Pregnancy and malaria

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In the early 1970s a Dutch doctor, Francis Kortmann, began to study the problem of malaria in pregnant women at a rural hospital at Muheza in Tanzania. Some years later in a small Dutch library I accidentally came across his thesis written on this subject. The clinical, parasitological, obstetric and immunological details he reported in his studies of several hundred women convinced me that, when malaria occurs during pregnancy, it poses a major health problem in tropical countries.

Highly vulnerable

Since that time I have been involved with field research projects in western Kenya and coastal Papua New Guinea which have given priority to investigating why pregnant women are at special risk of getting malaria, the size of the problem, and how it can be prevented. These studies have shown that, in areas where malaria is transmitted year-round, pregnant women have frequent episodes of malaria from early to mid-pregnancy.

In their first and possibly second pregnancy, women are especially vulnerable, because in later pregnancies they build up more resistance to the malaria infection. One of the surprising findings from these studies was that most women did not complain of acute symptoms of malaria such as high fever and shivering episodes. It would appear that, despite these recurrences, the infection generally remains partly controlled by the mother’s immune system. As a result the infection may often be clinically unrecognized, and it is only when a blood sample is taken for a malaria smear that it is diagnosed. This is why pregnant women are at particular risk.

Low-grade infection can lead to an increasing degree of anaemia in the mother, which in some cases develops into severe anaemia by the time of delivery. If the mother then loses blood during childbirth, her life is in danger.

Women are more vulnerable to several infections during pregnancy because their immunity is either not yet fully formed or has been altered. Malaria is only one of the factors which increase the risk for ill-health or death in pregnant women, but when associated with anaemia it is probably the most important one, especially if the level of immunity to malaria is low. Anaemia from other causes such as iron deficiency is very common in many tropical areas, further increasing the risk. Often 70% to 80% of pregnant women in malarious regions are anaemic. This situation can be improved by controlling malaria transmission (for instance, by preventing mosquito breeding or using bednets) and by treating the anaemia with iron and folic acid.

In areas where malaria is endemic, pregnant women should be given antimalarial drugs and iron and folic acid supplements at their first antenatal visit whether or not they have symptoms. Ideally this should take place early in pregnancy as this is an important period for fetal growth. If delayed until later in pregnancy, the benefits to the mother and fetus may be limited.

Pregnancy in young girls increases the risk of complications from malaria and anaemia, because their own growth process is not yet completed; this leads to delivery complications and to competition between the girl and the growing fetus for nutritional requirements. In areas with high levels of malaria transmission adolescent girls should be screened for anaemia even if they are not pregnant. Those with anaemia should be treated so as to reduce the risk of starting their first pregnancy in an anaemic state.

Retardation of fetal growth, with resulting low birth weight, mainly affects babies born from first pregnancies. Pre-term delivery may also result from malaria, but this more commonly occurs in women with low immunity to malaria, such as those from non-endemic areas. In some endemic areas, as many as 40% of babies of first pregnancies have low birth weight because their mothers had malaria.

Clearly it is important to protect pregnant women from malaria. The drugs currently recommended for prophylaxis are limited to chloroquine (weekly) and proguanil (daily). Both are considered safe drugs to take during pregnancy. Because the parasite is becoming resistant to chloroquine, other drugs are being sought for use in pregnant women. The best advice for non-immune women would be not to travel to an endemic area if they are pregnant. Women who live in malarious areas should attend an antenatal clinic as early as possible in order to receive the necessary care. In areas where this is not possible, studies have shown that the distribution of antimalarial drugs by village health workers can offer real benefits for mother and child.

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