Risk factors for acute respiratory distress syndrome (ARDS) in scrub typhus patients

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Background:

Scrub typhus a common tropical infection often presents with complications like sepsis with multiorgan dysfunction, renal failure and Acute respiratory distress syndrome (ARDS). ARDS is a serious complication of scrub typhus associated with high mortality. However, there is limited data on risk factors for complications of scrub typhus especially ARDS. This study was aimed to analyze risk factors of ARDS in scrub typhus patients.

Material/methods

This study was a prospective observational case control study conducted from June 2012 to June 2015. Patients presenting with Acute Febrile Illness (AFI) aged >18 yrs and positive for Orientia specific DNA in buffy coat by N-PCR for 56-kDa TSA and/or positive by Indirect Immunofluorescence Assay for scrub typhus were included in the study. Other common causes of AFI were ruled out by appropriate serological investigations and cultures. ARDS was diagnosed as per Berlin criteria. Patients with ARDS were defined as cases and patients without ARDS as controls. Statistical analysis was carried out using SPSS version 15.

Results:
During the study period a total of 320 patients were diagnosed to have scrub typhus. Most common complication was acute renal failure 38(11%) followed by ARDS 20(6.3%). Mean age was similar in both the groups (cases=41.7yrs, controls= 39.8yrs ) and there was female preponderance in cases (cases=60%, controls= 40% P=0.16). Eschar was present in significant number of cases (cases=45%, controls=25.4% P=0.54). Multiorgan dysfunction(cases=25%, controls=4.5% P=0.04), sepsis(cases=20%, controls=3.5% P=0.01), septic shock (cases=20%, controls=1% P= 0.001) and hypoalbuminemia (cases=100%,controls=64%P=0.001) had significant association with ARDS. However Thrombocytopenia(cases=84.2%, controls=60.5% P=0.16%), Hepatitis (cases=57.9,controls=30.2 P=0.62) and Renal failure(cases =15.8%,controls 12.5% P=0.06) did not have significant association with development of ARDS. In multivariate analysis, hypoalbuminemia(OD 70829 ) sepsis (OR 4.34,95% CI .51,36.76) and septic shock (OR16.87 95%CI 1.64,166.76).Mortality is was high in patients with ARDS (cases 15%, controls 1% P=0.001).

Conclusions:

ARDS is serious complication of scrub typhus and is often associated with high mortality. Risk factors like sepsis, septic shock, hypoalbuminemia are predictive variables that might help clinicians early recognition of scrub typhus complicated by ARDS.