

line treatment of uncomplicated malaria. The role of lumefantrine in this combination is to eliminate remaining parasites after the action of artemether and to protect the patient against a new blood infection. Some studies showed a correlation between lumefantrine's day 7 concentration and the efficacy of AL after treatment of a single episode of malaria. The objective of this work is to validate this observation after repetitive treatment of uncomplicated malaria patients with AL.

**Methods** During a phase IIIb/IV comparative, randomised, multicentre, clinical study of artemisinin-based combination therapies, we collected plasma on Day 7 from patients treated with standard dose of AL in Sotuba, Bougoula Hameau, and Kolle (Mali). The age of the patients enrolled in this study was from 6 months old. The plasma samples were kept at  $-80^{\circ}\text{C}$  until lumefantrine analysis using high performance liquid chromatography was performed.

**Results** We included 1076 subjects, of which 595 were females and a mean age of 12 years old in this analysis.

The median concentration was 66% higher ( $p < 0.0001$ ) in patients without recurrent parasite on day 28 compared to patients with recurrent parasitaemia: 509.1 ng/ml (inter quartile range: 329.6–723.2;  $n=919$ ) vs 372.5 (255.7–538.4;  $n=157$ ). Day 7 concentrations increased with age; the difference between age group was statistically significant: 305.9 (207.3–491.5,  $n=140$ ), 447 (290.7–622.9,  $n=399$ ), 544.7 (383.9–738.5,  $n=254$ ) and 571.1 (378.8–850.9,  $n=283$ ) in patients under 5 years old, 5–9 years old, 10–14 years old and 15 years old and older, respectively. Girls under 5 years old had a lower lumefantrine concentration at day 7 compared to other age groups of 223.3 ng/ml (159.7–425.6,  $n=37$ ).

**Conclusions** We found a lower concentration of lumefantrine in patients with recurrent parasitaemia at day 28.

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#### LUMEFANTRINE DISPOSITION AFTER REPETITIVE TREATMENT OF UNCOMPLICATED MALARIA PATIENTS WITH ARTEMETHER-LUMEFANTRINE IN MALI

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**Background** Since 2006 the national malaria control program in Mali recommended artemether-lumefantrine (AL) as the first-