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Malaria in Pregnant Women

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Malaria is the second most common cause of infectious disease-related death in the world, after tuberculosis. This infection affects about 350 to 500 million people with 1 to 3 million deaths, every year (1, 2). Malaria infection during pregnancy is a major public health concern with significant risks for the pregnant woman and her fetus (1-3). Annually, about 125 million women (25 million pregnant women) are at risk of malaria around the world. Over 90% of the world's malaria-related deaths in the world occur in sub-Saharan Africa. It has been reported that in this region malaria can cause as many as 10,000 cases of malaria-related deaths in pregnancy per year, usually due to severe maternal anemia (1-5). Pregnant women have a reduced immune response to malaria infection. Therefore, the infection can be in its severe form with more complications in the mother and her fetus. In addition, malaria parasites distain and replicate in the placenta. Pregnant women are three times more likely to develop severe disease than non-pregnant women from the same area. Malaria in pregnancy can lead to miscarriage, premature delivery, low birth weight, congenital infection, and fetal as well as perinatal death (1-6). Malaria is a major cause of morbidity and mortality in infants and young children. Researchers in 2010 reported 655,000 malaria-related deaths, where 86% had occurred in children under the age of five. Malaria-associated maternal illness and low birth weight in children is mostly due to *Plasmodium falciparum* infection (1, 6, 7). Recent studies carried out in sub-Saharan Africa between 2000 and 2011, reported that the prevalence of malaria in pregnant women attending antenatal clinics was 29.5% in East and Southern Africa and 35% in West and Central Africa. Prevention of malaria in pregnant women can reduce severe maternal anemia by up to 38%, low birth weight by 43%, and perinatal mortality by 27% (1-7). The signs, symptoms and complications of malaria during pregnancy vary according to malaria transmission intensity, geographical area, and the patient's level of immunity. In high-transmission regions, where levels of acquired immunity tend to be high in pregnancy, *P. falciparum* infection is usually asymptomatic. Parasites may be present in the placenta and cause anemia in pregnant woman even in the absence of documented peripheral parasitemia. Both maternal anemia and placental involvement can lead to low birth weight, which is an important factor for infant mortality. However, in low-transmission areas, where women have little immunity against malaria, malaria can lead to a severe anemia with an increased risk of severe malaria, and this may lead to spontaneous abortion, stillbirth, prematurity, low birth weight and fetal death (1-7). Infection with *P. vivax*, similar to *P. falciparum*, can cause chronic anemia, low birth weight and increased risk of neonatal death. For women in their first pregnancy, the reduction in birth weight is approximately two thirds of what is associated with *P. falciparum*, yet with *P. vivax* the effect appears to increase with consecutive pregnancies. Atypical presentation of malaria is very common during pregnancy, mainly in the second and third trimesters. A travel history should be taken in any pregnant woman with unexplained fever or anemia. Fever may be absent. Fever may not present in the classical quatrain/tertian form. Other symptoms may include cough, malaise, headache, myalgia, abdominal pain, vomiting and diarrhea. Splenomegaly may also occur, yet tends to recess in the second half of pregnancy (5-8). Complications such as cerebral malaria with impaired consciousness and seizures, and jaundice can be the presenting features of an acute severe infection in pregnancy. If malaria is suspected in a pregnant patient, the case should be referred promptly to a hospital where infectious disease, obstetric and neonatal care with intensive care facilities are on hand (1, 4, 8). Diagnostic methods are the same methods used for other patients. Drugs should be used at adequate doses and according to clinical condition and local drug resistance patterns. *Chloroquine* can be used safely during any stage of the

pregnancy but resistance is common. The world health organization (WHO) recommended a regimen of seven days of *artesunate* (2 mg/kg/day or 100 mg daily for seven days) and *Clindamycin* (450 mg three times daily for seven days). Many countries have specific guidelines for treatment and prevention of malaria according to drug resistance patterns in their country. The WHO recommends the following package for prevention of malaria during pregnancy (1, 4, 8, 9):

1- Use of long-lasting insecticidal nets (LLINs);

2- In areas of stable malaria transmission such as sub-Saharan Africa, intermittent preventive treatment in pregnancy with *Sulfadoxine-pyrimethamine*;

3- Prompt diagnosis and effective treatment of malaria infection.

It has been reported that intermittent preventive treatment has decreased maternal malaria episodes, maternal anemia, placental parasitemia, low birth weight and neonatal mortality. In conclusion, malaria is a severe infection during pregnancy, which can lead to major complication. Every pregnant woman with suspected malaria should be promptly admitted to a hospital, for diagnosis, management and especial care.

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