Malaria in Pregnancy – Are We Treating it too Lightly?

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Summary

A study of all women in the reproductive age group showing peripheral smear with malarial parasite positive was undertaken over two years from May 1994 to June 1996. A comparison between the two groups of pregnant and non pregnant patients with relation to clinical presentation, course of disease and outcome was done. Pregnant patients presented more often with multi organ damage and showed a two fold increase in mortality. The perinatal mortality was over 25%.

Introduction

8% of all malaria cases worldwide are found in India. By the assessment of palpable spleen also, the Indian subcontinent ranges from hypoendemic to holoendemic in terms of malaria prevalence. In sub Saharan Africa and South East Asia where malaria is also endemic, large number of studies have shown a profound negative effect on pregnant women and the maternal and perinatal outcome. Starting from intrauterine growth retardation and chronic refractory anemia in endemic regions to cerebral malaria with maternal and fetal mortality in epidemic conditions. This study of malaria in pregnancy has been undertaken to assess the effect of malarial infection in Indian women.

Materials and Method

All females in the reproductive age group (15-45 years) who were malarial smear positive were evaluated with respect to clinical presentation and disease pattern and outcome, comparing these factors in the pregnant and nonpregnant women.

Observation

There were totally 138 women who were evaluated of whom 31 were either antenatal or immediate postnatal patients. All these women were malarial parasite positive on peripheral smear. It was found that Plasmodium falciparum and mixed i.e. Plasmodium falciparum (P. falciparum) and Plasmodium vivax (P. Vivax) was the predominant infection. However pregnant patients showed almost universal P. falciparum infection, with only one patient showing only P. vivax infection (Table 1).

The total number of deaths secondary to malarial infection, were overall 8 out of 138 i.e. 5.8%, of which 3 deaths were maternal deaths giving a higher

Table I
Prevalence of type of Plasmodium parasite infection in study patients

Patients	P. Falciparum	P. Falciparum & P. Vivax	P. Vivax	Total
Non pregnant	50 (46.7%)	31 (28.9%)	26 (24.4%)	107
Pregnant	21 (67.7%)	9 (29.1%)	1 (3.2%)	31

percentage of 9.6% mortality in pregnancy with malarial infection (Table II).

Table II
Mortality in malarial infection in study patients

Patients	Number of patients	Mortality
Non pregnant	107	5 (4.6%)
Pregnant	31	3 (9.6%)
Total	138	8 (5.7%)

Of the 31 antenatal/postnatal women the severity of sequelae in terms of maternal and fetal outcome was found to be highest in primigravidae and least in multigravidae as seen in Table III.

Table III
Parity Index Vs Mortality

Gravida	Number of patients	Mortality
Primi	16	2
Second	11	1
Third or more	04	0

Malarial infection was found to be most virulent if it affected in the 3rd trimester of pregnancy, resulting in a larger obstetric wastage as well as maternal morbidity and mortality.

Patients acquiring a malarial infection in the first or second trimester tended to have a better obstetrical outcome. 16 patients presented with malaria earlier than 28 wks of pregnancy of whom 2 aborted spontaneously and 14 continued the pregnancy.

Of the 15 patients who acquired malaria after 28 weeks of pregnancy, only 5 continued the pregnancy uneventfully and 3 had a carry-home baby. The remaining 7 babies were either stillborn or died in the immediate neonatal period, either due to severe maternal disease resulting in fetal distress or low birth weight/ prematurity. This resulted in a 46.6% fetal wastage.

The clinical presentation also differed in gravid and non-gravid patients. Fever as a classical presenting symptom was present universally, ranging in duration from a few days to more than 6 weeks. Both sets of patients often had a history of being treated for UTI or enteric fever prior to admission at St. John's Medical College Hospital.

Most patients complained of headache, nausea/ vomiting, epigastric burning and loss of appetite. In nonpregnant women the diagnosis of malaria was reached faster when the patient presented with fever and the above symptoms. But in pregnancy the same

Table IV
Perinatal outcome in maternal malaria infection

Time of presentation to hospital	Number of patients	Perinatal outcome		Obstetric wastage
1st trimester	1	Continued pregnancy	1	-
2nd trimester	15	Continued pregnancy	13	2 (13%)
		Spontaneous abortion	2	
3rd trimester	10	Continued pregnancy	5	-
		Preterm still birth	1	1
		Preterm vag. Delivery	1	-
		Full term normal delivery	2	2
		Full term LSCS	1	- (33%)
Postnatal	5	Preterm still birth	2	2
		Full term normal delivery	2	1
		Full term LSCS	1	1 (80%)
Total	31		31	9 (29%)

complaints were often disregarded and considered due to the pregnancy itself.

Hence pregnant patients with malaria presented with symptoms of end organ damage more often than nonpregnant women as is seen in table V

Table V
Clinical presentation in pregnant Vs nonpregnant women with malarial infection

Symptom	Pregnant (n=31)	Non pregnant (n=107)
Jaundice	18 (58%)	-
Altered sensorium	5 (16%)	5 (4.6%)
Pedal edema	5 (16%)	-
Oliguria	2 (6.4%)	1 (0.9%)
Cough with sputum	5 (16%)	7 (6.5%)
Diarrhoea	2 (6.4%)	2 (1.8%)
Burning micturition	5 (16%)	2 (1.8%)
Reduced fetal Movts	2 (6.4%)	-

Discussion

The mortality in pregnant women is twice that of non pregnant women with malarial (5.6% vs 9.8%) infection. A community based investigation of causes of maternal mortality in rural and urban Zimbabwe showed that malaria was a major indirect cause of maternal mortality (7.6%). Various studies in Yaounde, Cameroon (Kouam and Kamdem, 1995), Central Sudan (Taha et al, 1995), Malawi (Chimsuku et al, 1994) and Sierra Leone (Morgan 1994) have shown increase in maternal mortality and poor perinatal outcome in pregnant women suffering from malarial infection.

In our study the obstetric wastage was 29.1 i.e. 9 pregnancy losses out of 31 primarily due to spontaneous abortions and intrauterine fetal death antenatally and prematurity and low birth weight in the neonatal period. The harmful effects of malaria are most pronounced during the first pregnancy, and especially in the final trimester. This is similar to findings in various African studies, where they are considering malaria chemoprophylaxis to be given to first pregnancies (Greenwood et al, 1994). In this study the obstetric wastage was nil in women in their 3rd pregnancy but 12.5% in primigravidas and 9.1% in women in their 2nd pregnancy.

Similarly the perinatal loss increased when malarial infection was acquired at a later stage of the pregnancy viz. 13.3% in the second trimester and 30% in the 3rd trimester.

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