaria 73.4%, (II) anaemia 98.6% of whom 11% was very severe, 20% was severe, (III) hyperparasitaemia 46.7%, (IV) dehydration 33.3% and (V) jaundice 20.5%. Complications on the fetus were: (I) preterm labour 44.1%, (II) low Apgar's score < 7 55.9%, (III) low weight < 2.5 44.1% and (IV) perinatal death 5.5%. Quinine was the main drugs used. Conclusion: pregnant women admitted to the hospital need intensive care. Although there was no mortality but morbidity was high. The current protocol is adequate in reducing mortality.

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**Introduction & literature review.** Malaria infection during pregnancy is a major health problem in tropical and subtropical regions throughout the word, in most endemic areas of the world, pregnant women are the main adult risk group for malaria.(1)

Malaria exists in 100 countries but is mainly confined to poorer tropical area of Africa, Asia and Latin America. More than 90% of malaria cases and the great majority of malaria death occur in tropical Africa. Plasmodium is the main cause of severe clinical malaria and death(2).infection with malaria parasite plasmodium infection is the one of the most important cause of human mortality in tropical countries(3)

There are at least 300 million acute cases of malaria each years globally, resulting in more than million deaths, around 90% of these deaths occur in Africa . It accounts for 40% of public health expenditure, 30 – 50 % of inpatient admissions , and up to 50% of outpatient visits in areas with high malaria transmission(4)(5)

In Africa,30 million women living in malaria–endemic areas become pregnant one year. For these women, malaria is a threat both to themselves and to their fetus. With up to 200000 newborn deaths each year as a result of malaria in pregnancy.(6)

The clinical manifestations of malaria in pregnancy may vary greatly according to their level of immunity.Non–immune pregnant women are susceptible to serious complications. They have an increase risk of abortion (in severe malaria), stillbirth, premature delivery and low infant birth weight. They more likely to develop all forms of severe malaria, and to suffer a high mortality (2 – 10) times higher than non – pregnant patients(7).

Pregnant women in malarious areas may experience avariety of adverse

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consequence from malaria infection including maternal anaemia ,placental accumulation of parasites,low birth weight,prematurity and interauterine growth restriction(IUGR),fetal parasite exposture and conjenital infection, and infant mortality ( IM) linked to preterm – LBW and IUGR – LBW[8][24].

In study that done in USA indicated that malaria was associated with anaemia (3- 15%), LBW (8-14%). Preterm – LBW (8 – 36%), IUGR – LBW ( 70%) and IM ( 3- 8%), and estimated that each year 75000 to 200000 infant death are associated with malaria infection in pregnancy[8].

In Africa Malaria Report 2003, reported that, the burden of sickness and deaths due to malaria remained high in Africa south of the Sahara during the 1990s and increased in most countries in the eastern and southern part of other continent.[9]

In study that carried out in Keyna; showed that, the prevalence of malaria in all gravidities was high ranging from 64% in PG to 30% in gravidities 5 above. In gravidies 1-4 , active malaria infection was associated with severe maternal anaemia (95%)[10].

In study had done in Eastern Sudan indicated that the complications of malaria were the most important non-obstetrical causes of maternal deaths(46.6%)and (20.6%) over all of maternal death[11].

In study that carried out in Wad Medani – Sudan showed that prevalence of malaria during pregnancy post intervention at ANC visits was ( 14.6%) and of maternal malaria at delivery was found to be ( 10.9%) and of placental malaria ( + ve BF) was 24%[12].

The objectives of this study is to assess the status of malaria in the wards in

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Wed Medani Teaching Hospital for Obs & Gynaecology and to evaluate the effects of malaria on the mother as well as on pregnancy outcome.

**Methods & Materials:**

**Study side.** This study was carried out in Obstetric Medani Teaching Hospital(OMTH),Gezira State central Sudan during a period from 5th October to December "post raining season". Gezira State accommodate the largest irrigating farms in the world.(13) This area which worked on by Blue Nile Health Project (1980 – 1990), for controlling work born diseases.

Study population:

The population in Gezira State was about 3 millions(14). The (OMTH) received about a thousand patients monthly from Gezira State and surrounding areas (15)

Study design, Sampling & Data Collection:

This is a prospective descriptive hospital – base study. All pregnant women with malaria admitted to the hospital during that period were included in the study. Malaria was diagnosed by thick and thin blood film, gemsa stain. Severe falciparum malaria was diagnosed according to WHO criteria(7). The national protocol for treatment with pregnancy was adopted in the management of all women(16). Total number of pregnant women included in this study were 210, no criteria for exclusion.

The information was collected by personal interviews, questionnaire recorded the following information for every subject: age , tribe, years of education, husband's occupation, main complains, obstetrical & Gynecological, histories, aclinical examination of each subject was carried out. The patients were investigated for BFFM, HB%, renal function, test

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widal test, blood sugar and U/S.

**Data analysis.** Data was analysed using Statistical Package for Social Science (SPSS), which was done by the statistical expert.

**Definition**

In this study: we defined that:

**I.**Degree of parasitaemia according to ( WHO) classification[17].

| Cross | No. | Dgree |
|---|---|---|
| + | 1-10 parasites /100 fields | Scanty |
| ++ | > 10 parasites / 100 fields | Moderate |
| +++ | 1 – 10 parasites/ field | High |
| ++++ | > 10 parasites / field | V. high |

**II.** Also we defined Anaemia as Hb less than 11g/dl [17] according to (WHO).

**Ethics.** All participants and patients were informed ,clearance of study from Educational Development and Research Centre, Faculty of Medicine, Gezira University.

**Result.** Total number of patients included in this study was 210. The age was distributed as follow: 6.7 % less than 20 yrs, 61.4% ( 20 – 29) yrs, 10% ( 30 – 34 ) yrs, ( 35 + ) 21%.18.6% was illiterate, which 70% received general education & 11.4% were universities, 7.1% has a history of stillbirth,

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23.3% has a history of abortion.

(83.3%) has infected during the last 3 month of the present pregnancy, ( 67.7%) of whom has 1-2 attacks, ( 32.3%) three attacks and more.

Fever was the main presenting symptoms at the time of admission ( 70.5%) as shown below.

| Symptoms | No. | % |
|---|---|---|
| Fever | 148 | 70.5 |
| Vomiting | 13 | 6.2 |
| Headache | 20 | 9.5 |
| Abdominal pain | 12 | 5.7 |
| Vaginal bleeding | 5 | 2.4 |
| Labour pain | 3 | 1.4 |
| Others | 9 | 4.3 |
| Total | 210 | 100 |

**Paraty:**

| Paraty | No. | % |
|---|---|---|
| PG | 63 | 30 |
| 2-4 | 96 | 45.7 |
| 5 + | 51 | 24.3 |
| Total | 210 | 100 |

**Previous malaria treatment** :

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| Previous treatment | No. | % |
|---|---|---|
| Chloroquine | 177 | 84.3 |
| Quinine | 28 | 13.3 |
| Fansidar | 2 | 1 |
| Others | 3 | 1.4 |
| Total | 210 | 100 |

**Clinical examination:**

| Sign | No. | % |
|---|---|---|
| Coma | 0 | Zero |
| Convulsion | 3 | 1.4 |
| Dehydration | 70 | 33.3 |
| Jaundice | 43 | 20.5 |
| Splenomegally | 14 | 6.7 |
| Hepatomegally | 12 | 5.7 |

**Temperature:**

| Sign | No. | % |
|---|---|---|
| 37 C° | 54 | 25.7 |
| 38 – 39 C° | 88 | 41.9 |
| 40 + C° | 68 | 32.4 |
| Total | 210 | 100 |

**Degree of parasitaemia:**

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| Degree | No. | % |
|---|---|---|
| + | 23 | 11 |
| + + | 87 | 41.4 |
| + + + | 75 | 35.7 |
| + + + + | 25 | 11.9 |
| Total | 210 | 100 |

## Widal test:

| **Widal test** | **No.** | **%** |
|---|---|---|
| + Ve | 70 | 33.3 |
| - Ve | 140 | 66.7 |

## U/S IUGR:

| **U/S** | **No.** | **%** |
|---|---|---|
| IUGR | 80 | 38.1 |
| No IUGR | 130 | 61.9 |
| Total | 210 | 100 |

## Criteria of Severe falciparum malaria:

| **Criteria** | **No.** | **%** |
|---|---|---|
| Coma | 0 | 0 |
| Convulsion | 3 | 1.4 |
| Jaundice | 43 | 20.5 |
| Hyperpyrexia ( > 40 C° ) | 70 | 33.3 |
| Hypotension (sy < 100 ) | 12 | 5.7 |

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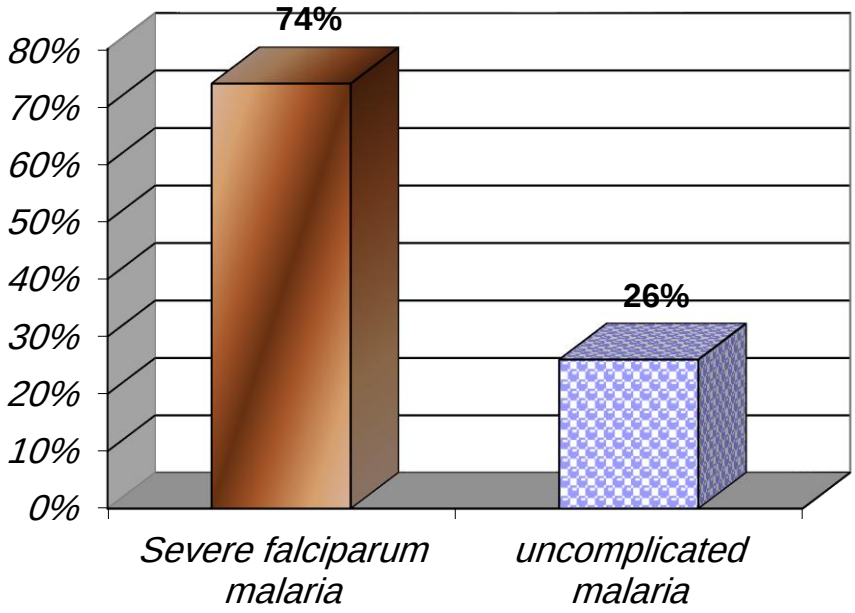
| | | |
|---|---|---|
| Hyperparasitaemia ( < ++ ) | 12 | 5.7 |
| Very severe anaemia < 5 g/dl | 23 | 11 |
| Hypoglycaemia < 80 | 35 | 16.7 |

**Diagnosis:**




**Pregnancy Out come:**

During a period of study a total number of 34 patients were delivered. Vaginal delivery 61.8%, forceps 11.8%, LS C/S 26%. 2/3 of them were severe falciparum malaria. Quinine was the main drug 97.1%.

**Gestional age:**

| G. A / weeks | No | % |
|---|---|---|
| Less than 37 | 15 | 44.1 |
| 37 – 41 | 19 | 55.5 |
| 41 and more | Zero | Zero |
| Total | 34 | 100 |

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## Weight

| Weight / kg | No. | % |
|---|---|---|
| Less than 2.5 | 15 | 44.1 |
| 2.5 -3.5 | 17 | 50 |
| More than 3.5 | 2 | 5 |
| Total | 34 | 100 |

## Apgar score:

| Score | No. | % |
|---|---|---|
| 7 and more | 15 | 44.1 |
| Less than 7 | 19 | 55.9 |
| Total | 34 | 100 |

## Outcome:

| Outcome | No. | % |
|---|---|---|
| Prenatal death | 2 | 5.5 |
| Preterm | 15 | 44.1 |
| Term | 17 | 50.4 |
| Total | 34 | 100 |

## Paraty :

| Paraty | No. | % |
|---|---|---|
| PG | 12 | 35.3 |
| 2 – 4 | 13 | 38.2 |

| | | |
|---|---|---|
| 5 + | 9 | 26.5 |
| Total | 34 | 100 |

**Conclusion.** Pregnant women admitted to the hospital need intensive care. Although there was no mortality but morbidity was high. The current protocol is adequate in reducing mortality.

**Discussion.** Pregnant women of all paraties are at higher risk of developing severe malaria than non- pregnant women[18,19]. Total numbers of pregnant women included in this study were 210. in this study there was no mortality due to malaria this justified that the national protocol of management for malaria during pregnancy[16], which was used for management of patients in this study, was adequate in reducing mortality.

The clinical manifestations of malaria in pregnancy may vary greatly according to their level of immunity[7] .

In this study, fever was the main presenting symptoms at the time of admission (65%), the falciparum malaria ( 61%) manifested itself severely during pregnancy: jaundice 20.5% (other causes were excluded ), dehydration 33.3% , hyperpyrexia 33.3%, hypotension ( sy < 100 ) 5.7%, hyperparsitaemia ( > 2 cross ) 5.7% , very severe anaemia ( < 5 g/dl ) 11% and hypoglycaemia ( < 80 mg/dl ) 16.7% . In spite of that, non of the patients presented with coma and very few ( 1.4% ) presented with convulsions.

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The severity of the disease during pregnancy returns to fact that pregnancy appears to inhibit the immune system response in malaria infection[20], and the disease is therefore even more serious at this time, beside that other factors can be included such as inadequate management at home prior to admission and delaying to request medical advice.

This study showed that splenomegally (6.7%) & hepatomegally 5.7% ar not accommon assign of severe .falciparum malaria but it is acommon signs of repeated attacks of malaria.

Plasmodium falciparum resistence to antimalaria drugs is an important problem and a number of studies have described increasing the resistance particular to chloroquine, sulphadaxine – pyrimethamine and quinine [21].

Our study showed that 86% of the patients had received chloroquine therapy before admission to the hospital where second line drug, quinine, was described in 98%, according to national protocol for treatment of malaria during pregnancy [16], the level of chloroquine resistance is low compared with 92 % in Veitnam[22], chloroquine resistance is possible due to white spread use of the cheapest and available drug without medical advice and not in a proper way, so health education is needed in this issue.

This study showed that malaria has a poor pregnancy outcome, it is associated with preterm labour < 37 weeks ( 44.5%) which was high compared with similar study carried out in USA, which gave an incidence of 36 % [8].

The incidence of LBW < 2.5kg was ( 44.1%) was very high compared with case control interventional study carried out in Medani – Sudan, which showed 35.8% for control groups and 3.5 % for intervention group [12], and was also high when compared with study conducted in central Sudan which

showed that an incidence of 18.1% [23].

This study had showed perinatal death was ( 5.5%) a little high when compared with ( 5.4%) in the similar area for control group[12].

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