



Internal Medicine

CLINICAL PROFILE AND PROGNOSTIC FACTORS OF LEPTOSPIROSIS:
A STUDY OF 50 CASES FROM NORTHERN KOLKATA, INDIA**Dr Jayanta
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(ABSTRACT) **Background:** India being a tropical country has become a hotspot for Leptospirosis. It is a zoonotic disease transmitted by leptospira interrogans group of microorganisms. It is an emerging disease in various parts of India including West Bengal since 1980 and recurrent epidemics with high mortality are still being reported. State-wise prevalence of leptospirosis in India evidenced by the data published from 2005-23, data analysis showed that coastal states of India like Andhra Pradesh, Kerala, Odisha have a high prevalence of Leptospirosis. In West Bengal, high prevalence is noticed in coastal areas. Severe leptospirosis is characterized by jaundice, renal dysfunction, fever, bodyache, headache, and haemorrhagic manifestations on skin. **Methods:** This is a prospective study conducted at Uma Medical Research Institute, Kolkata. 50 cases were chosen from the medical intensive care unit and wards which showed clinical features of leptospirosis and diagnosis was confirmed by ELISA test. Those patients were investigated and assessed for the complications and outcome. **Results:** 50 clinically and serologically confirmed cases of leptospirosis were included in this study, of which 39 (78%) were males and 11(22%) were females. In males, maximum cases were reported in the age group of 30-45, and age group of 25-40 were reported in females. 7 patients expired out of 50, with acute respiratory distress syndrome being the leading cause of mortality (85%). Five patients had features of acute kidney injury at the time of discharge. **Conclusions:** Leptospirosis is one of the common cause of hepatorenal failure and significant cause of mortality among lower socioeconomic workers during monsoon and post monsoon season. Out of 50, 36 patients were cured with Intensive and Conservative management, 5 expired due to multiorgan dysfunction syndrome and ARDS. Remaining 9 patients, had residual kidney dysfunction. Patients who had facility of early dialysis, ventilation support and plasma transfusion had a better prognosis.

KEYWORDS :

INTRODUCTION

Leptospirosis is one of the most common zoonosis in the world. The disease is caused by the leptospira interrogans group of organisms belong to the spirochaete and mainly transmitted by rats and other domestic animals. In the monsoon and post monsoon period, Leptospirosis is one of the most common cause of renal failure in several parts of India. Sewage and agricultural workers are commonly infected. Major form is anicteric leptospirosis (nearly 90 %), whereas, severe form of leptospirosis affecting kidney and liver is known as Weils disease. Mortality is quite high among these patients. In addition to hepatorenal syndrome, hepatopulmonary syndrome, ARDS & haemorrhagic manifestations are leading causes of mortality.

METHODS

This is a prospective observational study conducted at Uma Medical Research Institute, Kolkata which is a secondary care centre in Northern part of Kolkata. The study was conducted during a period of five years. The patients were chosen as per Faines criteria, and confirmation was done by using serum ELISA, which confirmed a total of 50 cases of leptospirosis IGM positive. The identified cases were daily monitored for development of complication. In all patient's daily urea, creatinine, platelet count, cardiovascular assessment and respiratory problems were monitored. The treatment and the complication were recorded and the mortality data was analysed.

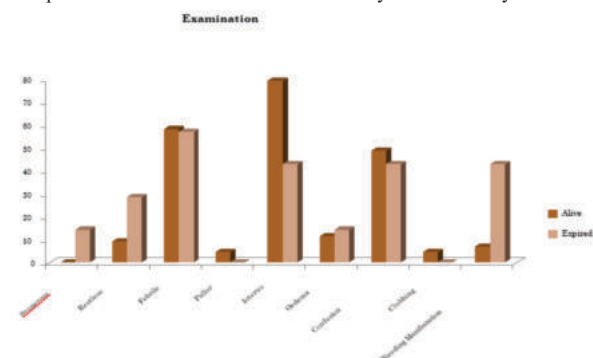


Figure 1: Clinical findings.

RESULTS

A total number of 50 serologically confirmed cases were included in this study. Of this 39 (78%) were males and 11(22%) were females. Maximum cases were reported in 30-45 age group in Males and 25-40 age group among females. All patients in both the groups had fever as their presenting complaints. Among the expired patients, breathlessness was the most prominent symptoms.

Among cured patients, headache, yellowish urine and jaundice were the prominent symptoms after fever. About 90 % of patients who developed ARDS expired during the course of treatment which also confirms other studies citing ARDS as the leading cause for mortality in Leptospirosis. COPD was prevalent in 16% of patients who succumbed to the disease. About 60% of patients were addicted to cigarette. High correlation was observed between cigarette smoking, COPD and ARDS in the group of patients who succumbed to Leptospirosis. Almost 35% of patients who got cured had received Doxycycline before getting admitted here. Indicating a positive correlation between early treatment with Doxycycline and better prognosis.

Among expired, Hypoglycaemia was seen in 28%, Hypotension in 57% and a High ESR in 86% of patients. Thrombocytopenia was seen in almost all patients who succumbed to the disease. Around 43% patients who expired had anaemia. Neutrophilia was seen in 71.4% of patients and Leukocytosis was seen in 57% of patients. Haematuria was a significant finding in urine examination.

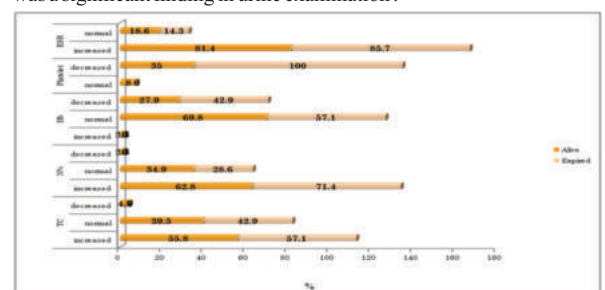


Figure 2: Hemograms in leptospirosis

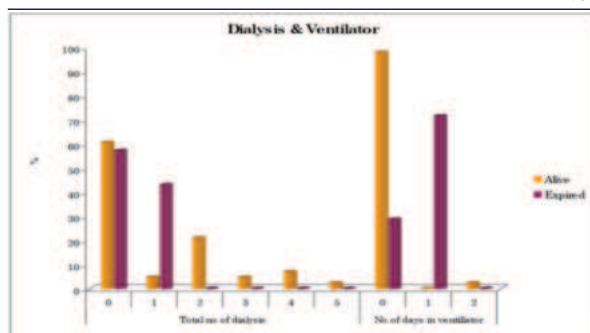


Figure 3: Patients on ventilator and dialysis support.

Early Dialysis showed a better prognosis in those who had renal failure and or ARDS due to leptospirosis. Ofloxacin combination was found to have a better prognosis with Doxycycline & Ceftriaxone. Patients who didn't receive blood or plasma transfusions expired during the course of admissions while around 20 % of those who got it survived.

Among 50 patients, 36 recovered. 5 patients expired. 9 patients got discharged with residual kidney dysfunction.

DISCUSSION

This was a prospective observational study conducted in a secondary care centre in northern part of Kolkata. 50 cases which were serologically confirmed were studied to determine the prognostic factors. Males in the age group of 30-45 years were most commonly involved. Similar observation of male preponderance was seen in other studies. In this study, 84 percent of patients reside in semi-urban area. Fever was the most common presenting symptom. Though fever and icterus were common initial clinical findings, those with additional bleeding manifestation showed more complications and mortality. Lung and neurological involvement was found to be major predictor of mortality.

Among 50 patients, 36 recovered. 5 patients expired. 9 patients got discharged with residual kidney dysfunction.

Those patients who had breathless and severe head ache showed increased complication ARDS during the course of treatment was the most common cause of mortality in this group of patients. 16% of patients who succumbed to the disease, had a history of COPD which indicates increased mortality in leptospirosis.

Of the 50 patients 35 patients who were given penicillin or doxycycline within four days of onset of leptospirosis had less mortality. Early antibiotic treatment is a better prognostic indicator in this study. One of the interesting observation was that majority of the expired patients had persistent hypoglycaemia. Persistent hypotension inspite of inotropic support also a predictor of mortality. Thrombocytopenia was noticed in all expired patients. In a study by Sharma J et al from Mumbai reported a prevalence of thrombocytopenia of 56 %. Hyponatremia was seen in 57% of patients who succumbed to Leptospirosis. Altered electrolytes and fluid balance is a common complication of leptospirosis. Patient who had early dialysis also had better outcome. Early blood or plasma transfusion saved 20 percent of severely affected patients. Mortality occurred in the first few days in intensive care unit and survival noticed better among those who had an average one week of hospitalisation.

CONCLUSION

Leptospirosis is one of the most common zoonotic infection in Tropical countries (India) during monsoon and post monsoon season. Fever is the most common presenting symptom. Raised urea and creatinine was noticed in most of the patients who developed later complications. Out of the total 50 patients studied, 36 patients got cured and five patients expired. This constitute a mortality rate of 10% which is quite significant. Patient with COPD and cigarette smoking had higher incidence of ARDS. Patient who recieved doxycycline showed less mortality if started early. Hypoglycemia was noticed in 28 percent, hypotension in 57% and thrombocytopenia in almost all patients who expired.

Haematuria was a significant finding in urine examination. Dialysis showed better prognosis in those who had renal failure. ARDS was the most common cause of death. Early intervention, diagnosis,

monitoring & management using ventilation & renal replacement therapy had a better clinical outcome in Leptospirosis with multiorgan dysfunctions.

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