Epidemiology

PO - (8302) - IMPACT OF TWO ANNUAL ROUNDS OF MASS DRUG ADMINISTRATION WITH DIHYDROARTEMISININ-PIPERAQUINE ON MALARIA TRANSMISSION IN A PROSPECTIVE COHORT STUDY

Mwesigwa, Julia (Gambia); Achan, Jane (Gambia); Wathou, Miriam (Gambia); Worwui, Archibald (Gambia); Mohammed, Nuredin (Gambia); Kanuteh, Fatoumatta (Gambia); Van Gretryden, Jean-Pierre (Belgium); D’alessandro, Umberto (Gambia)

1 - Faculty of Medicine and Health Sciences, University of Antwerp; 2 - MRC Unit The Gambia at the London School of Hygiene and Tropical Medicine

Background
Mass drug administration (MDA) may reduce malaria transmission in low transmission areas and interrupt transmission. The impact of MDA with dihydroartemisinin-piperaquine (DP) on malaria infection and clinical malaria was determined in a prospective cohort study in The Gambia.

Methods
Single annual MDA rounds with DP were done in 2014 and 2015 in a prospective cohort among residents aged >6 months in twelve villages in The Gambia at the start of the transmission season in June. Monthly blood samples for microscopy and PCR were collected during the transmission season from July to December, post MDA and once before MDA during the dry season in April. The incidence of infection and clinical malaria post-MDA were compared to 2013 and mixed effects logistic regression models assessed the efficacy and risk of re-infection post MDA.

Results
Coverage of 3 DP doses was 68.22% in 2014 and 65.60% in 2015. Compliance to 3 doses was high, 83.11% in 2014 and 85.93% in 2015. Incidence of infection in 2014 (2014: IR=0.23 PPY, 2013: IR=1.12 PPY, P<0.01) and clinical malaria in 2014 (2014: IR=0.08 PPY, 2013: IR=0.39; IRR=0.22, P<0.01) and 2015 (2015: IR=0.19, 2013:IR=0.38; IRR=0.50, P<0.01) was significantly lower after MDA compared to 2013. The incidence of clinical malaria remained higher in eastern Gambia compared to western region. Subjects that took 3 DP doses had lower odds of infection in 2014 at 28 days (OR=0.61, 95% CI: 0.38-0.99) and 42 days (2014: OR=0.52, 95% CI: 0.29-0.89)

Conclusion
A single annual MDA round with DP temporarily reduced malaria infection and clinical disease during the transmission season however and subjects that took 3 doses had lower risk of infection. Several MDA rounds covering the entire transmission season and some targeting the human reservoir during the dry season, are needed to achieve a more marked sustained reduction of transmission.