

Neonatal Malaria: Issues and Concerns

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Notwithstanding herculean endeavours, malaria continues to be rampant in many tropical and subtropical countries, afflicting millions of people and killing a substantial proportion globally year after year. According to the 2017 World Malaria Report, there were 216 million cases of malaria in 2016 and the estimated number of malaria deaths stood at 445 000 in 2016 [1]. Furthermore, malaria remains a major killer of children in under-5 five year age group. Every 2 minutes, malaria takes the life of a child.

As per current understanding, congenital malaria is supposed to be rare in highly malarious areas [2]. In other words, clinically apparent congenital malaria is rare in areas in which malaria is endemic and levels of maternal antibody are high. The logic behind this contention is the protection provided by the transplacental passage of maternal IgG antibodies. These antibodies may act as opsonizing agents or block the merozoitic invasion of erythrocytes resulting in absence of the erythrocytic (hepatic) phase of the cycle.

However, a recent documentation from India has drawn renewed attention to the possibility of congenital malaria in neonates with an obscure febrile illness even in highly malarious belts [3]. We too subscribe to the contention that the congenital malaria should be considered an important differential diagnosis in infants who are born from mothers coming from malaria endemic countries. Similar plea was made by us as far back as 1997 while presenting a series of neonates with malaria at an international meet [4]. There is an increasing evidence that congenital malaria occurs more frequently than is indicated in the literature [5,6].

Understandably, a brief profile of neonatal malaria based on our experience as well as the inputs from the English medical literature should be in place.

Strictly speaking, congenital malaria is defined as malarial parasites demonstrated in the peripheral smear of the newborn around 24 hr-7 days of life [5]. Normally, symptoms occur 10 to 30 days postpartum.

Etiologically, neonatal malaria may be of three types:

1. **Congenital:** It is due to transplacental transmission of the malarial parasite and is rare since placenta, as a rule, is supposed to act as a barrier to such a transfer. In a span of over 4 decades, we could diagnose it in 105 instances in north and south India, though we have all along been actively looking for it.
2. **Transfusion malaria:** It follows infected blood transfusion.
3. **Naturally-acquired malaria:** It results following an actual bite of a previously infected female anopheles mosquito.

Clinical presentation includes unexplained pyrexia with splenomegaly, hepatomegaly or both (hepatosplenomegaly), anemia, slight jaundice, poor feeding, irritability, jitteriness, regurgitation and loose motions. Occasionally, drowsiness, restlessness, cyanosis and respiratory distress may be encountered, Intrauterine growth retardation (IUGR) may be seen in congenital malaria, especially if the baby is first born and was affected early in intrauterine life.

Notably, diagnosis is usually missed. The points favouring diagnosis of congenital malaria are:

- Malaria in the mother during pregnancy.
- Manifestations occurring before the minimal incubation period (12 - 16 days for *P. vivax* and *P. ovale*, 10 - 13 days for *P. falciparum* and 27 - 37 days for *P. malariae*).
- Absence of history of blood transfusion.

Those with asymptomatic parasitemia at birth may either suppress this spontaneously, or present with clinical symptoms in the late neonatal period

Chloroquine, the drug of choice, 10 mg/kg (PO) or 5 mg/kg (IM), should be given after taking blood for peripheral film. Half of the initial dose should be repeated after 6 hours, 24 hours and 48 hours. Alternatively, especially in case of multidrug resistance, intravenous artesunate can be employed.

Primaquine is not recommended since the exerythrocytic (hepatic) phase is missing. Supportive treatment directed at controlling fever, raising haemoglobin level and maintaining fluid and electrolyte balance and nutrition is also warranted.

Prophylaxis is on the following lines:

- Timely treatment of maternal malaria and even empirical administration of chloroquine to pregnant mothers during the third trimester.
- Blood for transfusion must be tested for malarial parasite.
- Routine screening of newborns for asymptomatic parasitemia followed by prompt, effective antimalarial treatment could further reduce the burden of congenital malaria
- Standard measures for control and eradication of malaria.

No doubt, malaria during pregnancy and neonatal period causes significant burden of disease. According to conservative estimates, around 2500,000 fetal and infant deaths and 2,500 deaths of pregnant women worldwide annually are from malaria. Therefore, it is important that epidemiological studies are conducted to investigate the disease burden, approach to diagnosis, management and prevention of congenital malaria. Meanwhile, paediatricians need to be sensitised to the occurrence of congenital malaria and consider this possibility in the differential diagnosis of ambiguous fever in neonates even in highly malarious regions. A routine blood test for detecting malarial parasite in neonates with fever not responding to antibiotics given for sepsis may well be a good approach.

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