Background: Malaria remains a public health problem in Republic of Congo. The sub-microscopic infection including gametocytemia constitutes a parasite reservoir that is recognized to contribute to malaria transmission. It is known that primaquine a 8- aminoquinoline is effective to eliminate Plasmodium falciparum gametocytes. However it induces haemolytic anemia in individuals with Glucose-6-phosphate dehydrogenase deficiency (G6PDd). It has been reported G6PDd also confers protection against severe malaria. To know the prevalence of G6PDd in the Congolese population is important in the case of future utilization of this drug in the country. Therefore, in this study, we investigated 1) the prevalence of G6PDd in children infected with Pf and 2) the possible association between the presence of malaria, the presence of G6PD mutation and hemoglobin concentration.

Methods: 229 children aged 1 to 10 years old presenting with fever (axillary T° ≥ 37.5°C) were enrolled at the paediatric hospital Marien Ngouabi in Brazzaville. Thick and thin blood smears were done to detect and identify malaria parasites and determine parasite density. To detect the different Glucose-6-Phosphate Dehydrogenase genotypes, a 968bp fragment of the G6PD gene containing the polymorphisms 202G›A and 376›G was amplified by PCR followed by sequencing.

Results: Malaria prevalence was 22 (10%). With regard to G6PD analysis, it was found that 206 patients had G6PD genotype available including 74.8% (154/206) with G6PD normal, 12.1% (25/206) with heterozygous genotypes and 13.1% (27/206) with G6PD deficiency [11.6 % (24/206) were male hemizygous and 1.4% (3/206) were female homozygous]. Data are further analyzed to investigate the association between G6PD genotype, uncomplicated malaria, hemoglobin concentration as well as parasite densities.

Conclusion: An high prevalence of G6PD deficiency is reported from these Congolese children. Further investigation with larger sample size in different areas of the country are needed to design future and adapted interventions.