

Preliminary results at all ages show the combination is highly effective with an excellent tolerance and there are no safety concerns. The full results will be presented at the ASTMH meeting in November 2016. Meanwhile, proposals are being drawn up for dose optimisation studies aimed at achieving a therapeutic regimen of once daily dosing administered over three days.

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MALARIA, MALNUTRITION, AND ADVERSE BIRTH OUTCOMES AMONG PREGNANT WOMEN: A POOLED ANALYSIS

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Malnutrition and malaria infection commonly co-exist, afflicting pregnant women in resource-poor settings. Prior small studies have indicated that the effect of malaria on low birthweight (LBW; <2500g) may depend upon maternal nutritional status. We investigated the interaction between malaria infection during pregnancy and maternal nutrition with regards to the risk of LBW using data from 14,635 singleton, live birth pregnancies from women who participated in 13 pregnancy studies conducted in malaria endemic countries across Africa and Asia from 1996-2015. Study-specific effect estimates and measures of interaction were calculated using linear and log-binomial regression models, adjusted for confounders (maternal age, gravidity, area of residence, HIV infection, anemia) using inverse probability of treatment weights, and pooled across studies using a restricted maximum likelihood random effect model. Nine of the thirteen studies assessed malaria (microscopy or RDT) and mid-upper-arm circumference (MUAC) at enrollment. Across these 9 studies, 75% of women were well-nourished (MUAC \geq 23 cm) and malaria-uninfected at enrollment, 10% were well-nourished but malaria infected, 12% were malnourished and not malaria infected, and 2% were both malnourished and malaria infected. Compared to women who were well-nourished and uninfected, the pooled risk ratios for LBW were: malaria alone, 1.18 (95% confidence interval [CI]: 0.93, 1.48); malnutrition alone, 1.55 (95% CI: 1.29, 1.85); and malaria and malnutrition together, 1.75 (95% CI: 0.90, 3.37). The pooled interaction contrast was -0.03 (95% CI: -0.11, 0.06; $p=0.57$), with minimal statistical heterogeneity across studies ($I^2=0.0014$, Cochran $Q=11.63$ [$p=0.11$]). While MUAC<23cm was associated with an increased risk of LBW, malaria infection at enrollment was not as strongly associated and there does not appear to be synergism between these two factors. Additional analyses to be presented will consider: mean birth

weight; preterm birth; malaria infection at delivery; malnutrition defined by BMI; meta-regression for subgroup effects; selection bias by excluding pregnancy loss.

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ASSESSING ULTRASONOGRAPHY AS A DIAGNOSTIC TOOL FOR PORCINE CYSTICERCOSIS

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Neurocysticercosis caused by the pork tapeworm, *Taenia solium*, causes 30% of epilepsy in poor rural communities of the developing world. Use of the ring strategy is a promising control intervention targeting treatment of humans and pigs living near heavily infected pigs. Tongue examination for *T. solium* cysts provides a crude means of identifying heavily infected pigs. However, as prevalence decreases over time in treatment communities, higher sensitivity methods are needed to achieve full treatment coverage. This study evaluates ultrasonography as an alternative method to detect pigs infected with varying burdens of *T. solium* cysts. We collected blood samples and purchased 158 seropositive pigs living in eight villages of Piura, a province of northern Peru where *T. solium* is endemic. Tongue examination and ultrasonography of the limbs were performed in these animals, followed by fine dissection necropsy to determine cyst burden. We used necropsy as a gold standard and compared the sensitivity and specificity of ultrasonography with tongue examination for their ability to detect heavy infection (≥ 100 viable cysts) in pigs. Compared to tongue examination, ultrasonography was more sensitive (92% vs. 83%) but less specific (90% vs. 97%) detecting pigs with heavy cyst burdens, although these differences were not statistically significant. The improved sensitivity of ultrasound resulted in the detection of one additional heavily infected pig compared to tongue examination, but also resulted in more false positives (14 vs. 3) due to poor specificity. Ultrasonography was highly sensitive in detecting pigs with heavy cyst burdens and may allow for better treatment coverage in endemic areas compared to tongue examination. In its current form, however, the high rate of false positives results in a substantial number of unnecessary treatments, and must be improved before ultrasound can replace tongue examination as the preferred screening tool for pigs in ring strategy interventions. With improvements in training and technology, the use of ultrasound could potentially benefit local elimination strategies where previous efforts have stalled.