Introduction

The World Health Organization has reported scrub typhus one of the world’s most under diagnosed and under reported disease that often requires hospitalization. Better understanding of the vectors, its outbreaks and its pathogenesis is required to control human outbreaks within and beyond its recognized regions of endemicity (Luce-Fedrow, A. et al., 2018; & World Health Organization, 2018).

Himachal Pradesh is a mountainous state in northern India, situated at an altitude between 350–6816 meters above mean sea level. During the rainy seasons, areas of lower altitudes experience an average temperature between 20ºC to 35ºC which is suitable for the spread of arthropod vector. Maximum number of the cases are being reported between the months of July to November (Sharma, A. et al., 2005).

Scrub typhus is an acute febrile illness caused by O. tsutsugamushi (Kim, D. M. et al., 2007). Scrub typhus is frequently associated with the development of respiratory complications. Radiological abnormalities like bilateral reticular opacities, air space nodules and pleural effusion, are relatively common in scrub typhus (Charoensak, A. et al., 2006). The basic pathologic process is interstitial pneumonia with or without vasculitis. The pulmonary manifestations of scrub typhus are varying grades of bronchitis and interstitial pneumonitis progressing to ARDS. Acute respiratory distress syndrome is defined as an acute and persistent lung inflammation with increased vascular permeability and is most often associated with sepsis syndrome, aspiration or primary pneumonia. The pathologic progression of ARDS reflects the sequentially occurring exudative, organizing (fibroproliferative) and fibrotic stages (Charoensak, A. et al., 2006; & Luhr, O. R. et al., 1999).

Acute respiratory distress syndrome (ARDS) is a relatively uncommon but serious complication associated with Scrub typhus which may occur due to delay in initiation of antibiotics. Mortality of these patients is currently estimated to be approximately 35-40% (Charoensak, A. et al., 2006; & Luhr, O. R. et al., 1999).

In most studies, ARDS in Scrub typhus has been observed in the setting of multiorgan dysfunction syndrome, and is associated with higher mortality (Wang, C. C. et al., 2007).

Scrub typhus is a well documented disease in the state of Himachal Pradesh, but there have been no studies on Respiratory manifestations which is associated with the exposure to Orientia tsutsugamushi in the paediatric age group population. Therefore, this study was done to determine the respiratory manifestations among patients with Scrub typhus.

Aims and Objectives

To determine the respiratory manifestations among patients with Scrub typhus.
MATERIALS AND METHODS

This study was conducted in the department of Paediatrics, Indira Gandhi Medical College, Shimla, a tertiary care teaching institute in Himachal Pradesh.

Duration of study: From 1st June 2017 to 30th Nov 2018.

Study Design: Cross-sectional Study.

Ethical Clearance: Approval from the Institutional ethical committee of Indira Gandhi Medical College Shimla.

Study Population

The study participants consisted of all 102 newly diagnosed paediatric cases of scrub typhus, admitted in pediatric ward of IGMC Hospital Shimla based on positive IgM against scrub typhus during the study period.

Exclusion Criteria

- The study subjects having concomitant HIV, Malaria, Tuberculosis, Hepatitis, Typhoid and Acinetobacter septicaemia.
- Participants in the control group B and group C having febrile illness during the last three months.
- Participants or their parents who are not willing to participate in the study.

Sampling Method

All the diagnosed cases of scrub typhus based on enrolment criteria at the time of admission in the paediatric ward were enrolled.

Statistical Analysis

Data from the case record files was recorded on a Microsoft excel spreadsheet. Statistical analysis was performed using Epi Info 7. All discrete variables were expressed as percentages.

RESULTS

In the present study, among 102 newly diagnosed cases of Scrub Typhus, 57 (55.9%) were males while 45 (44.1%) were females. 39 (38.2%) were in the age group of 1-10 years while 63 (61.8%) were in the age group of 11-18 years.

Respiratory findings

Shortness of breath was present in 45 (44.1%), dry cough 20 (19.6%) and productive cough in 1 (0.9%) patients. On examination tachypnea was present in 30 (29.4%) patients, which was similar to 24% and 26% as reported by Vikrant and Vivekanand et al., (2010) Vikrant, S. et al., (2013). Tachypnea was suggestive of more respiratory involvement. All patients who presented with symptoms of cough, chest pain and shortness of breath were investigated with chest X-ray and arterial blood gas analysis (ABG). On auscultation bilateral crepitations in 24 (23.5%) patients and decreased breath sounds in 10 (9.8%) patients which was similar to 26% and 4% as reported by Vivekanand et al., (2010). In the current study, on X-ray chest (PA view), 18 (17.6%) patients had features of ARDS, 10 (9.8%) had features of pleural effusion and 8 (7.8%) patients had features of consolidation. Similar observations were seen in other studies.

CONCLUSION & RECOMMENDATIONS

Scrub typhus is endemic and documented zoonosis in the state of Himachal Pradesh as the climatic and geographical conditions are conducive for spread of vector of the scrub typhus. The general physicians should be sensitized regarding respiratory findings associated with scrub typhus which provides useful clue in diagnosis.

REFERENCES

7. Luce-Fedrow, A., Lehman, M. L., Kelly, D. J., Mullins, K., Maina, A. N., Stewart, R. L., ... & Richards, A. L.


