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Evaluating the prevalence of drug resistance in intermittent preventive treatment for malaria during pregnancy

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Background & Objective: Due to the poor patient compliance with prophylaxis and increasing resistance of parasite strains to chloroquine, administration of intermittent preventive treatment in pregnancy (IPTp) with sulfadoxine/pyrimethamine is now recommended for all pregnant women living in areas with stable malaria transmission. However, resistance to sulfadoxine/pyrimethamine is on the increase which risks the drug being compromised. Thus, an urgent need exists to assess alternative drug regimens for IPTp.

Design & Method: Numerous molecular epidemiologic studies showed that resistance to pyrimethamine is associated with the acquisition of mutations in *Plasmodium* spp. dihydrofolatereductase (dhfr) genes while resistance to sulfadoxine is associated with 3 mutations in dihydropteroate synthase (dhps gene). Each mutation leads to a decrease in sensitivity to pyrimethamine (dhfr gene) and sulfadoxine (dhps gene).

Results: On a systematic review, results indicated that 2 doses of IPTp with sulfadoxine/pyrimethamine retained activity to reduce placental malaria and low birth weight amongst pregnant that visited the clinic. About >60% of the pregnant women that visited the clinic benefited with 2 doses of IPTp in the proportional reduction of peripheral parasitaemia at delivery compared with that at enrolment while the rate of resistance was at <39% and the proportion of placental infection was reduced by 75% compared with the efficacy of chloroquine prophylaxis administered the previous year.

Conclusion: An alternative approach involves systematic detection of placental infection at delivery by using blood smear, rapid diagnostic test or PCR with placental blood. Conversely, placental infection prevalence may change with time because of changes in sulfadoxine/pyrimethamine efficacy (likely to decrease) and quality of IPTp implementation (likely to increase). Such an approach would also provide baseline data to assess efficacy of all preventive measures against pregnancy-associated malaria, including IPTp and use of insecticide-impregnated bed nets and will enable assessment of these effects in a specific population.

Biography

Onyinye Jane Onyemaechi is a 5th year medical student at First Moscow State Medical University I.M Sechenov, Russia. She is a member of Build Africa Capacity and also she is the president of Association of Nigerian Scholarship students in Russia. In 2011, she was awarded scholarship for her astounding academic excellence to study medicine in Russia. Her interest in tropical medicine grew with her increasing desire to help eradicate malaria. She has been a part of research programs, one of which resulted in the abstract "Evaluating the prevalence of drug resistance in intermittent preventive treatment for malaria during pregnancy". She understands how to successfully fight for malaria eradication and collective efforts are vital and hopes made people to get inspired to make contributions towards achieving malaria eradication.

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