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Abstract (poster session)

Prevalence of imported *Plasmodium ovale curtisi* and *Plasmodium ovale wallikeri* malaria in Parma (Italy)

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Objectives. *P. ovale curtisi* (Poc) and *P. ovale wallikeri* (Pow) are two closely related but distinct species of human malaria parasites. Herein we report imported malaria cases caused by these two species, as detected by a newly designed Real-time PCR assay (Poc-Pow Real-time PCR), among the overall 259 cases diagnosed in our laboratory. **Methods.** From 2000 to October 2012, blood samples of 1,069 patients with the suspicion of malaria were subjected to microscopy and to different nested- and Real-time PCR assays targeting the parasite's small subunit ribosomal RNA gene, alternatively used during the study period. **Results.** 259 cases of malaria were diagnosed: 206 *P. falciparum*, 12 *P. vivax*, 29 *P. ovale*, 3 *P. malariae* and 9 mixed infections, including 2 Poc and 1 Pow. In particular, by Poc-Pow Real-time PCR it was found that among the overall 32 *P. ovale* infections 20 were due to Poc and 12 to Pow. **Conclusion.** Our results confirm, as already reported by us in 2007, that *P. ovale wallikeri* is not confined to Southeast Asia, since the majority of the patients analyzed in this study had acquired malaria in African countries and that the two *P. ovale* species are sympatric in the countries where they occur. It is interesting that in this study 9 of the 32 patients presented to the hospital between 3 months and 2 years after their arrival to Italy. Thus, it is likely that the samples from these patients contained parasites from relapses, i.e. blood stage infections originating from the activation of a subset of the hypnozoites in the liver, indicating that relapses seem to occur in both species. The ability to detect and distinguish the 2 *P. ovale* species using the Poc-Pow Real-time PCR opens the way to epidemiological investigations of these parasites. As a matter of fact, *P. ovale* is one of the least studied of the *Plasmodium* species that infect humans. In the context of the goal of malaria control and eventual eradication, it becomes important to investigate *P. ovale*, given that its prevalence is likely to be substantially higher than previously thought and that it can maintain itself in the human host for long periods as a result of its capacity to produce hypnozoites. Any meaningful investigations of the true epidemiology and biology of the 2 *P. ovale* species, whose infections lead to only relatively scanty parasitaemias even in primary infections, will necessitate the application of sensitive and specific molecular methods of detection.