



SEROPREVALENCE OF SCRUB TYPHUS AND LEPTOSPIROSIS IN DHARMAPURI, TAMILNADU- THE WINTER STUDY

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ABSTRACT

Scrub typhus and leptospirosis is a leading cause of acute undifferentiated fever in country like India, hence it is essential to establish local surveillance data to ensure proper patient management. We retrospectively analyzed patients with Scrub typhus and leptospirosis from the period of September 2017 to January 2018. A high percentage 29 (58%) of seropositivity of Scrub typhus was observed along with female preponderance in 22 (75.8%) of cases and interestingly only 10% of cases were found to be seropositive for leptospirosis infection. Coinfection with Scrub typhus and leptospirosis was seen in 8% of the patients in this study. This study provides baseline information on seropositivity of Scrub typhus and leptospirosis, will be helpful in patient management, reminder of potential coinfection and establish preventive measures to control acute undifferentiated fever.

Scrub typhus is an infectious disease caused by *Orientia tsutsugamushi*, obligate intracellular bacteria, transmitted by the bites of chigger mites. In Southeast Asia, scrub typhus is a leading cause of treatable non-malarial febrile illness.^[1] The use of improved diagnostic methods, increased medical investigations and awareness have recently contributed to greater recognition of scrub typhus in some countries, such as in Laos, India, southern China, South Korea, and Japan.^[2] Though it is rationally considered as disease found in rural areas, it is also well described from urban areas like Delhi and Chennai, as the tiny mite islands are seen in the vegetation around the dwellings. In TamilNadu, India a region where scrub typhus is endemic disease accounts for 50% of undifferentiated cases of fever presenting to hospital.^[3] Leptospirosis is another important cause of acute undifferentiated fever with global annual incidence of 350,000-500,000.^[4] Both these infections present with non specific clinical features making it very difficult to distinguish them on clinical manifestation alone. It is mandatory to update the local surveillance data on Scrub typhus and leptospirosis to establish clinical management and awareness of the potential for coinfection. Hence this retrospective study was done to estimate the seroprevalence of Scrub typhus and leptospirosis among patients with pyrexia of unknown origin (PUO) attending Government Dharmapuri Medical College Hospital, Dharmapuri.

In this retrospective analysis, we included 50 patients serum samples with PUO negative for malaria, typhoid

and dengue fever, from the period of October 2017 to January 2018 were subjected to IgM ELISA test for the detection seropositivity of Scrub typhus (InBios) and leptospirosis (panbio). Among 50 patients 29 (58%) were found to be positive for Scrub typhus, of which 22 (75.8%) were female and 7 (24.2%) were male, with the female/male ratio of 3:1. The age of the male patients with *Scrub typhus* infection was found in the range of 41 to 50 yrs and female patients with the age of >50 yrs were commonly affected. Out of 50 patients 5 (10%) were positive for leptospirosis, of which 4 (80%) were male and 1 (20%) was female, with male/female ratio of 4:1. The age of >30 yrs of both male and female patients were commonly affected with leptospirosis infection. Out of 50 patients, 4 (8%) were showed positive for both leptospirosis and Scrub typhus infection, of which 2 (50%) were male and 2 (50%) were female with no specific age wise differences (Table.1).

Table.1. Results of IgM ELISA in Scrub typhus and Leptospirosis diagnosis (n=50)

Serial No	Age	Male (19)				Female (31)			
		No tested	No of Positive *			No tested	No of Positive *		
			Scrub typhus	Leptospirosis	Both		Scrub typhus	Leptospirosis	Both
1	<10yrs	2	1	-	-	3	3	-	-
2	11-20yrs	2	1	-	-	1	-	-	1
3	21-30yrs	1	-	-	-	8	5	-	-
4	31-40yrs	3	1	-	-	8	4	-	-
5	41-50 yrs	6	4	-	-	3	3	-	-
6	>50yrs	5	-	-	1	8	7	-	-
Total		19	7	4	2	31	22	1	2

*IgM ELISA positivity for Scrub typhus and Leptospirosis.

The epidemiology of scrub typhus within a country is heterogeneous-the pronounced seasonality of these diseases and the changing urban/rural distribution with defined areas of high infected mite intensities (mite islands) challenges the common approaches of disease incidence evaluation.^[5] Various studies conducted in different parts of TamilNadu, India have reported prevalence rate of 16.1% to 47.5%.^[6,7&8] In this study 58% of seropositivity for Scrub typhus was comparatively higher than previous reports from Tamil Nadu, probably due to the fact that incidence of Scrub typhus increases in the post monsoon season (September to November), which enables increase in mite population and scrub. Interestingly, female preponderance was observed with 22 (75.8%) cases being positive and found to be predominant among patients with age group of >50 yrs, which may be partly explained by an frequent exposure chances for this age group while participating in daily wage work in rural background. The incidence of leptospirosis increases after the rainy season because of stagnant water bodies, in contrast this study reports only 10% of cases were found to be seropositive for leptospirosis infection, which was found to be lesser than previous study reports.^[9] Coinfection with Scrub typhus and leptospirosis was seen in 8% of the patients in this study, strongly suggests that the clinician should consider the possibility of co-infections in endemic areas to permit the prompt initiation of rationale therapy. This study serves local surveillance on seroprevalence of Scrub typhus and leptospirosis infection in Dharmapuri district, TamilNadu, will be helpful in understand the local epidemiology, patient management and establish preventive measures to control acute undifferentiated fever cases.

Conflict of interest: None.

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