PULMONARY COMPLICATIONS IN PREGNANCY WITH MALARIA

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SUMMARY

Respiratory complication in cases of pregnant women with severe malaria is a dreaded complications, but often over-looked due to the presence of other severe complications. It may be present at the time of admission or develop suddenly several days after hospitalisation. We report 8 patients out of whom one developed adult respiratory distress syndrome and ultimately died. All these patients had multi-system involvement. Six developed respiratory signs after expulsion of the product of conception (abortion or delivery) where as two developed it while the pregnancy continued. The mortality is very high.

INTRODUCTION

The presence of falciparum malaria in gravid women can lead to multiple complications. The patient is vulnerable to develop severe manifestations like hypoglycemia, cerebral renal, metabolic complications, severe anaemia, pulmonary oedema, premature labour etc. Of these the pulmonary complications are overlooked due to presence of concomitant other acute problems (WHO Divn, 1990).

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Accepted for Publication on 13.10.1993.

Several reports of pulmonary oedema were interpreted as the result of over enthusiastic fluid therapy (Hall, 1976). Whereas others consider it to the grave complication of falciparum malaria itself (Fein, 1978; Martell et al 1979).

To assess the incidence as well as severity of repiratory complications in gravid P. falciparum positive cases, we undertook a prospective study.

MATERIAL AND METHODS

The study was conducted in Ispat General Hospital, Rourkela, a tertiary referral hospital. The annual incidence of

falciparum malaria being around 200 per thousand population. The cases admitted to the departments of Internal Medicine and Obstetrics during Jan 1988 to Dec 1990 who had pregnancy with asexual P. falciparum parasites in the peripheral blood were assessed for severe complications as per the WHO criteria. Blood smear was taken for parasite count. Simultaneously biochemical estimations were performed (Blood Urea, Sr. creatinine, Sr. bilrubin, SGPT, SAP, blood sugar and electrolytes).

Patients suspected to be having respiratory distress of any description were monitored carefully with arterial blood gases, Chest X-Ray, and were if needed, shifted to Intensive Care Unit for ventilatory support.

OBSERVATIONS

Twenty four cases were included in the present series as severe and complicated malaria with pregnancy. Of these 14 cases had cerebral malaria, 7 had renal complications, 5 had hypolycemia, 10 patients had significant anaemia ranging from 2.5 Gm to 5.5 Gm%. Eight patients had evidence of haemolysis. The mortality was 8 out of 24 cases. (Table I)

Pulmonary complication was seen in 8 cases. Five patients were multigravida and 3 were primigravida. 3 were in the 2nd trimester and others in the third. There was no statistical difference between the period of gestation nor the parity.

All these 8 patients had multi-system in-

Table I

Severe & Complicated Malaria in Female Patients

	Pregnant n = 24	Non-Pregnant n = 25
Pulmonary	8	1
Cerebral	15	14
Renal	11	2
Hypoglycemia	7	3
Haemolysis	14	6
Anemia < 5 gm	11	4
Death	8	4

Table II

Clinical & Lab Data of the Patients with Pulm Complications

Pt.	Age	Grav	Trim	Cerb	Urea / Creat	FPG	Hb%	P. C.	Foetal Loss	Death
R	28	Prim	2	+	135/5.9	76	3	4.5	No	Death
S	27	Mult	3	+	145/3.1	44	6	26	Premat	Death
A	27	Mult	3	+	175/4.5	49	4	6	SFD	Death
B	18	Prim	2	+	23-/37	12	3	11	No	Death
A	24	Prim	2	+	20/1.0	79	4.5	5	No	Recov
M	36	Mult	3	+	180/3.1	114	2.5	6	Abort	Death
S	35	Mult	3	+	140/2.9	101	5.5	5	Abort	Death
P	23	Mult	3	-	42/1.0	73	5	2	Abort	Recov

volvement, their clinical and biochemical descriptions are mentioned in Table II. One developed hypoglycemia (FPG 12), blood sugar level in two cases dropped to 44 and 49 respectively with tachycardia and sweating. Six had renal complications, 7 had cerebral malaria. Six patients died. Two patients, who survived, had normal renal function. Six developed respiratory signs after expulsion of the product of conception (abortion or delivery) where as two developed it while the pregnancy continued.

The respiratory symptoms in these cases ranged from tachypnoea to severe pulmonary oedema and in one case Adult Respiratory Distress Syndrome (ARDS). The two cases having normal renal function survived. It resembled pulmonary oedema in 4 cases, overhydration in 2 cases, hypostatic congestion in one and ARDS in the other.

DISCUSSION

The cause of this lethal complication in sever falciparum malaria is not known. But it is seen most commonly among the pregnant group. This may be present on admission or develop suddenly several days after admission to the hospital. It commonly developes immediately after delivery. In our experience also we encountered pulmonary signs in 6 after delivery but in 2 it developed while the pregnancy continued.

Several reported cases of acute pulmonary oedema probably resulted from over enthusiastic administration of fluids. (Hall, 1976) and the prevalence of the condition is not properly documented. So a judicious fluid intake and out put balance has to be maintained with special attention to the development of this complication. In this setting usually the fluid restriction along with dehydration therapy may suffice. This complication is invariably associated with renal impairment. In our series we observed this association in 6 cases. The role of dialysis in these cases is promising but not always fruitful.

However there is no doubt that pulmonary complications of different magnitude can develop in patients who have not been overhydrated (Fein, 1978; Martell et al 1979). In our series were also encountered this inspite of meticulous fluid balance. Associated renal impairment may be a decisive factor. The cases where it appeared with normal renal function had only transient crepitations and they recovered.

A number of cases may present as ARDS and in this setting the prognosis remains grave. Hyperparasitemia, hypoglycemia renal failure may supervene concomitantly and the outcome in grave.

In pregnant women who are in a fluid-overload state a small amount of extra fluid is deleterious. After the delivery there occurs a fluid shift to the mother and so pulmonary oedema may in fact appear just in the 2nd/3rd stage of labour or in the immediate postpartum period.

The first sign of pulmonary oedema is usually tachypnoea which precedes any other chest signs. Other conditions like aspiration pneumonia, respiratory infection or metabolic complications or congestive cardiac failure are to be excluded.

Pulmonary oedema usually occur late in the course of the disease (Brooks et al 1968). Hypoxia ultimately sets in and may remain so in spite of the ventilatory support, at times leading to ARDS. Hypoxia can cause convulsion and deterioration of sensorium and the patient may die within few hours.

ACKNOWLEDGEMENT

We are thankful to Dr. D. N. Mahapatra, Dr. D. B. Das, Dr. R. SAtpathy, Dr. D. V. M. Rao, Dr. S. R.Satpathy for their constructive criticism and support.

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