

Prevalence and risk factors of Japanese encephalitis virus (JEV) in livestock and companion animal in high-risk areas in Malaysia

ABSTRACT

Japanese encephalitis (JE) is vector-borne zoonotic disease which causes encephalitis in humans and horses. Clinical signs for Japanese encephalitis virus (JEV) infection are not clearly evident in the majority of affected animals. In Malaysia, information on the prevalence of JEV infection has not been established. Thus, a cross-sectional study was conducted during two periods, December 2015 to January 2016 and March to August in 2016, to determine the prevalence and risk factors in JEV infections among animals and birds in Peninsular Malaysia. Serum samples were harvested from the 416 samples which were collected from the dogs, cats, water birds, village chicken, jungle fowls, long-tailed macaques, domestic pigs, and cattle in the states of Selangor, Perak, Perlis, Kelantan, and Pahang. The serum samples were screened for JEV antibodies by commercial IgG ELISA kits. A questionnaire was also distributed to obtain information on the animals, birds, and the environmental factors of sampling areas. The results showed that dogs had the highest seropositive rate of 80% (95% CI: ± 11.69) followed by pigs at 44.4% (95% CI: ± 1.715), cattle at 32.2% (95% CI: ± 1.058), birds at 28.9% (95% CI: ± 5.757), cats at 15.6% (95% CI: ± 7.38), and monkeys at 14.3% (95% CI: ± 1.882). The study also showed that JEV seropositivity was high in young animals and in areas where mosquito vectors and migrating birds were prevalent.

Keyword: ELISA; Japanese encephalitis; Malaysia; Prevalence; Risk factor