

Enquête sur une possible transmission du plasmodium monkey chez l'homme habitant dans la forêt équatoriale en République Démocratique du Congo

Investigation on possible transmission of monkeys' plasmodium to human in a population living in the equatorial rainforest of the Democratic republic of Congo

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Summary

Background. Plasmodiums are protozoa that may infect various hosts like humans, birds, reptiles, rodents or nonhuman primates. Only five species are now recognized as naturally parasitizing humans: *P. falciparum*, *P. vivax*, *P. malariae*, *P. ovale* and *P. knowlesi*. This fifth species, *P. knowlesi*, previously identified as naturally parasitizing the monkey *Macaca fascicularis*, has been microscopically confused for a long time with *P. malariae* or *P. falciparum* (according to their respective evolutionary stage) and it was not possible to correctly differentiate them until the advent of molecular biology. To date, natural human infections with *P. knowlesi* only occur in Southeast Asia and a similar phenomenon of natural transmission of simian plasmodium to humans has not been reported elsewhere. This study was conducted to investigate a possible transmission of African monkey's plasmodium to humans in populations living near the rainforest of the Democratic Republic of Congo where several species of non-human primates are living.

Methods. Three villages of the Equatorial Province of the DRC (North-western) have been selected according to their geographical localization near the rainforest, wherein one hundred asymptomatic individuals have been randomly selected per village for blood collection. Two successive real-time PCR were designed: the first one allows the detection of all plasmodium sp. and the second one allows the detection of the four plasmodium species that infect humans in Africa. Positivity in the first RT-PCR with negativity in the 2nd RT-PCR would suggest the presence of a non-human plasmodium species.

Results. On the three hundred samples analyzed, 139 (46.3%) were positive for *P. falciparum* for the two Real-time PCR. No other plasmodium species has been detected.

Conclusion. Almost of half percent of Congolese equatorial rainforest population presents malaria *P. falciparum*. But this study did not detect any monkeys' plasmodium. Studies including larger samples with more advanced techniques are needed.

Keywords: monkey plasmodium; Democratic Republic of Congo; RT-PCR; malaria