Plasmodium knowlesi Malaria in Humans Is Widely Distributed and Potentially Life Threatening

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Abstract

Background. Until recently, *Plasmodium knowlesi* malaria in humans was misdiagnosed as *Plasmodium malariae* malaria. The objectives of the present study were to determine the geographic distribution of *P. knowlesi* malaria in the human population in Malaysia and to investigate 4 suspected fatal cases.

Methods. Sensitive and specific nested polymerase chain reaction was used to identify all *Plasmodium* species present in (1) blood samples obtained from 960 patients with malaria who were hospitalized in Sarawak, Malaysian Borneo, during 2001–2006; (2) 54 *P. malariae* archival blood films from 15 districts in Sabah, Malaysian Borneo (during 2003–2005), and 4 districts in Pahang, Peninsular Malaysia (during 2004–2005); and (3) 4 patients whose suspected cause of death was *P. knowlesi* malaria. For the 4 latter cases, available clinical and laboratory data were reviewed.

Results. *P. knowlesi* DNA was detected in 266 (27.7%) of 960 of the samples from Sarawak hospitals, 41 (83.7%) of 49 from Sabah, and all 5 from Pahang. Only *P. knowlesi* DNA was detected in archival blood films from the 4 patients who died. All were hyperparasitemic and developed marked hepatorenal dysfunction.

Conclusions. Human infection with *P. knowlesi*, commonly misidentified as the more benign *P. malariae*, are widely distributed across Malaysian Borneo and extend to Peninsular Malaysia. Because *P. knowlesi* replicates every 24 h, rapid diagnosis and prompt effective treatment are essential. In the absence of a specific routine diagnostic test for *P. knowlesi* malaria, we recommend that patients who reside in or have traveled to Southeast Asia and who have received a *"P. malariae"* hyperparasitemia diagnosis by microscopy receive intensive management as appropriate for severe falciparum malaria.

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