Original Research Article

Clinical and laboratory profile of Rickettsial infections in children

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Abstract

Introduction: Rickettsial fever is caused by infection with bacteria of genera Rickettsia, Orientia, Ehrlichia. It is characterized by vasculitis and perivasculitis in skin and major organs like liver, spleen, heart, central nervous system. It is reported from many parts of the world and many parts of India, which reflects its endemicity. **Aims and objectives**: To study various clinical and laboratory profiles of rickettsial infections in children. **Methodology:** This was a retrospective study.All admitted patients with clinical suspicion and supported by a positive Weil Felix test were included in the study. Clinical suspicion was based on findings of fever, rash, hepatosplenomegaly and bleeding diathesis, along with CNS involvement. **Result:** The common clinical findings were fever, rash, hepatosplenomegaly, bleeding diathesis and seizures or altered sensorium and respiratory system findings. The major hematological findings were anemia Mean Hb8.5gm% (100%), leukocytosis(61.14%), , thrombocytopenia(35.10%). OX 19 and OX2 was positive in 55 cases. OX2 was positive in 2 cases. **Conclusion:** infection with spotted fever group was more common than scrub typhus.

Key words: rickettsial fever, spotted fever, scrub typhus.

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INTRODUCTION

Rickettsial fever is an acute febrile illness caused by infection by bacteria of genera Rickettsia, Orientia, Ehrlichia[1]. It is characterized by focal or disseminated vasculitis and perivasculitis, involving the lungs, heart, liver, spleen, and central nervous system. It is reported from many countries in the world[1] and recent reports from many parts of India highlight its endemicity in India[2], Hemophagocyticlymphohistiocytosis syndrome (HLH) is a rare but potentially fatal clinical syndrome resulting from dysregulated activation and proliferation of lymphocytes. Infections are important triggers for hemophagocytosis[3] There are few case reports of scrub typhus associated HLH in children[4] Rickettsial Fever is an acute febrile, zoonotic[5] disease spread by bite of ticks or mites. The infection manifests as non specific febrile illness which is sometimes accompanied by gastrointestinal, respiratory or central nervous system manifestations. Illness can be inapparent or severe and death is reported to occur in 1% to 30% of untreated cases. The presences of Rickettsial diseases in India have been documented in Jammu and Kashmir, Himachal Pradesh, Uttaranchal, Rajasthan, Assam, West Bengal, Maharashtra, Kerala and Tamil Nadu7 .Recently the disease has reemerged in many areas of India.6 Weil Felix (WF) test is based on,[8] the detection of antibodies to various proteus species which contains antigens with cross-reacting epitopes to antigens from members of the genus Rickettsia. Even though WF agglutination test is not very sensitive but when positive, it is rather specific test.[9] Good correlation between the results of WF test and detection of IgM antibodies by an Immuno-fluorescence assay has been demonstrated.[10]

MATERIALS AND METHODS

This is a retrospective study. All admitted patients who were suspected clinically and supported by laboratory investigations of Rickettsial fever were studied. Clinical suspicion of Rickettsial fever was based on history of fever, non-confluent maculopapular or purpuric rash involving palms and soles,hepatosplenomegaly and supported with Weil Felix Test. A total 57cases were diagnosed as rickettsial fever by Weil-Felix test. Various Weil-felix Antigens for titer were used like OX2, OX19, OXK for typing Titers of more than 1:80 were considered positive.

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Table 1: Distribution of clinical findings

Serial no	Clinical findings	Number of cases	percentage
1	Fever	57	100
2	Rash	27	47.36
3	Pallor	23	40.35
4	Hepatomegaly	40	70.71
5	Splenomegaly	36	63.31
6	Bleeding diathesis	20	35.08
7	Seizure	4	7.01
8	Altered sensorium	3	5.26
9	Respiratory system findings	1	1.75

From Table 1, it was observed that fever was the most common finding(100%), hepatomegaly was seen in 70.71% of cases, splenomegaly(63.31%), rash(47.36%), pallor(40.35%), bleeding diathesis in form of petechiae,epistaxis and malena in 35.08% of cases.

Table 2: Distribution of the Cases as per the Laboratory Findings

Serial no.	Laboratory findings	Number of cases	percentage
1	Hemoglobin(5.1-11.1 gm%) mean 8.5gm%	100%	100
2	Leukocytosis	35.10%	61
3	Leukopenia	3.0%	5
4	Thrombocytopenia	20%	35

From Table 2: the major hematological findings were Mean Hb8.5 (100%), Leucopenia (5%), Leukocytosis (61.14%), Thrombocytopenia (35.10%).

Table 3: Distribution of Cases as per Weil-Felix test

Sr. No	OX19titer	OX2titer	OXKtitre	No. Patients
1	1:640	1:320	-	2
2	1:320	1:320	1:320	2
3	1:320	1:160	-	35
4	1:160	1:320	-	15
5	1:160	1:80	1:80	3
Total	-	-	-	**57**

From The Table 3: The NO of cases having OX19titer and OX2titer titer was 55 i.e. of Spotted fever and OXKtitre indicates Scrub Typhus.

DISCUSSION

The most common symptoms and signs were Fever (100%),Tachycardia (92.98%) , Tachypnea (54.38%) followed by Rash, Anemia, thrombocytopenia, Seizure, Altered sensorium and Basal crepitation in lung field in decreasing order of presentation. Presence of seizures and altered sensorium indicates CNS involvement. This could be due to hall mark of the disease i.e. Microvasculitis. Fever, headache, rash which is initially maculo-papular but later on its spreads all over the body and it also involves palms and soles these findings are similar to Colomba et. Al (2013)[13], Nigvekar P *et al* (2013)[11] From Table2: the major hematological findings were MeanHb8.5 (100%), Leucopenia (3%), Leukocytosis (61.14%), Thrombocytopenia (35.10%). These hematological findings could be due to the fact that the disease causes micro-vascultis, may damage to Platelets, RBCs causing the thrombocytopenia and decreased Hb count. The majority of the patients were having OX19titer and OX2titer titer was 55 which indicates of Spotted fever was the most common Rickettsial fever OX19titer and OX2titer and OXKtitre indicates Scrub Typhus in the smaller no of the patients. The findings are similar to S K Mahajanet. Al (2005)[12]

CONCLUSION

Spotted group was the most common Rickettsial fever followed by Scrub typhus.

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