



POSTER PRESENTATION

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# The emerging and the spread of the fifth *Plasmodium* responsible of human malaria: *Plasmodium knowlesi*

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## Background

On the ground of the most recent evidences regarding the role of some malaria Plasmodia which have primates as natural reservoirs, the Authors focused their attention on the emerging species *Plasmodium knowlesi*.

## Methods

Based on the international literature reports, *P. knowlesi* infectious foci have been identified in the past decade in Malaysia, and in particular in the States of Sarawak-Sabah (Malaysia Borneo), and in the Pahang region (peninsular Malaysia).

## Results

The valuable role of molecular biology assays (polymerase chain reaction), performed with specific primers for *P. knowlesi* is underlined, since the traditional hemoscopic examination does not allow to distinguish specific features, especially when *P. knowlesi* is compared with protozoa belonging to the species *Plasmodium malariae*. Furthermore, malaria caused by *P. knowlesi* may be burdened by a severe and sometimes fatal course, since the clinical presentation and course are more severe compared with those of *P. malariae*, especially due to the extremely elevated levels of parasitemia. The most effective vector for *P. knowlesi* transmission is represented by the mosquito *Anopheles latens*, which may parasite both humans and primates. Among primates, the natural hosts of *P. knowlesi* are represented by the species *Macaca fascicularis*, *M. nemestina*, *M. inus*, and *Saimiri sciurea*.

## Discussion

After remarking the possible, severe prognosis of *P. knowlesi* malaria, we underline the paramount importance of a timely diagnosis and therapy, especially when patients gain access to Western Hospitals, after returning from South-Eastern Asia regions, where they eventually practiced excursions and trekking activities in the rain forest. When signs-symptoms suggestive of malaria are recognized in subjects coming back from endemic areas, a rapid diagnosis and treatment are crucial in the management of *P. knowlesi* malaria. In the light of the most recent epidemiological issues, certainly *P. knowlesi* may be added to the list of the known human malaria parasites, which until now included *P. vivax*, *P. ovale*, *P. malariae*, and *P. falciparum*, as the fifth potential human pathogenic Plasmodium. In the next future, an extensive surveillance system and an improved epidemiological control will become needed. Paralleling epidemiological studies and public health implications, a more accurate survey of the clinical features of *P. knowlesi* will be strongly needed, since preliminary data indicate an increased disease severity, associated with a greater level of parasitemia, probably secondary also to the progressive increase of the number of interhuman "passages" of this emerging species of malaria Plasmodium.

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