OP-63

A molecular approach in establishing evidence of asymptomatic submicroscopic malaria among the Orang Asli population in RPS Pos Kemar

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Abstract

Submicroscopic cases are often associated with asymptomatic malaria parasite carriers especially among adults. Asymptomatic submicroscopic parasitaemia may serve as a reservoir for infection even when very efficient rapid diagnosis and treatment programmes have been implemented. The objective of this study was to uncover the evidence of submicroscopic malaria among asymptomatic Orang Asli in RPS Pos Kemar, Hulu Perak. Study samples were collected from 4 villages located within Pos Kemar and were selected based on the number of previous malaria cases. A total of 751 villagers were consented and participated in this study. All these blood samples were examined by microscopic examinations (749) and nested PCR (751). Our findings showed that 16 samples (1.6%) were positive by microscopy and 8 samples (2.4%) were positive for *P.vivax* by PCR. Seven (0.9%) samples were submicroscopic malaria. A study described that many of these asymptomatic infections are present at densities below than the limit for microscopic detection and, therefore, the use of microscopy is likely to lead to underestimation of the malaria burden. Although microscopy remains the gold standard for the diagnosis of malaria and quantification of *Plasmodium* parasites, the rapid advances in molecular biology and nucleic acid testing methods and their routine application in clinical studies and epidemiological surveys have enabled the detection of low-density submicroscopic infections as reported in several other studies. Moreover, the development of highly sensitive, specific and quantitative molecular diagnostic tests for malaria are becoming increasingly important as control strategies to eliminate asymptomatic infections that serve as reservoirs for transmission.

Keywords: Malaria; asymptomatic; submicroscopic; Orang Asli; PCR

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