Scrub typhus

Scrub typhus is a zoonotic disease caused by the bacterium *Orientia tsutsugamushi*, which is transmitted to humans through the bite of larval trombiculid mites. With an estimated annual incidence of approximately one million cases, it poses a significant public health challenge in Southeast Asia.[1] The clinical manifestations of scrub typhus can range from mild febrile illness to severe disseminated infections, which may lead to serious complications such as acute respiratory distress syndrome, hepatitis, renal failure, meningitis, and multiple organ failure, complicating the diagnostic process.[2] Although the presence of an eschar at the site of inoculation can assist in clinical diagnosis, it is frequently absent. Laboratory diagnosis primarily relies on serological methods or the identification of bacterial DNA in whole blood or eschar samples.[3] While the indirect immunofluorescence assay (IFA) has traditionally been the gold standard, its high cost and limited availability in resource-constrained settings where the disease is endemic present challenges. Furthermore, the interpretation of IFA results can vary significantly among different operators.[4] Consequently, the use of ELISA for the detection of IgM antibodies has become more favored. This method identifies IgM antibodies against the 56-kDa antigen, which is the primary immunodominant protein found on the outer membrane of the bacterium, utilizing a recombinant antigen.[5] Detection of IgG antibodies is typically employed to diagnose previous infections or assess community prevalence. Given that scrub typhus diagnosis is contingent upon antibody detection, understanding the kinetics of IgM and IgG following infection is crucial; however, this aspect has been inadequately researched. Very few studies have investigated the temporal dynamics of IgM and IgG antibodies in patients with scrub typhus.

References

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