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EDITORIAL

Prevention of malaria in pregnancy: an important public health challenge

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Although malaria affects men and women of all ages in highly endemic areas, it exerts its most deleterious clinical effects in adults during pregnancy. Of all the known types of malaria parasites, *Plasmodium falciparium* is the most common parasite responsible for disease and clinical manifestations in pregnant women. During pregnancy, there is a significant reduction in cell-mediated as well as humoral immunity to malaria, resulting in more severe clinical effects in pregnant than non-pregnant women. Young primigravid women are at greater risk of malaria as compared to older women of high parity.

There is now substantial evidence suggesting that malaria is responsible for a large number of complications in pregnancy including moderate to severe anemia, low birth weight babies, premature onset of labour and increased risk of stillbirths.[1] Malaria is now accepted to be the principal cause of the high prevalence of anaemia in pregnant women in holo-endemic areas, contributing significantly to high rates of perinatal and maternal mortality in these areas.[2] In view of these effects of malaria in pregnancy, the prevention of malaria has been accepted by the World Health Organization to be an important public health measure for improving perinatal and maternal health in developing countries.

Of the known methods of malaria prevention, chemoprophylaxis is the most practical and most cost-effective in pregnant women. Indeed, the WHO has identified chemoprophylaxis as key to preventing malaria in pregnant women and reducing the scale of its adverse clinical consequences. Other measures such as insecticide-treated bed nets and vector control have not proven to be as effective as chemoprophylaxis largely because malaria in pregnant women appears to be a recrudescence of previously dormant infections rather than being new infections.

Despite the apparent simplicity of chemoprophylaxis, there has been considerable difficulty in applying its principles as a public health measure to prevent malaria in pregnant women. The first problem has been that of drug efficacy and effectiveness. For many years, no single drug or combinations of drugs could be identified as the indisputable leader in terms of efficacy and effectiveness in preventing malaria in pregnancy. Several drug regimens were used in the past including cholorquine, pyrimethamine, proguanil and mefloquine,[1] but none was consistently effective due to the emergence of drug resistance and other related factors. More recently, based on trials conducted in East Africa,[1,3,4] the WHO has recommended the use of intermittent preventive treatment with suphadoxine-pyrimethamine (IPT) with two or three-dose treatment regimens once during the second trimester and once or twice during the third trimester.[4] This regimen has proven to be more effective than traditional regimens and

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has been adopted by a number of countries including Nigeria.[5]

Having identified this reasonably effective chemoprophylactic regimen, the second challenge is to ensure that high-risk pregnant women have access to the drug for the prevention of malaria. Access is limited by many factors including low providers' awareness of the regimen, poor health-seeking behaviour of pregnant women who tend not to receive antenatal care and poor availability of drugs. Of these, the first two may be the most important reasons for poor access to IPT in many developing countries. There is evidence that a large number of health professionals in these countries are still not familiar with IPT, while only a small proportion of pregnant women in malaria endemic areas receive evidence-based antenatal care. Among pregnant women receiving antenatal care, only a few are given anti-malarial chemoprophylaxis, while the majorities are often given antimalarial regimens of doubtful efficacy. Indeed, IPT is still relatively unknown in many clinical settings in regions with high prevalence rates of malaria in pregnant women.

Thus, as part of public health measures to reduce the impact of malaria in pregnancy, there is a need to build the capacity of health providers on IPT, disseminate related information to providers and the general public, and to integrate the method into clinical practices at all levels of the health care system. More specifically, women need to be made aware of the method, and they need to be encouraged to seek facility-based methods of antenatal care rather than home-based care to increase their chances of receiving IPT in pregnancy. Also, in view of the apparent simplicity of IPT, it may be possible in future to explore its use by low cadre health workers such as community health extension workers and traditional birth attendants. IPT can also be included as a major component of home-based antenatal care offered by midwives to women who would not attend facility-based antenatal care.

In conclusion, the prevention of malaria is an important public health measure for improving maternal and perinatal health in developing countries. Intermittent preventive treatment (IPT) with sulphadoxine-pyrimethamine is the current "best practice" for preventing malaria in pregnant women in endemic countries. However, more research is needed to determine the effectiveness and relative effectiveness of the method in various clinical settings, as well as research to determine how best to integrate the method into existing levels of the health care delivery system. Clearly, the prevention of malaria is one of the most important interventions for promoting safe motherhood in tropical and sub-tropical climates at the present time, and warrants more active promotion.

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