

PREVALENCE OF RELATIVE BRADYCARDIA IN *ORIENTIA TSUTSUGAMUSHI* INFECTION

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Background: Scrub typhus (*Orientia tsutsugamushi* infection) is a common zoonotic disease of rural Asia and Western Pacific islands, transmitted by infected larval trombiculid mites, and characterized by general malaise, fever headache, myalgias, conjunctival suffusion, cough, rash, regional lymphadenopathy, and eschar formation. A relatively slow heart rate (HR) response to fever has been reported in scrub typhus patients.

Objective: Assess the prevalence of relative bradycardia (RB) in scrub typhus.

Methods: We measured oral temperature (T) and HR at presentation in 100 febrile adults with mild scrub typhus in Thailand. RB was defined as an increase in HR < 10 bpm/C increase in T from baseline. Baseline T and HR were assessed when patients first became and then remained afebrile following treatment. Eligible patients were ambulatory individuals without hypotension, shock, impaired consciousness, or pulmonary dysfunction. Additional exclusion criteria were vomiting, presence of a febrile illness other than *Orientia* infection, serum bilirubin concentration > 25.7 mmol/L, alanine aminotransferase concentration > 100 U/L, and ingestion of chloramphenicol, tetracycline, or ciprofloxacin during the 48 h before evaluation. *O. tsutsugamushi* infection was diagnosed serologically by dot-blot rapid ELISA and confirmed by indirect immunoperoxidase test if IgM antibody titers were > 1400 OR IgG titers were $> 1:1600$.

Results: Of 100 patients, 53% had RB. Mean febrile temperature (\pm SE) of the normal pulse increase (NPI) group and the RB group was 39.06 ± 0.10 C and 39.01 ± 0.10 C, respectively ($P = NS$). Mean febrile HR (\pm SE) for the NPI and RB patients was 100.0 ± 2.1 bpm and 86.7 ± 1.7 bpm, respectively ($P < 0.00001$). There were no differences in gender or mean age between the 2 groups. On average, the increase in heart rate of the NPI group was 14 bpm/C for the RB cohort.

Conclusion: Relative bradycardia frequently accompanies mild scrub typhus.

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