

Rickettsial disease - An Experience

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Abstract

Objective: To determine the prevalence, clinical pattern and complications of Rickettsial disease at a tertiary hospital in Maharashtra.

Material and methods: The present study comprises of 156 cases admitted in paediatric intensive care unit, Ashwini Sahakari Rughnalaya and Research Center, Solapur, Maharashtra, Between the period from January 2006 to December 2008.

Selection Criteria: All paediatric patients who were suspected clinically of rickettsial infection were included in the study. Majority of them tested positive for Weil-Felix test. Clinical suspicion of rickettsial fever was based on the history of fever, non-confluent maculopapular rash or purpuric rash involving palms and soles. Data regarding age, sex, residential area, exposure to animals, tick bite, exposure to farming was collected in each case. Each patient was subjected to a battery of investigations, which include CBC, test for malarial parasite, widal test and detection of dengue IgM antibodies and leptospira in a few. These investigations were done to rule out other common disorders which have similar presentation. Other investigation like CSF examination, serum electrolytes, SGPT, blood culture were done as per requirement of the case. Immunofluorescent Assay, which is gold standard investigation, was done in 2 cases. ELISA for spotted fever was done in 26 cases. The suspected cases were treated with Chloramphenicol (50-100 mg/kg/day) and Doxycycline (3-5mg /kg /day) for 7 to 10 days and

supportive care as per the need. The response to treatment and prognosis was noted in all cases.

Results: The present study included 156 cases, which accounts for 12% of admissions in pediatric intensive care unit. Age at which these patients presented varied from 6 months to 13 years. Fever and rash were the most common symptoms where as altered sensorium, hepatosplenomegaly and rash were the most common signs. Among complications, encephalitis (71.79%) and necrotic rash (50.62%) were the most common. Other complications like ARDS, myocarditis, DIC, renal failure were also encountered. Out of 156 cases, 124 patients (79.48%) recovered with standard anti-rickettsial and supportive treatment while 18 of these died (11.53%).

Key words: Typhus fever, Rickettsial disease

Introduction

Rickettsiosis consists of a spectrum of vector-borne diseases, caused by small gram negative obligate intracellular bacteria and this includes common illnesses such as epidemic typhus, scrub typhus and spotted fever. Historically, Rickettsial disease has been a major cause of morbidity and mortality world-wide, ranking next to malaria. Howard Taylor Ricketts, after whom the organisms are named, successfully transmitted Rocky Mountain spotted fever from ticks to humans and he also observed the organisms in tick tissue in the early twentieth century. In 1915, a discovery by Weil and Felix led to the development of the widely used serological test for the diagnosis of rickettsial infections.¹

Generally Rickettsial diseases are characterised by sudden onset of fever, chills, moderate to severe headache, rash, malaise and a

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variable degree of prostration and toxicity. This presentation is common to many other pathogens. Hence they are generally difficult to diagnose. These are widely distributed throughout the world. It is prevalent all over India, with predominant reporting from the Himalayan foothills in Himachal Pradesh and from the southern part of India in Tamil Nadu.^{2,3,4,5} Serological tests are of limited use in diagnosis because these are not positive before second week of illness. By that time the patient either recovers completely or succumbs to the disease, depending on severity and type of treatment received.⁶

In the last 12 years, a number of patients were referred to our hospital from rural areas of Solapur, Latur, Osmanabad district and North Karnataka (Bijapur, Gulbarga, Raichur) with the presentation described above. Initially, all were investigated thoroughly for all common diseases except for rickettsiosis and were treated with broad spectrum antibiotics and anti-malarials, but many showed poor response to treatment and high mortality. With this background, the present study is done to find out the spectrum of clinical presentation of rickettsial infections among patients admitted to the paediatric intensive care unit. The present report highlights the clinical features of the disease, and provides a guide for pediatricians and clinicians to suspect Rickettsial infection, begin empiric treatment immediately and thus reduce disease-related mortality and morbidity.

Material And Methods

The present study comprises 156 cases admitted in the paediatric intensive care unit at, Ashwini Sahakari Rughnalaya and Research Center, (Solapur, Maharashtra) between the period from January 2006 to December 2008.

Selection criteria

All paediatric patients who were suspected clinically of having Rickettsial infection were included in the study. Clinical suspicion of

Rickettsial fever was based on the presence of fever, non-confluent maculopapular rash or purpuric rash involving palms and soles. Data regarding age, sex, residential area, exposure to animals, tick bite or exposure to mites or chiggers, and exposure to farming was collected in each case. Other common infective conditions were ruled out by performing tests such as malarial parasite, Widal test and Dengue IgM antibodies and leptospira serology. Weil Felix test was done as per instructions of the manufacturer. (OX 19, OX-2 and OX-K strains, plasma tec laboratories, Brid Fort, UK) serum dilutions from 1:20 to 1:320 were tested. Titres of 1:80 or more were considered significant^{8,9} as are taken by other researchers. Other investigations such as complete blood count, CSF examination, serum electrolytes, liver enzymes and blood culture were done as per requirement of the case. Immuno - Fluorescent Assay which is the gold standard investigation done at CDC Atlanta (sent from Bijapur) was done in 2 cases. ELISA for spotted fever (Panbio, Brisbane Australia) was done in 26 cases. The suspected cases were treated with Chloramphenicol (50 100 mg/kg/day) and Doxycycline (3-5mg /kg /day) for 7 to 10 days and supportive care as per the need. The response to treatment, complications and prognosis was noted in all cases.

Results

The present study included 156 cases, which account for 12% of the admissions in pediatric intensive care unit. Most cases presented in the months of August 2006 to December 2008. Age at which these children presented varied from 6 month to 13 years. Majority of these were under the age of 3 years accounting for 59% of the total. There was slight male predominance, ratio being 1.2:1. All of them (100%) presented with fever and rash. The distribution of various clinical features at the time of presentation is shown in Table 1. Irritability was seen in 83% cases,

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