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RESEARCH ARTICLE

DEMOGRAPHIC, CLINICAL AND BIOCHEMICAL PROFILE OF ADULT SCRUB TYPHUS PATIENTS- A CROSS SECTIONAL STUDY FROM A TERTIARY CARE HOSPITAL, CHENGALPATTU DISTRICT, TAMIL NADU'

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Manuscript Info ***Abstract***

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Introduction:-

Scrub typhus, caused by Orientia (formerly Rickettsia) tsutsugamushi, is an acute infectious disease of variable severity that is transmitted to humans by an arthropod vector of the Trombiculidae family. It prevails in eastern and southern Asia, northern Australia, and on the islands of the western Pacific region, including Taiwan. It affects people of all ages including children. Humans are accidental hosts in this zoonotic disease.

While scrub typhus is confined geographically to the Asia Pacific region, a billion people are at risk and nearly a million cases are reported every year. It was a dreaded disease in pre-antibiotic era and a militarily important disease that affected thousands of soldiers in the far east during the second World War.2 The overall mortality varied from 7% to 9%, second only to malaria among infectious diseases. Rickettsial disease in India has been documented from Jammu and Kashmir, Himachal Pradesh, Uttaranchal, Rajasthan, Assam, West Bengal, Maharashtra, Kerala and Tamil Nadu. The clinical spectrum of scrub typhus varies from mild to moderate severity.

Acute fever is the most common manifestation later accompanied by headache, myalgia and cough. Incubation period varies from 7-21 days. Eschar is a characteristic skin lesion usually observed in most of the scrub typhus patients and the bite of this mite shows a characteristic black eschar that is useful to the doctor for making the diagnosis. Severe complications include prominent encephalitis, interstitial pneumonia and ARDS, circulatory collapse with haemorrhagic features.

Objectives:-

To assess the "Demographic, clinical and biochemical profile of adult Scrub Typhus patients- A Cross sectional study from a Tertiary care hospital, Chengalpattu District, Tamil Nadu"

Materials & Methods:-

Study design:
An Cross sectional record based study

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Study setting :
Records of patients admitted in emergency department and inpatient in Department of Medicine, Karpaga Vinayaga Institute of Medical sciences from Jan 2019 to December 2021.

Study duration:
6 months (After getting approval from IEC).

Study population :
patients >18 years old with acute febrile illness >7 days duration who found confirmed case - positive for Scrub Typhus IgM antibody.

Inclusion Criteria:
1. Pyrexia for more than 7 days
2. Age >18 years
3. Positive serology for scrub typhus.

Exclusion Criteria:
1. Patients with other established causes of pyrexia, such as malaria, dengue, leptospirosis, enteric fever, and viral meningitis
2. Incomplete case records

Sample Size :
90

The prevalence of Scrub typhus disease was reported as 13.59% by Ital. SiddharudhaShivalli (2016) in the recent edition of Sivarajan et al. Infectious Diseases of Poverty. With this reference and assuming a 95% confidence interval, a 5% absolute precision value, and an available population size of 150, the minimum required sample size will be 81 ~ 85.Sample is rounded off to 90.

Sampling:
Convenience sampling

Date entry and analysis
Data collected was entered in Microsoft excel and analysed using SPSS version 24.0

Results:-

Table 1:- Age and sex wise distribution of study participants.

Age	Male (n=40)	Female (n=50)
14-20	4	8
21-30	20	10
31-40	10	8
41-50	2	16
51-60	2	6
61-70	2	2

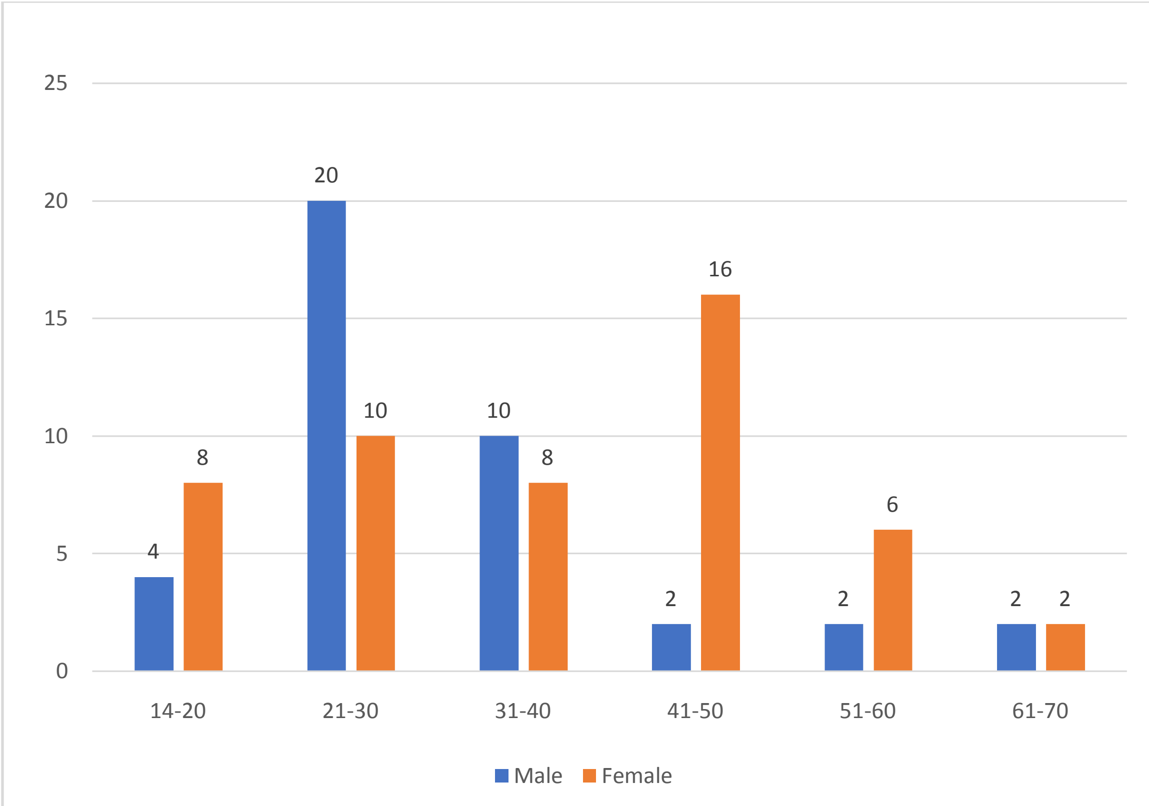

Table 2:- Symptoms and signs among study participants.

Symptoms	Frequency	Percentage
Fever	90	100
Headache	79	88
GI symptoms	81	90
Dyspnoea	18	20
Lymphadenopathy	18	20
Cervical	8	9
Inguinal	14	15
Axillary	2	2
Eschar	46	45
Inguinal	18	20
Trunk	11	12
Axillary	7	8
Penile	1	1
Inframammary	9	10
Rash	30	33
Jaundice	11	12
Hepatomegaly	21	24
Splenomegaly	16	18
Oliguria	7	8
Altered sensorium	1	1

Table 3:- Biochemical investigations among study participants.

Investigations	Frequency	Percentage
Hb<11g%	40	44
Leucocytosis	21	23

Leucopenia	6	7
Platelet <1.5 lakh/cu.mm	50	56
Platelets <50,000/cu.mm	10	11
Sr.Bilirubin>2g%	16	18
SGOT >150IU/L	37	41
SGPT >150IU/L	32	36
Sr Creatinine >1.6mg/dl	20	22

Results And Discussion:-

As shown in the Table 2, all the patients had fever as the major symptom. Other important presentations were GI symptoms, dyspnoea and headache. In our study there was nearly equal incidence of scrub typhus among female and male population with slight preponderance to females 51%, similar to the study by Saleem. The most common age group affected belonged to third decade, but study by Shirish Inamdar showed greater incidence among fourth decade. Among the cases diagnosed, majority 51% belonged to Vellore district.

Patients usually present with fever, headache, malaise, suffused face, lymphadenopathy and eschar. It is so characteristic for scrub typhus that in the present study doxycycline was started empirically. Fever was most common clinical feature seen in our study (100%) as observed by a study of Gopal followed by gastro intestinal symptoms like abdominal pain, dyspepsia, diarrhoea etc.

A necrotic eschar which is considered as most useful diagnostic clue for scrub typhus was present in 46(45%) cases of our study population similar to a study done in Taiwan though it was reported as high as 86.3% in some study and also as low as 5%. In our present study the commonest site of eschar was inguinal region 18%, followed by trunk and axilla, similar to the study by Jamil. Few patients had eschar in the inframammary region and one had penile eschar. Lymphadenopathy is common in scrub typhus that was seen in our study also. Inguinal lymphadenopathy was the commonest followed by cervical and axillary. Hepatomegaly 24% and splenomegaly 18% were also noticed among the cases.

Thrombocytopenia was observed in many patients. The observed thrombocytopenia does tend to be mild in this disease similar to the study conducted in CMC Vellore, about 56% of our patients had platelet counts <1.5 lakh/cu.mm and only 11% had severe thrombocytopenia<50,000/cu.mm. Leukocytosis (>11,000/cu mm), a common sign of bacterial etiology, was found in less than 50 (23%) of our patients.

As with other studies, three fold elevation of SGOT (41%) and SGPT (36%) was present in many cases. Raised bilirubin more than 2 mg/dl present in 18% and raised serum creatinine of more than 1.6 mg/dl present in 22% of patients

Conclusion:-

The study shows the wide variety of clinical manifestation and complications of scrub typhus, a well- known mite borne disease in South India. Scrub typhus is present in regions that are co-endemic for diseases that may present with similar clinical syndromes, such as malaria, dengue, typhoid, and leptospirosis. Due to the varied presentation and high mortality due to complications, a high index of suspicion is required.

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