

CLINICAL AND DEMOGRAPHIC STUDY OF SCRUB TYPHUS IN TERTIARY CARE CENTER AND OUTCOME WITH TRIPLE ANTIBIOTIC THERAPY

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ABSTRACT:

BACKGROUND: Scrub typhus is a vector borne rickettsial disease commonly found in many parts of India. Present study objectives were to study the clinical and demographic profiles of scrub typhus cases in a tertiary care hospital.

AIMS & OBJECTIVE: This case series was undertaken with an aim to evaluate the clinical and demographic profile of scrub typhus admitted in tertiary care referral hospital and outcome with triple, double and single antibiotic therapy. We made two groups A and B and used antibiotic therapy. group A, who was critical and required ICU admission used triple antibiotic therapy (azithromycin, doxycycline and rifampicin) and group B, required ward admission used double or single (azithromycin and doxycycline) antibiotic therapy.

MATERIAL AND METHODS: Study site - This study was conducted on 50 patients presented with fever in the department of medicine. A case series was carried out to analyze clinical and demographic profiles of patients who were positive for IgM antibodies against *Orientia tsutsugamushi* by scrub typhus IgM ELISA. Demographic details like age, sex and residence of patients, clinical signs, symptoms and complications if any were analyzed.

RESULTS: All 50 (100%) patients presented with fever and 32(64.00%) patient were have less than 7 days fever and 18(36.00%) were have more than 7 days fever. Other common symptoms were vomiting 30(60.00%), abdominal pain 20(40%), headache 17 (34%), myalgia 18 (36%), altered sensorium 14 (28.00%), cough 8(16.00%), seizure 6 (12.00%), diarrhea 6(12.00%), respiratory distress 7(14.00%), oliguria 3(6.00%), bleeding 3(6.00%).

CONCLUSIONS: Knowledge and awareness about the disease makes the diagnosis simple and fast, which in turn facilitates early appropriate antibiotic and supportive therapy, which helps in the recovery of the patient without acquiring complications.

Keywords- *Clinical features, IgM scrub ELISA, Orientia tsutsugamushi, Scrub typhus*

INTRODUCTION:

Scrub typhus is becoming an important cause of acute undifferentiated febrile illness in the Indian subcontinent. *Orientia tsutsugamushi*, the causative agent of scrub typhus is found in many parts of Asia including India.¹ Scrub typhus, is now the most commonly reported rickettsial infection from the Indian subcontinent. Scrub typhus and other rickettsial infections are grossly under-diagnosed in India because of their non-specific clinical presentation, low index of suspicion among clinicians, limited awareness about the disease and lack of diagnostic facilities.² Even though there is a dramatic response to the antimicrobial therapy,

the diagnosis is often delayed due to their nonspecific clinical presentation, lack of adequate diagnostic materials and low index of suspicion among the health care professionals.³ Delay in diagnosis and initiation of appropriate treatment can result in severe complications such as acute kidney failure, meningoencephalitis, acute respiratory distress syndrome (ARDS), septic shock, multi organ failure and death.⁴

AIMS & OBJECTIVE:

This case series was undertaken with an aim to evaluate the clinical and demographic profile of scrub typhus admitted in tertiary care referral hospital and outcome

with triple, double and single antibiotic therapy. We made two groups A and B and used antibiotic therapy. Group A, who was critical and required ICU admission used triple antibiotic therapy (azithromycin, doxycycline and rifampicin) and group B, required ward admission used double or single (azithromycin and doxycycline) antibiotic therapy.

MATERIAL AND METHODS:

Study site: This study was conducted on 50 patients presented with fever in the department of medicine.

Study design: case series

INCLUSION CRITERIA:

Patients admitted in the medicine units who were tested positive for IgM antibody against the 56 kDa protein of *O. tsutsugamushi* by ELISA during the study period of twelve months were included in the study.

EXCLUSION CRITERIA:

Patients diagnosed to have some other causes of acute febrile illness. Patient having co-morbid condition like

chronic renal failure, chronic liver disease, patient with known neoplastic disease etc. A proforma was used as a data collecting form to collect information on demographic profile, clinical and laboratory features. Complications of disease such as ARDS, meningoencephalitis, thrombocytopenia, acute kidney failure, respiratory failure, heart failure and myocarditis etc. along with the need of inotropic support, and oxygen support, duration of ICU stay, hospital stay and mortality were noted in the proforma. Laboratory investigations such as complete blood counts, Liver function tests, kidney function tests, serum electrolytes, rapid antigen test for malaria, dengue serology, Widal test, blood and urine culture, chest X-ray etc were recorded. The data were entered in Microsoft Excel worksheets and analyzed. Categorical variables are expressed as the number of patients and the percentage of patients; continuous variables are expressed as mean and standard deviation. An alpha level of 5% has been considered, i.e. if any p-value is less than 0.05, it has been considered as significant. SPSS version 20 has been used for the analysis.

OBSERVATION:

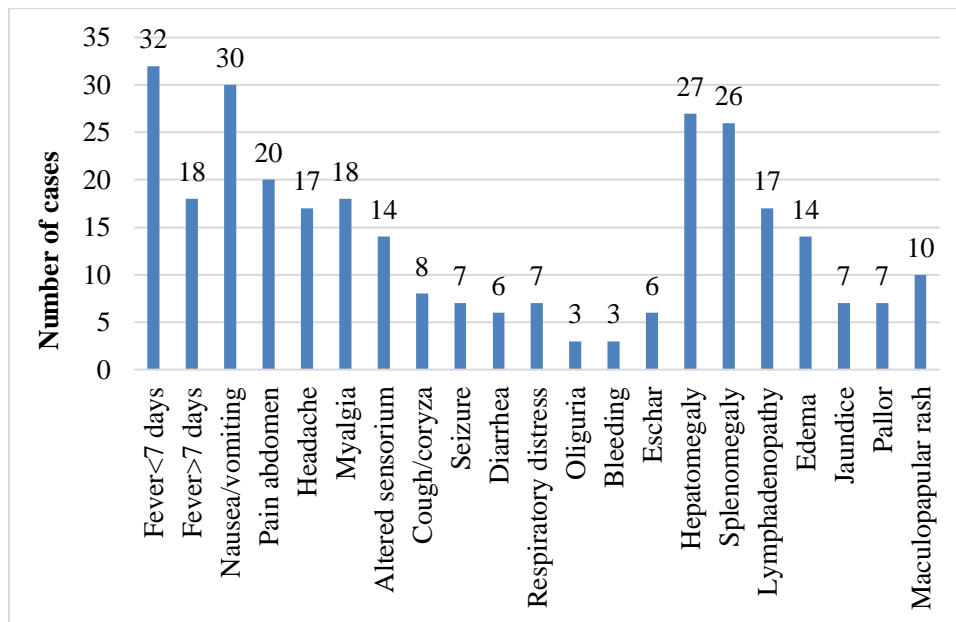
A total of 50 patients were found to have scrub typhus with positive IgM ELISA. The male and female ratio is 1.08:1 (26:24). The mean age was 36.25±12.35 years. Table 1. Demographic profile

Mean age in yrs	36.25±12.35 yrs
Male : Female	26 : 24
Rural : urban	37:13

Table 2. Clinical Profile

Clinical features	No of patients [n=50]
Fever	50(100%)
< 7 days	32(64.00%)
>7days	18(36.00%)
Nausea/vomiting	30(60.00%)
Pain abdomen	20(40.00%)
Headache	17(34.00%)
Myalgia	18(36.00%)
Altered sensorium	14(28.00%)
Cough/coryza	8(16.00%)
Seizure	7(14.00%)
Diarrhea	6(12.00%)
Respiratory distress	7(14.00%)
Oliguria	3(6.00%)
Bleeding	3(6.00%)
Eschar	6(12.00%)
Hepatomegaly	27(54.00%)
Splenomegaly	26(52.00%)
Lymphadenopathy	17(34.00%)

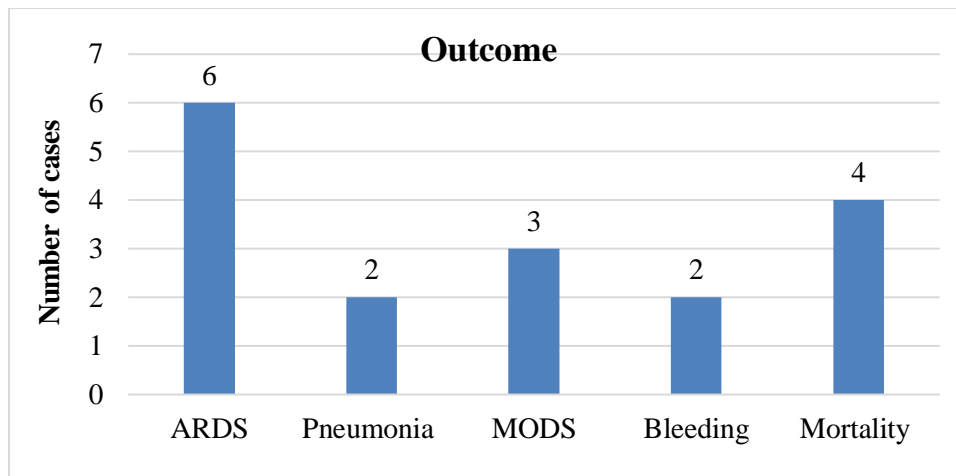
Edema	14(28.00%)
Jaundice	7(14.00%)
Pallor	7(14.00%)
Maculopapular rash	10(20.00%)



All 50 (100%) patients presented with fever and 32(64.00%) patient were have less than 7 days fever and 18(36.00%) were have more than 7 days fever. Other common symptoms were vomiting 30(60.00%) ,abdominal pain 20(40%),headache 17 (34%),myalgia 18 (36%) ,altered sensorium 14 (28.00%),cough 8(16.00%),seizure 6 (12.00%),diarrhea 6(12.00%), respiratory distress 7(14.00%),oliguria 3(6.00%),bleeding 3(6.00%).

ARDS	6(12.00%)
Pneumonia	2(4.00%)
MODS	3(6.00%)
Bleeding	2(4.00%)
Mortality	4(8.00%)
MENINGOENCEPHALITIS	14(28%)
MYOCARDITIS	2(4.00%)

Among the complications ARDS & MENINGOENCEPHALITIS was most common . Patients who developed MODS had poor outcome and mortality was noted among patients in this study.



RESULTS:

Results- All 50 (100%) patients presented with fever and 32(64.00%) patient were have less than 7 days fever and 18(36.00%) were have more than 7 days fever. Other common symptoms were vomiting 30(60.00%) ,abdominal pain 20(40%),headache 17 (34%),myalgia 18 (36%) ,altered sensorium 14 (28.00%),cough 8(16.00%),seizure 6 (12.00%),diarrhea 6(12.00%), respiratory distress 7(14.00%),oliguria 3(6.00%),bleeding 3(6.00%).

CONCLUSIONS:

Knowledge and awareness about the disease makes the diagnosis simple and fast, which in turn facilitates early appropriate antibiotic and supportive therapy, which helps in the recovery of the patient without acquiring complications.

	Triple Antibiotic therapy GROUP A	Double Antibiotic therapy GRPOUP B
No. of patients	28	22
AVG Day within patient improved	7-12	8-12
Mortality	3	1

In Group A death 3 (10.71%) out of 28 cases and in group B only 1 (8.33%) death out of 22 cases. We used triple antibiotic therapy (azithromycin, doxycycline and rifampicin) in group A patient who have ARDS, PNEUMOMINA, MODS, BLEEDING AND HYPOTENSION ,altered sensorium which were admitted in icu and in group B we used double antibiotic therapy (azithromycin and doxycycline) used in ward patient who had Other common symptoms were vomiting, abdominal pain, headache ,myalgia ,cough ,seizure, diarrhea , respiratory distress ,oliguria ,bleeding. Dose of drugs we used were azithromycin day 1 -1 gram IV Day 2 & 3 500 mg IV. Dose of doxycycline -100 mg twice a day for 14 days.

Dose of rifampicin – 600 mg once a day for 5 days. We found that group A was recovered early and but mortality was high because patient was critical and admitted in iuc and in group B recovery slower than group A but mortality was low. So we say that with triple antibiotic therapy have better prognosis than double and single antibiotic therapy.

DISCUCSSION:

A total of 50 patients were found to have scrub typhus with positive IgM ELISA. The male and female ratio is 1.08:1(26:24). The mean age was 36.25±12.35 years. All 50 (100%) patients presented with fever and 32(64.00%) patient were have less than 7 days fever and 18(36.00%) were have more than 7 days fever. Other common

symptoms were vomiting 30(60.00%) ,abdominal pain 20(40%),headache 17 (34%),myalgia 18 (36%) ,altered sensorium 14 (28.00%),cough 8(16.00%),seizure 6 (12.00%),diarrhea 6(12.00%), respiratory distress 7(14.00%),oliguria 3(6.00%),bleeding 3(6.00%), hepatomegaly(54.00%), splenomegaly(52.00%). The presence of splenomegaly is an important clinical finding of scrub typhus that distinguishes it from dengue as splenomegaly is uncommon in dengue.⁶ Lymphadenopathy is also commonly seen in scrub typhus.^{7,8} It can be a differentiating feature from malaria and dengue where patients can also have hepatomegaly and splenomegaly as was seen in our patients with scrub typhus. Presence of an eschar provides a valuable clinical clue in the early diagnosis of scrub typhus.⁷ It may develop before the onset of systemic signs. however, it is rarely seen in south East Asia and Indian subcontinent. In this study Eschar was found in only 6 (12.00%) which is in contrast to a few other studies which showed a higher detection rate⁹ Complications in scrub typhus develop after first week of illness and are directly related to the blood load of *O. tsutsugamushi*.⁶ In the present study, the most common organ dysfunction was ARDS followed by MODS. Although the case fatality rate reported for scrub typhus varies from 15–30% in India¹⁰ and Taiwan and 10% in Korea.¹¹ it was observed to be 8.00% in this study

CONCLUSION:

Knowledge and awareness about the disease makes the diagnosis simple and fast, which in turn facilitates early appropriate antibiotic and supportive therapy, which helps in the recovery of the patient without acquiring complications.

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