Risk factors for Nipah virus infection among pteropid bats, Peninsular Malaysia

ABSTRACT

We conducted cross-sectional and longitudinal studies to determine the distribution of and risk factors for seropositivity to Nipah virus (NiV) among Pteropus vampyrus and P. hypomelanus bats in Peninsular Malaysia. Neutralizing antibodies against NiV were detected at most locations surveyed. We observed a consistently higher NiV risk (odds ratio 3.9) and seroprevalence (32.8%) for P. vampyrus than P. hypomelanus (11.1%) bats. A 3-year longitudinal study of P. hypomelanus bats indicated nonseasonal temporal variation in seroprevalence, evidence for viral circulation within the study period, and an overall NiV seroprevalence of 9.8%. The seroprevalence fluctuated over the study duration between 1% and 20% and generally decreased during 2004–2006. Adult bats, particularly pregnant, with dependent pup and lactating bats, had a higher prevalence of NiV antibodies than juveniles. Antibodies in juveniles 6 months–2 years of age suggested viral circulation within the study period.

Keyword: Nipah virus; Viruses; Risk factors; Seroprevalence; Bats; Pteropid bats; Pteropus vampyrus; Pteropus hypomelanus; Reservoir hosts; Malaysia.