Prevalence of placental malaria and low birth weight in the Blue Nile State, Sudan

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Objectives:

1. To determine the prevalence of placental malaria in Blue Nile State, Sudan
2. To evaluate the effect of placental malaria on pregnancy outcome including maternal preterm delivery and infant birth weight

Methods: Between Nov. 2011 and December 2013, 717 women delivering at Damazeen Hospital and Rusiers Hospital the two largest health centers located in the Blue Nile State, Sudan were recruited. Peripheral malaria slides were taken prior to delivery; placental smears were taken at the time of delivery. Information on the newborn and placenta were recorded soon after birth including infant birth weight and placental weight for determination of the outcome of pregnancy. Length of gestation was estimated based on date of last menstrual period, and assessment of the newborn at delivery. The majority of pregnant women were between 21-30 years of age and 18.5% of whom were primigravidae.

Results: Based on detection of parasites in either peripheral or placental blood smears malaria was positive in 205 of the smears (29%) and primigravida women were more infected (39.2%) compared to multigravida women (22.9%) at delivery time ($p=0.01$). The geometric mean of parasitaemia was 1341 parasites/μL. Thirty five percent of newborns weighed less than 2.5 Kg at delivery time. Generally, multigravidae women had babies with mean birth weight that is significantly higher than that of primigravidae ($p=0.03$), the same was true for the mean placental weights ($p=0.017$).

Placental malaria was significantly associated with pre-term delivery and intrauterine growth retardation ($p<0.01$). Moreover, birth weight was significantly lower in mothers infected deliveries compared to non infected deliveries in both gravidity groups ($p=0.03$).

Conclusion: Placental infection in Blue Nile State is prevalent and infections were associated with poor pregnancy outcome: pre-term delivery and low birth weight.