Scrub typhus in India: emerging insights, and future challenges and opportunities

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Word count: 357

INTRODUCTION

The burden and pattern of scrub typhus have not been adequately documented in India. We describe the public health risk, spread, and severity of this disease, so that these findings can serve as a basis for formulating policy.

METHODS

We reviewed qualitative and quantitative data from the published medical literature, the Integrated Disease Surveillance Programme (IDSP) of the Ministry of Health and Family Welfare, and the rickettsial infection database at Christian Medical College, Vellore (CMC) to understand the burden of disease across the country. We also conducted a cross-sectional, population-based survey in Vellore district to estimate the seroprevalence of scrub typhus in the community using immunoglobulin (Ig)G and IgM antibodies. We assessed the risk factors for acquiring the disease in the community in a case–control study. We also analysed the severity of disease and current management options among patients admitted to CMC. The study was approved by the Ethics Review Board of CMC.

RESULTS

Over the past 5 years (2010–14), 6649 cases of scrub typhus have been documented in 24 states, the majority being from Tamil Nadu, Karnataka, Himachal Pradesh, Rajasthan and Assam, which account for at least 300 cases each during this period. Within Tamil Nadu, we collected community-based seroprevalence data from 721 randomly selected healthy individuals, which provided evidence of prior scrub typhus exposure in 31.3% of individuals. Our case–control study (128 cases and 132 age- and sex-matched controls from the same village) identified risk factors for acquiring the disease, which include exposure to vegetation, either as part of occupation, such as with agricultural labourers (odds ratio [OR] 1.79), or around the home (OR 1.95). We demonstrated a clear seasonality, with most cases presenting between August and February over the 5-year period we studied. Among hospitalized patients, we documented multi-organ dysfunction in 34% of cases, with a case fatality rate of 9%.

CONCLUSION

Scrub typhus is widely prevalent, and associated with significant morbidity and mortality in India. Yet it is under-recognised and grossly under-diagnosed. Information and advocacy are needed for investing in surveillance, prevention and detection, as well as appropriate management strategies, such as IV doxycycline for the treatment of severe disease.

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