**[PS2.16]**

# Increase of Pfmdr1 N86 genotype after implementation of ACT in field isolats from Franceville

J.B. LEKANA-DOUKI*[1,2], S.D. DINZOUNA BOUTAMBA[1], R. ZATRA[1], S.E. ZANG EDOU[1], H. EKOMY[1], U. BISVIGOU[1,3] et al

*[1]Unité de Parasitologie Médicale (UPARAM), Centre International de Recherches Médicales de Franceville (CIRMF) B.P. 769 Franceville Gabon. Tel: 00241 06 25 95 90., Gabon, [2]Département de Parasitologie-Mycologie Médecine Tropicale, Faculté de Médecine, Université des Sciences de la Santé, B.P. 4009 Libreville Gabon. Tel /Fax: 00241 70 48 96, Gabon, [3]Département de Santé Publique et de Médecine légale et du travail, Faculté de Médecine, Université des Sciences de la Santé, B.P. 4009 Libreville Gabon. Tel /Fax: 00241 70 48 96, Gabon*

Despite the global antimalarial measures, *Plasmodium falciparum* malaria remains the major public health problem. WHO has recommended the using of Arteminisine based Combination Therapy (ACT) to limit the development of parasite drug resistance. But since last years, some treatment failures were observed after using of ACT. Furthermore, some results showing the association between ACT treatment failure and *P. falciparum* genotypes were published. So the aim of this work is to investigate the impact of large implementation of ACT at Franceville, Gabon. We compared the prevalence of genotypes N86Y and D1246Y of *P. falciparum multidrug resistance-1* (*Pfmdr1*) and K76T of *P. falciparum chloroquine-resistance* (*PfCRT*) from field isolates between 2004 (before implementation of ACT) and 2009 (4 years after implementation of ACT).

We analysed 230 field isolates 96 from 2004 and 134 from 2009. The means of ages of included children were not different (38,55±26,29 vs 31,81±22,25 months respectively for 2004 and 2009). The means of parasitemia were 36750 and 34875 parasites/µL respectively for 2004 and 2009 (p=0.08). The mean of the level of haemoglobin is increased (7.85g/dL versus 10.0g/dL respectively for 2004 and 2009) p= 0.04. The prevalence of N86 of *Pfmdr1* were 15.62% (n= 15/96) in 2004 and 31.34% (n=42/134) in 2009 (p=0.008). The prevalence of mixed genotypes N/Y86 was invariable between 2004 and 2009 (9.2% versus 8.6% respectively). We found no significant difference between the prevalence of D1246Y genotypes of *Pfmdr1*: 6.25% (n=6) and 4.44% (n=6) respectively for 2004 and 2009 (p=0.6). The prevalence of T76 of *Pfcrt* remains invariable at this time, we found 93.7% and 96% (p = 0.25) respectively for 2004 and 2009.

These finding show a benefit effect of ACT in parasite loading and on haemoglobin level. The ACT induce the selection of genotype N86 of *Pfmdr1* which is associated with antiplasmodial drug sensitivity.

Keywords: P. falciparum, drug resistance, ACT, polymorphism