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Malaria in Pregnancy – Our Experience

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Summary

Calcutta is now highly endemic for malaria. This study was carried out in the maternity ward of S.S.K.M. Hospital, Calcutta from 1996-1999. Out of 118 fever cases in pregnancy, 53 cases (44.9%) were found to be M.P. positive, with 35(66%) cases of P. vivax and 18 cases (33.96%) of P. falciparum and mixed infection. Main complications of Malaria in pregnancy were severe anemia (24.53%), L.B.W. babies (41.86%), preterm delivery (18.8%) and I.U.D. (6.9%). Congenital malaria was found in one baby. Cerebral malaria developed in 5 cases (9.43%) with one (1.89%) fatality. All patients with fever were treated with a presumptive course of tab. Chloroquine. Severe malaria cases were treated with I.V. quinine. Chloroquine resistance was not found in any case of P. vivax infection but 5 cases of p.falciparum required treatment with sulphadoxin-pyrimethamine combination.

Introduction

Malaria, said to be a disease of bad environment, still continues to be a major threat to life in tropical developing countries of Africa and Asia, with a worldwide death rate of 1.5 million – 2.7 million per year. (WHO 1996).

In India, the entire population (95.9%) is now deemed to be under malaria risk (SEARO, 1985). Calcutta, at present is intensely malarious; it is endemic for both P. Vivax and P. falciparum, the later constituting as high as 31.47% of total cases (Mondal et al, 1998).

Malaria infection during pregnancy greatly jeopardises the health of the mother and the foetus. Pregnant women are highly vulnerable to malaria due to immuno-suppression caused by high level of cortisol (Vleugels et al 1987) or decreased cellular immunity (Sholapurkar et al 1990). Women in their first pregnancy and to a lesser extent in second pregnancy are more prone to develop parasitaemia and to have placental infection than in later pregnancies (Jelliffe EFP, 1968). There is also a marked tendency of the disease to occur during postnatal and post-operative periods.

Malaria parasites have an affinity for the decidual vessels. Preferential placental parasitaemia leads to decreased foetal nutrition leading to intrauterine growth restriction and low birth weight babies (Jelliffe EFP), 1968, Barbin 1983), along with high rates of abortion. Preterm labour and intrauterine death (Mc Gregor et al 1983). Congenital malaria is rare due to passive transfer of maternal antibodies through placenta

and foetal Hb is largely resistant to the malarial parasite (Pasval et al 1976).

Principal maternal complications are anaemia, preterm labour and death.

Hence, this study was done to know the incidence and type of malaria in pregnancy in our locality with the aim to know the complications, outcome & response to treatment.

Patients and Methods

This study was carried out in the Maternity ward of SSKM Hospital, Calcutta from Jan, 1996 to Dec. 1999. This hospital is situated in the hot zone of endemic malaria. All the patients developing high fever (>100°F) in the antenatal period (2nd and 3rd trimester) and postpartum period were given a presumptive treatment of malaria with tab chloroquine after sending a peripheral smear for malaria parasite examination. (Dose – Tab. Chloroquine – 600mg on D_1, 600 mg on D_2 and 300 mgm on D_3).

MP+ve cases were carefully monitered in the antenatal period for maternal and foetal condition with particular attention to anaemia, preterm labour, IUGR, and I.U.F.D. After delivery the baby was examined carefully and placenta was examined clinically and histopathologically.

Fever not responding well to chloroquine in P.falciparum cases were given a single course of sulphadoxine (1600mgm) with pyrimethamine (75mgm) combination.

Primaquin was not given to antenatal cases but given in selective postnatal cases after G-6 PD estimation, where gametocytes were present in peripheral blood.

Patients with severe falciparum malaria like cerebral malaria or renal failure were treated with I.V. quinine and supportive treatment as soon as diagnosis was made. Dose – Initially a loading dose of quinine 20 mgm/kg in 10% Dextrose over 4 hrs. – followed by 10mgm/kg in10% Detrose over 4 hr. infusion – 8 hrly till the conciousness became clear, when oral quinine was started and given for 7 days. Laboratory investigations included – peripheral blood smear for M.P., Hb%, haematocrit, platelets, WBC count, blood glucose, S. Bilirubin, serum electrolytes. For rapid diagnosis of P. falciparum infection – Parasight F Kit test' was done in a few cases.

Result & Discussion

Table I
Incidence of malaria patients in maternity ward

Year	Total No. of admission	Total No. of fever cases	MP +ve cases
1996	1520	22	12
1997	1590	23	10
1998	1648	44	14
1999	1575	29	17
Total	6333	118	53(44.9%)

Table – II
Types of Malaria

Total M.P. +ve Cases	P.Vivax	P.falciparum
53	35(66%)	18(33.96%) 5 cases had mixed infection.

Table I shows that out of 118 fever cases in pregnancy, malaria parasite was detected in 53 cases (44.9%). Out of these P. vivax was found in 35 (66%) cases and p.falciparum in 18 cases (33.96%) including 5 cases of mixed infection (table II).

Table – III
Distribution of cases throuhout the year

Year	Total Cases (MP+ve)	Jan. to June	July to Dec.
1996	12	5	7
1997	10	0	10
1998	14	3	11
1999	17	3	14
Total	53	11 (20.75%)	42 (79.25%)

Table III depicts that the incidence of malaria is high (42 cases ie. 79.25%) from July to Dec. The vector, female anopheline mosquito breeds in pools of water created in rainy season. The hot climate & humidity also favours mosquito survival. But transmission is low in winter as sporogony can not take place <16°C.

Table – IV
Distribution according to the period of pregnancy

Total cases	2nd trimester	3rd trimester	Postnatal
53	12 (22.64%)	31 (58.5%)	10 (18.86%)

Table IV and V shows the profile of patients. There were 43 antenatal and 10 postnatal cases. Table V reveals that the maximum number of patient (34 or

64.15%) were primigravida or primipara.

Table – V
Distribution of cases according to gravida/parity

		No. of cases
1st pregnancy	-	34(64.15%)
2nd pregnancy	-	16(30.19%)
3rd or more pregnancy	-	3 (5.66%)
Total	-	53

In areas of unstable malaria like India – women of all parities are at risk of infection but the women at the greatest risk are primigravida during the 2nd or 3rd trimester (WHO Expert committee – 1985).

Table VI
Foetal outcome

Total antenatal cases	-	43	
Low birth weight (below 2.5 kg.)	-	18	(41.86%)
Preterm birth	-	10	(18.8%)
Still birth	-	3	(6.9%)
Congenital malaria	-	1	
Placental parasitaemia	-	1	
Birth Asphyxia	-	5	

Table – VII
Incidence of L.B.W. babies

Total No. of Antenatal Cases	Birth weight		
	< 2kg	2-2.5 kg.	>2.5 kg.
P.V.	0	6	11
P.F.	4	8	2

Table VI and VII depicts thoroughly the pregnancy outcome in 43 antenatal cases. The incidence of L.B.W. babies was 18(41.86%) and preterm birth – 10(18.8%) which are quite high compared to general population. Of 18 cases of L.B.W. babies in 12 cases mother had p.falciparum infection (Table – VII). 4 of them were below <2kg. I.U.D. occurred in 3 cases. Congenital malaria was found in one baby, where placental parasitemia was present. Placental biopsy in 6 other cases showed marked hypertrophy and thickening of wall of blood vessels.

Table – VIII
Maternal complications due to severe malaria

Total No. of cases	-	53	
Moderate to severe anaemia	-	13	(24.53%)
Cerebral malaria	-	5	(9.43%)
Renal failure	-	2	
P.P.H	-	3	
Diarrhoea	-	2	
Jaundice	-	2	
Hypoglycaemia	-	3	
Acute pulmonary oedema	-	Nil	
Maternal mortality	-	1	(1.98%)

Table VIII focusses the severe maternal complications due to falciparum malaria. Moderate to severe anaemia was found in 13 patients. Five patients developed cerebral malaria characterised by alteration of conciousness, hypotension & collapse. Four of them were postnatal and one antenatal. Renal failure and jaundice developed in two of them. One of them died inspite of repeated haemodialysis. Maternal mortality was 1(1.89%) in this study.

Table IX shows the mode of treatment. 43 (38+5) patients responded to tab. Choloroquine (C.Q.) although 2nd or 3rd course was required in cases of relapse. There was no single case of Chloroquine resistance in P.vivax infection. Primaquine was added in 5 cases.

Chloroquine is a very effective & rapidly acting schizonticidal drug with least toxicity. It is the 1st line antimalarial in pregnancy. Sulphadoxine – pyrimethamine is 2nd line of treatment in case of CQ resistance in P.falciparum. But P. vivax is less sensitive to sulphonamides and rapidly develops resistance to pyrimethamine (NMEP-1998).

Comments

1. Malaria in pregnancy entails a grave risk to the mother & foetus.

Table – IX
Antimalarial Drug treatment

Total Cases	Only Chloroquine tabs.	Chloroquine with sulphadoxine -pyrimethamine	I.V. quinine + oral quinine	Chloroquine with Primaquin
53	38	5	5	5
P.V.	33	0	0	2
P.F.	5	5	5	3

2. Incidence of P. falciparum (33.9% of all M.P. +ve cases) in pregnancy is significant in this city.
3. Chief obstetric complications are severe anemia (24.53%) preterm labour (18.8%), low birth weight babies (41.86%), I.U.D. (6.9%) and maternal death (1.8%).
4. Complications are more frequent with p.falciparum infection.
5. All fever cases in pregnancy should get a presumptive treatment of malaria in an endemic area.
6. Chloroquine is still the first line of treatment in pregnancy with malaria for both P.vivax and P. falciparum. Less responsive cases 5(9.43%) of P. falciparum infection responded to sulphadoxine – pyrimethamine.
7. Severe malaria – like cerebral malaria in pregnancy should be treated with I.V. quinine without any delay along with supportive management to prevent maternal mortality.

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References

1. Barbin BJ, Bulletin of WHO, 61 : 1005, 1983.
2. Jelliffe EFP, Bulletin of WHO, 38: 69, 1968
3. MC Gregor IA, Wilson ME, Billewicz WZ Trans R SOC Trop Med Hyg ii, 686, 1983.
4. Mondal B, Mitra NK, Mukhopadhyay AK, Mukherjee H, Hati AK – JIMA – 96: 328, 1998.
5. National Malaria Eradication programme, Directorate General of Health Services. Govt. of India, 1998.
6. Pasval G, Weatherall DJ, Wilson PSM, Smith DH, & Gilies HM – Lancet I : 1269, 1976.
7. SEARO – Annual report RD, P-191, 1985.
8. Sholapurkar SL, Mahajan RC, Gupta AN, Wangoo A. – Asia Oceania J Obst Gyn 16: 27, 1990.
9. Vleugel MP, Eling WM, Rolland R & De Graff R, Br J Obst Gyn 94: 758, 1987.
10. WHO – Expert Committee on Malaria 18th Report, p-58, 1985.
11. WHO – Report of the Director – General WHO, 1996