

RESEARCH ARTICLE

Malaria preventive practices and delivery outcomes: A cross-sectional study of parturient women in a tertiary hospital in Eastern Uganda

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Abstract

Background

Uganda ranks third in the number of deaths attributable to malaria and has some of the highest recorded malaria transmission rates in the general population. Malaria in Pregnancy is associated with detrimental effects for the mother and unborn baby and these effects seem to have long term effects and consequences on the life of the baby. Despite the preventive measures put in place by the World Health Organization in antenatal care, the burden of malaria in pregnancy is still high. We determined the use of malaria preventive strategies during pregnancy and the presence of plasmodium infection, anemia, and low birth weight babies at delivery among parturient women at Mbale regional referral hospital in eastern Uganda.

Methods

A cross-sectional study was conducted among 210 women delivering at MRRH between July 2017 and January 2018. Information on demographics, antenatal care, and prevention practices was collected using an interviewer-administered questionnaire. Maternal venous blood and cord blood samples were screened for Plasmodium infection by both microscopy of Giemsa-stained blood films and *Plasmodium falciparum* rapid diagnostic test (pf. HPR2 mRDT). Polymerase Chain Reaction (PCR) was done on cord blood. The presence of anemia was determined by the use of an automated hemoglobin analyzer. Data were analyzed using descriptive and analytical statistics.

Results

Of the 210 women, 3 (1.4%) and 19(9.1%) tested positive for malaria by using Giemsa stained blood smear microscopy and malaria rapid diagnosticMRDT tests respectively. PCR detected 4(%) of Plasmodium in cord blood. Twenty-nine percent of the women had anaemia and 11 (5.2%) had low birth weight babies. Only 23.3% of the women received at

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Abbreviations: ANC, Antenatal Care; DOT, Directly Observed Treatment; IPT, Intermittent Preventive Treatment; IPTp-SP, Preventive Treatment with Sulfadoxine- Pyrimethamine; ITN, Insecticide Treated Net; LBW, Low Birth Weight; MIP, Malaria in Pregnancy; MOH, Ministry of Health; MRRH, Mbale Regional Referral Hospital; mRDT, Rapid Diagnostic Test; UDHS, Uganda Demographic Health Survey; WHO, World Health Organization.

least three doses of IPTp-SP and 57.9% reported sleeping under an Insecticide Treated Net the night before the survey. The women who reported sleeping under a mosquito net the previous night (OR 0.67, 95% CI: 0.24–1.86) and those who reported taking fansidar as a directly observed therapy (OR 0.31, 95% CI: 0.04–2.39) appeared to have few chances of getting plasmodium infection though the findings were not statistically significant.

Conclusion

The effective use of malaria preventive strategies (IPT-SP and Insecticide Treated Nets) was generally low. Most of the women took less than three doses of SP and there was no strict adherence to the recommended directly observed therapy. The prevalence of Plasmodium infection during pregnancy was low though maternal anaemia and low birth weight were relatively high.

Background

Africa carries a disproportionately high burden of malaria globally [1]. In 2008, Uganda ranked third in the number of deaths attributable to malaria and has some of the highest recorded malaria transmission rates in the general population [2]. Pregnant women have been reported to have three times more likelihood to suffer from severe forms of the disease than their non-pregnant colleagues [3]. Consequences of malaria in pregnancy include but not limited to premature delivery, intrauterine fetal demise, low birth weight neonates, and neonatal death [4–7]. Severe anaemia and maternal death are also more expected to occur among pregnant women than their non-pregnant colleagues [8]. The mortality rate from severe malaria approaches 50% [3, 4] depending on several factors ranging from the woman's immune status to the existence of comorbid conditions, trimester of pregnancy, and gravidity [9]. In a bid to reduce malaria burden in pregnancy, the World Health Organization (WHO) endorsed a set of interventions in areas with the stable (high) transmission of *P. falciparum*. These interventions include the use of insecticide-treated nets (ITNs), intermittent preventive treatment with sulfadoxine-pyrimethamine (IPTp-SP), and effective case management of malaria illness and anaemia [10, 11]. Despite the adoption of the WHO strategy, there are still reports of poor uptake of malaria preventive measures. The percentage of women who slept under insecticide-treated nets (ITNs) was reported to be 64% and only 17% of the women reported taking three or more doses of IPT- SP [12].

The IPT as well as ITNs are made available by the government and provided free to pregnant mothers during ANC visits. However, data quantifying the impact of the preventive measures on malaria in pregnancy and birth outcomes are limited. Despite the availability of these preventive measures, the burden of malaria among pregnant women is still high (prevalence). To monitor the impact of the preventive practices, there is a need to evaluate and have information on its implementation. This study determined the use of malaria preventive strategies during pregnancy and the presence of plasmodium infection, anemia, and LBW among parturient women at Mbale regional referral hospital in eastern Uganda.

Materials and methods

Study site

The study was conducted from July 2017 to January 2018 in the Obstetrics and Gynecology department at Mbale Regional Referral Hospital (MRRH). The hospital is a tertiary health care