e-ISSN: 0975-1556, p-ISSN:2820-2643

Available online on www.ijpcr.com

International Journal of Pharmaceutical and Clinical Research 2024; 16(4); 142-146

Original Research Article

Study on Clinical Profile of Leptospirosis Cases and Its Outcome at Tertiary Care Hospital

Manoj Kumar Choudhary[1], Govind Prasad[2], Praphull Deepankar[3], Arshad Ahmad[4], Naresh Kumar[5]

[1]Associate Professor, General Medicine, IGIMS, Patna
[2]Assistant Professor, IGIMS, Patna
[3]Associate Professor, General Medicine, IGIMS, Patna
[4]Professor, General Medicine, IGIMS, Patna
[5]Professor, General Medicine, IGIMS, Patna

Received: 25-01-2024 / Revised: 23-02-2024 / Accepted: 26-03-2024
Corresponding Author: Dr. Manoj Kumar Choudhary
Conflict of interest: Nil

Abstract:

Introduction: Leptospirosis is a potentially life-threatening zoonotic disease of worldwide distribution. Due to the lack of diagnostic tools, the diagnosis of leptospirosis cannot be easily made in many laboratories. Leptospirosis is often not recognized or is erroneously mistaken for other diseases with similar symptoms.

Aim and Objectives: To study the clinical profile of patients of seropositive Leptospira and its outcome.

Material and Method: A total of 100 diagnosed cases of leptospirosis were enrolled in the study. This prospective observational study was done over one year from December 2021 to November 2022 at IGIMS, Patna.

Result: 100 patients were included in this study out of which 69 (69%) were male, and 31(31%) were female. The most common age group affected in our study was 36-45 years of age. The age range of the leptospirosis-positive cases in this study was 15 to 72 years. Fever (95%) was the common clinical feature observed followed by generalised weakness (84%), Jaundice (81%), headache (64%), hepatomegaly (58%), vomiting (48%), Breathlessness (26%), Cough (23%) decreased urine output (19%) and abdominal pain (15%). In contrast, other clinical findings in this study were hepatomegaly (58), lymphadenopathy (52%), and subconjunctival haemorrhage (44%) Splenomegaly (23%) and hypotension (20%). Most of the patients recovered without any complications (78%) and recovered with complications in 19% of cases, whereas death was observed in this study in 3 (3%) cases.

Conclusion: The clinical presentation of leptospirosis is highly protean and may vary from subclinical to mild illness to life-threatening complications and death.

Keywords: Leptospirosis, Clinical profile, IgM ELISA, Fever, Jaundice.

Introduction

Leptospirosis is one of the most widely prevalent zoonotic diseases globally. It is caused by spirochetes of the genus Leptospira.[1] The disease is acquired through contact of abraded skin with water or soil contaminated with infected urine. Hence humans are accidental hosts. Once in the soil, the bacteria can survive for prolonged periods if the soil is damp.[2] Disease Outbreaks mainly occur as a result of heavy rainfall and consequent flooding.[3]

The clinical spectrum of the disease ranges from subclinical infections to severe fatal complications and Weil's syndrome. Clinical presentations include fever, headache, myalgia, conjunctival suffusion, rash, hepatosplenomegaly, haemorrhagic manifestations, renal failure, icterus, aseptic meningitis, acute respiratory distress syndrome (ARDS), and pulmonary haemorrhage [4]. Despite common occurrences and the possibility of serious adverse consequences, the diagnosis is often missed by clinicians. This is due to varied manifestations and most cases presenting as undifferentiated febrile illnesses. [5]

Aim and Objectives: To study the clinical profile of seropositive Leptospira cases and its outcome.

Material and Method

This prospective observational study was done over one year from December 2021 to November 2022 at IGIMS, Patna. Patients of leptospirosis were selected in different wards of General Medicine of Indira Gandhi Institute of Medical Sciences, Patna.

All cases were examined according to clinical plan and investigated according to need. The study received consent from the Institutional Ethics Committee of IGIMS, Patna (approval number 211/IEC/IGIMS/2021).

Data tracking was performed using Microsoft Excel. Informed written consent was obtained from all study participants.

Inclusion Criteria:

- Age more than 15 years
- Patients of leptospirosis with ELISA IgM positive
- Patients who have given the consent for study

Exclusion Criteria:

- Age less than 15 years
- Patients who have not given the consent for study.

Result

Table 1: Sex Distribution in Study Group (N100)

Sex	No. of patients (N=100)	Percentage
Male	69	69 %
Female	31	31%

In the present study a total of 100 patients with leptospirosis were included in this study, out of these 63 (63%) were male and 37(37%) were female (table-1).

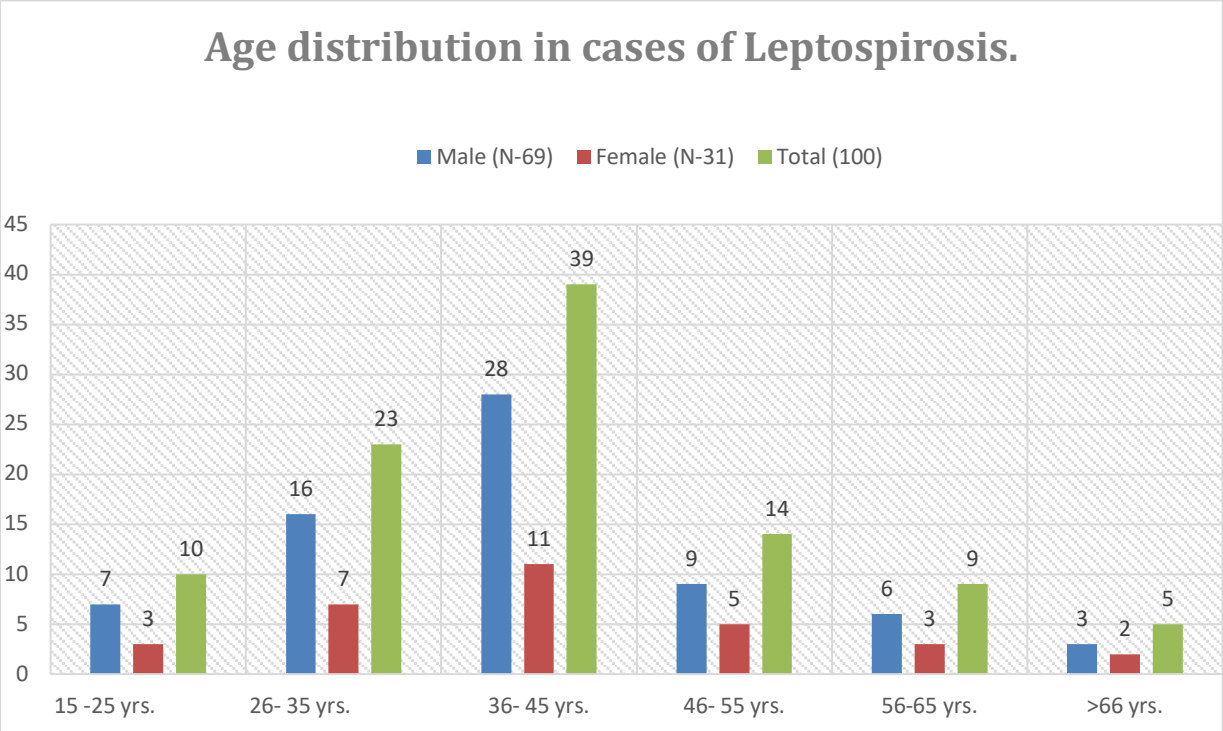

Figure 1: Age-wise group distributions of Leptospirosis cases

The most common age group affected in our study was 36-45 years of age. The age range of the leptospirosis-positive cases in the current study was 15 to 72 years (Figure 1).

Table 2: Distribution pattern of the clinical features (N =100)

Clinical features	Numbers	Percentage
Fever	95	95%
Generalised weakness	84	84%
vomiting	48	48%
Pain abdomen	15	15%
jaundice	81	81%
Cough	23	23%
Headache	64	64%
Decreased urine output	19	19%
Breathlessness	26	26%

Hepatomegaly	**58**	**58%**
Splenomegaly	**23**	**23%**
Subconjunctival haemorrhage	**44**	**44%**
Lymphadenopathy	**52**	**52%**
Hypotension	**20**	**20%**

In this study, fever (95%) was the common clinical feature observed followed by generalised weakness (84%), Jaundice (81%), headache (64%), hepatomegaly (58%), vomiting (48%), Breathlessness (26%), Cough (23%) decreased urine output (19%) and abdominal pain (15%). In contrast, other clinical findings in this study were hepatomegaly (58), lymphadenopathy (52%), and subconjunctival haemorrhage (44%) Splenomegaly (23%) and hypotension (20%), (Table 2).

Table 3: Lab parameters in leptospirosis

Laboratory parameters	Numbers	Percentage
Haemoglobin (<11 g/dL)	**62**	**62%**
TLC (>11000/µL)	**89**	**89%**
Platelet Count (<150000/µL)	**76**	**76%**
S. Creatinine (>1.2 mg/dL)	**11**	**11%**
Blood urea (>40 mg/dL)	**10**	**10%**
Serum Total. Bilirubin (Total) (>1.2mg/dL)	**82**	**82%**
SGOT (>50 IU/mL)	**91**	**91%**
SGPT (>50 IU/mL)	**88**	**88%**

In the present study decreased haemoglobin (62%), raised TLC (89%), decreased platelet count (76%), raised SGOT (91%), Raised SGPT (88%), hyperbilirubinemia (82%), Raised Serum creatinine (11%) was the predominant altered laboratory investigation report (Table 3).

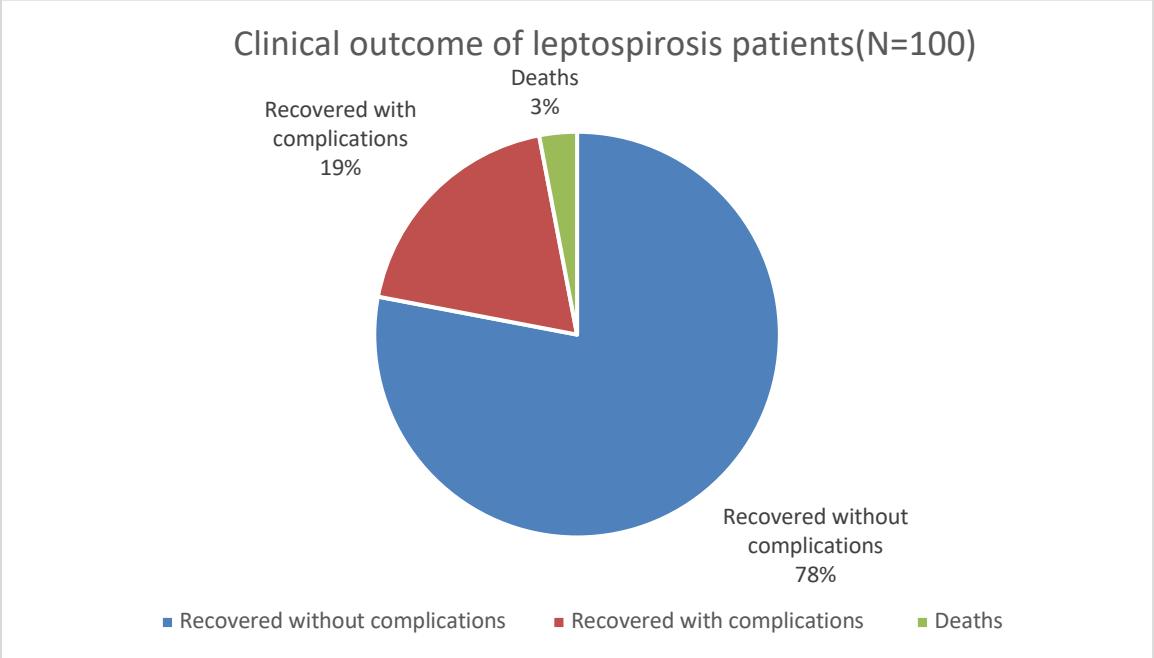

Figure 2: Clinical outcome of leptospirosis cases

The clinical outcome of the leptospirosis patients was analysed, and it was observed that most of the patients recovered without any complications (78%) and recovered with complications in 19% of cases, whereas death was observed in this study in 3 (3%) cases (Fig.2).

When the type of complications was further analysed it was noted that acute renal injury was the most commonly seen (n =11,) followed by acute respiratory distress syndrome n=5, sepsis n=1, and multiorgan dysfunction syndrome n=2.

Discussion

100 patients were included in this study out of which 69 (69%) were male, and 31(31%) were female.

In our study, the male population (69%) were more affected than the female (31%). Ahmad N et al., reported that males constituted 66.7% of total cases [6]. Male preponderance can be attributed to increased risk exposure due to outdoor activities and occupation. The most common age group affected in our study was 36-45 years of age who commonly go to outdoor work, thus having more chances of exposure to contaminated water and animals during work. The age range of the leptospirosis-positive cases in the current study was 15 to 72 years.

In the present study, fever (95%) was the common clinical feature observed followed by generalised weakness (84%), Jaundice (81%), headache (64%), hepatomegaly (58%), vomiting (48%), Breathlessness (26%), Cough (23%) decreased urine output (19%) and abdominal pain (15%). In contrast, clinical findings in this study were hepatomegaly (58), lymphadenopathy (52%), and subconjunctival haemorrhage (44%) Splenomegaly (23%) and hypotension (20%). In a study done by Holla R, the majority of the patients presented with fever (92.1%) [7]. A study done by Patil et al reported fever (100%), jaundice (70%), myalgia (70%), and headache (52.1%) as predominant complaints of patients diagnosed with leptospirosis [8]

Chauhan V et al., in their study in sub-Himalayan regions, reported jaundice, splenomegaly and breathlessness as the major features of their study [9]. However, Prakash K in his study reported pallor and icterus in 96% of cases [10].

In comparison with laboratory parameters, in the present study decreased haemoglobin (62%), raised TLC (89%), decreased platelet count (76%), raised SGOT (91%), Raised SGPT (88%), hyperbilirubinemia (82%), Raised Serum creatinine (11%) were the predominant altered parameters. Similar laboratory parameters profile in leptospirosis cases were reported by Holla R et al. [8]. The study done by Sharma et al and Pappachan et al showed thrombocytopenia in 86.6% and 65.8 % respectively. [11,12]

When the clinical outcome of the leptospirosis patients was analysed, it was observed that most of the patients recovered without any complications (78%) and recovered with complications in 19% of cases, whereas death was observed in this study in 3 (3%) cases.

When the type of complications was further analysed it was noted that acute renal injury was the most commonly seen (n =8,) followed by acute respiratory distress syndrome n=6, sepsis n=3, and multiorgan dysfunction syndrome n=2.

Sahira et al. also renal failure as a common complication of leptospirosis.[13]

Conclusions

Leptospirosis has emerged as a common cause of fever in hospitals and all patients presenting with an acute febrile illness, particularly during the monsoon season, should be screened. The increased awareness among physicians of common clinical manifestations of leptospirosis and early laboratory diagnosis will help reduce morbidity and mortality associated with the disease.

Limitations of study

Our study had a few limitations. Firstly, patients with subclinical or mild infection would not report to a hospital. There is need of further study on large sample size.

References

1. Bharti AR, Nally JE, Ricaldi JN, Matthias MA, Diaz MM, Lovett MA. Peru-United States Leptospirosis Consortium. Leptospirosis: a zoonotic disease of global importance. Lancet Infect Dis. 2003; 3(12):757–71.
2. Plank R, Dean D. Overview of the epidemiology, microbiology, and pathogenesis of Leptospira spp. in humans. Microbes Infect. 2000; 2(10):1265–76.
3. Gubler DJ, Reiter P, Ebi KL, Yap W, Nasci R, Patz JA. Climate variability and change in the United States: Potential impacts on vector- and rodent-borne diseases. Environ Health Perspect 2001; 109 Suppl 2:223-33.
4. Agrawal SK, Chaudhry R, Gupta N, Arif N, Bhadur T. Decreasing trend of seroprevalence of leptospirosis at All India Institute of Medical Sciences New Delhi: 2014-2018. J Fam Med Prim Care. 2018; 7(6):1425-28.
5. Budihal SV. Leptospirosis Diagnosis: Competency of Various Laboratory Tests. J Clin Diagn Res. 2014; 8(1):199–202.
6. Ahmad N, Shukla I, Kumar SK, Rizvi M. Leptospirosis: Seroprevalence, risk [16] factors, and diagnostic view in a tertiary care centre in North India. Int J Health Allied Sci. 2018; 7(3): 171.
7. Patil VC, Patil HV, Agrawal V. Clinical profile and outcome of leptospirosis at tertiary care centre in western Maharashtra. J Acad Med Sci 2012 Dec; 2(1):30-37.
8. Holla R, Darshan B, Pandey L. Unnikrishnan B, Kumar N. Thapar R, et al. Leptospirosis in Coastal South India: A Facility Based Study. BioMed Res Int. 2018; 2018.
9. Chauhan V, Mahesh DM, Panda P, Mokta J, Thakur S. Profile of patients of leptospirosis in the sub-Himalayan region of North India. J Assoc Physicians India. 2010; 58:354-56.
10. Prakash K. Clinical profile of leptospirosis and role of various diagnostic methods, a hospital-based prospective observational study. Indian J Microbiol Res. 2020; 7(2):195-98.

11. Sharma J, Suryavanshi M. Thrombocytopenia in leptospirosis and role of platelet transfusion. Asian J Transfus Sci 2007; 1(2): 52-55.
12. Pappachan MJ, Mathew S, Aravindan KP, Khader A, Bharghavan PV, Abdul Kareem MM et al. Risk factors for mortality in patients with leptospirosis during an epidemic in northern Kerala. Natl Med J India 2004; 17(5): 240-242.
13. Sahira H, Jyothi R, Ramani Bai JT. Seroprevalence of leptospirosis among febrile patients—a hospital-based study. J Academia Industrial Res 2015 Mar; 3(10):481-484.