Efficacy and safety of artesunate-amodiaquine for the treatment of uncomplicated *Plasmodium falciparum* malaria in Kigobe health center, in Bujumbura Nord district in Burundi

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Aim: To assess the efficacy and safety of artesunate -amodiaquine for the treatment of uncomplicated *P. falciparum* infections in Kigobe health center, in Bujumbura Nord district.

Background: The first and second-line treatment for *P.falciparum* in Burundi are respectively artesunate-amodiaquine and quinine+clindamycin. The latest study conduct in 2006, ACPR was 94.8% for artesunate-amodiaquine. This study is to evaluate the efficacy and safety of artesunate-amodiaquine after 10 years of its use.

Method: A therapeutic efficacy study was conducted to evaluate the efficacy and safety of artesunate-amodiaquine among patients with uncomplicated falciparum malaria in Kigobe health center, in Bujumbura Nord district. Clinical and parasitological parameters were assessed over a 28day follow-up period. PCR analysis using msp1, mps2 and glurp was conducted to distinguish recrudescence from re-infection. Mutations associated with antimalarial drug resistance in K13 gene (artemisinin resistance), in dhfr/dhps gene (pyrimethamine/ sulfadoxine resistance), copy number variation in Pfplasmepsin 2 (Pfpm2) gene and Pfmdr1 (piperaquine and mefloquine resistance) were investigated using PCR analysis and sequencing.

Result: A total of 58 patients were enrolled between November 2015 and June 2016. Mean age (SD; range) was 6.3 years (1.8; 2.3-9) and mean weight 19.1 kg (5.4; 10-34). Mean temperature at admission was 38.8°C (1.1; 36.1-40.3) and parasitaemia geometric mean (range) at day 0 was 33 947/ul (2 930-199 800). Among the 58 patients, 5 were lost to follow-up or withdrawn. Day 3 positivity rate was 0%. ACPR PCR corrected using per protocol analysis was 92.3% (81.5-97.9), LPF 1.9% (0.0-10.3) and LCF 5.8% (1.2-15.9%). No ETF were reported. ACPR PCR corrected using Kaplan Meir analysis was 92.5% (81.3-97.19). Artesunate-amodiaquine was well tolerated. There were no serious adverse reported. Among the 58 isolates analyzedat day 0, all isolates were wild type for K13. All parasites were carrying a single copy of Pfplasmepsin 2 gene, but 10.3% of the parasites were carrying multiple copy of pfmdr1. The prevalence of quintuple mutants (dhfrN51I+C59R+S108N and dhpsK540E+A581G) was 34.5%.

Conclusion: Artesunate-amodiaquine remains efficacious and was well tolerated. There is no evidence of artemsinin resisitance and by level of sulfadoxine-pyrimethamine which need to be taken into account for the IPTp policy implementation.

Speaker Biography

Ndayikunda Claudette is a laboratory specialist and a Burundian renowned researcher, professor and member of the ASLM team, serving as a member of the East African Public Health Laboratory Network Project operational research. At the university level, she is the head of the Laboratory at CHU Kamenge Hospital in Bujumbura, which is a University Teaching Hospital of Burundi. The Laboratory is Burundi's reference laboratory and here she performs research on HIV/AIDS, Malaria diseases and microbiology as well as medical research. She has published more than 50 papers in reputed journals and has been serving as an editorial board member of 3 journals. She is also engaged in surveillance, education and capacity building in East African community as a deputy chairperson technical working group training and building capacity in Burundi.

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