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CLINICAL PROFILE AND FACTORS AFFECTING PROGNOSIS IN LEPTOSPIROSIS : A RETROSPECTIVE STUDY FROM A TERTIARY CARE CENTER IN RURAL KARNATAKA

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ABSTRACT

PurposeAim: Leptospirosis, a globally contagious zoonotic infection, is more prevalent in tropical regions. Its clinical presentation and course vary widely, ranging from mild symptoms to severe multiple organ dysfunction, which can result in mortality and morbidity, often requiring intensive care unit (ICU) hospitalization. Therefore, to To effectively manageoptimize the management of leptospirosis, it is crucial to have a comprehensive understanding of the illness disease characteristics, ICU needs, and mortality rates associated with the disease. By gaining insights into these aspects, healthcare professionals can optimize the management strategies and improve patient outcomes in cases of leptospirosis. **Methods:** The retrospective observational study was conducted between 1st April 2021 and 31st March 2022 in the Department of general medicine, at R.L Jalappa Hospital, India. The study collected clinical and laboratory parameters, as well as the Sequential Organ Failure Assessment (SOFA) score, within the first 24 hours of admission. The outcome at discharge was considered, and a prediction model was constructed using regression analysis. **Results:** The study included 61 patients with a mean age of 36.79 years. Patients with abnormal respiratory findings during clinical evaluation were more likely to require ICU care. A significantly high mortality rate was observed among patients who needed ICU care. Furthermore, a significant difference in the SOFA score, calculated within the first 24 hours of hospital admission, was observed between between deceased and recovered patientspatients who died and those who recovered. The predictors of mortality, as evaluated by regression analysis, included the SOFA score, abnormal respiratory findings in the clinical examination, and the Coagulation component of the SOFA score. **Conclusions :** The presence of aAbnormal respiratory findings, altered sensorium, total white blood cell (WBC) counts, and the coagulation component of the score were identified as significant predictors of ICU requirement. In leptospirosis, the SOFA score, particularly the coagulation component, and the presence of abnormal respiratory system findings were found to be predictors of outcome. These factors can be easily assessed even in resource-poor settings to prognosticate patients with leptospirosis.

KEYWORDS : Leptospirosis; ICU; Mortality; SOFA score

INTRODUCTION

Acute febrile illness (AFI) with no apparent source of infection is a common cause of morbidity and mortality in countries tropical countries like India, Ssouth-east Asia, South America, and Africa. Common causes for AFI -related presentations in India include malaria, dengue, Leptospira, enteric fever and scrub typhus [1]. Leptospirosis is an emerging zoonotic disease caused by the spirochete Leptospira. The A recently published multicentre multicenter study from India suggested that 7% of acute febrile illnesses are caused by leptospirosis [2]. However, in an extensive review of literature review has indicated that, leptospirosis accounted for about 13% of the outpatient cases of acute febrile illness [3]. The incidence of these infections increases during periods of flooding or rainfall [4]. Leptospirosis hasThe a wide array of clinical presentations, ranging from self-limiting mild illness to severe illness with multisystem involvement, making makes its the disease diagnosis difficult highly challenging [5]. The disease varies in severity varies from mild illness and could even beto fatal.

In its more severe form Sever Lleptospirosis can cause renal failure, meningoencephalitis, respiratory distress , pulmonary haemorrhage, and may lead to death [5]. Early initiation of antimicrobials is known to improve outcomes in lLeptospirosis, which requires early recognition and diagnosis [6]. With varied clinical manifestations , ranging from a a spectruma of benign febrile illness to life-threatening disease , in a country with a high burden of leptospirosis and with limited resources-, triaging of patients could assist in prioritizsing admission and care, which canultimately savinge time and resources. Numerous attempts have been made to develop scoring systems for assessing patients upon their initial hospital visit. Many attempts have been made to develop scoring systems when patient first visits the hospital [7]. The current retrospective study aimed to understand the disease characteristics of leptospirosis upon admission and identify factors predicting prognosis, which can help predict the requirement for intensive care unit (ICU) admission as well as mortality.To understand the disease characteristics at admission, which can help to predict the requirement of ICU as well the mortality the current retrospective study was organised in our hospital.

Methods

Study Design

The is was a retrospective records-based observational study of caseswas conducted between 1st April 2021 and 31st March 2022 in the Department of general medicine at R.L Jalappa Hospital, a tertiary care centre primarily catering to rural population in Kolar, Karnataka. The study included Iinvestigations done conducted within the first 24 hours of arrival to the hospital were included. The study was conducted in the Department of general medicine at R.L Jalappa Hospital, a tertiary care centre catering to a mostly rural population in Kolar, Karnataka.

Study Population

All adult patients (>18 years) who had atested positive for Leptospira IgM by ELISA and a had modified Faine's criteria score≥ >/= 25 [8] admitted to the hospital were included in the study. Patients who received outpatient treatment, had inadequate data in their records, or had an unknown outcome were excludedThe patients treated on an outpatient basis and whose records had inadequate data or the patients whose outcome was unknown were excluded. Patients who had tested positive for Leptospira IgM by ELISA were identified from the records and details about regarding their clinical and laboratory parameters within the first 24 hours of admission, as well as their discharge outcomes, and their outcome at discharge were collected. The Sequential Organ Failure Assessment (SOFA) SOFA score was calculated based on the data available from the first 24 hours of admission [9].

Ethical Approval

The study was approved by the institutional's ethics committee

approved the study.and Informedthe informed consent was waived due to the its retrospective nature of the study.

Statistical Analyses

Descriptive statistics was usedanalyses were performed,. with cCategorical variables were represented in as percentage and continuous variables as mean +/- standard deviation (SD).SD was used to represent continuous variables. Ccontinuous variables were checked assessed for normal distribution. The patients were divided into 2 two groups groups, baseddepending on their final outcome, as death deceased and recovered. Additionally, the patients were also grouped based on the requirement of for ICU admission . The ANOVA tTesting (http://vassarstats.net/tu.html) was used for the evaluation of continuous data and the chi-square test and Fisher-Exact test (http://vassarstats.net/newcs.html) for categorical variables. All tables were generated using Excel 2019. Regarding hospital stay, the cutoff was determined based on the mode, which was 6 days. Patients with a stay longer than 6 days were classified as having a prolonged hospital stay.All tables we got from excel (Excel 2019). In Hospital Stay the cut off was based on mode that is 6. Patients staying for longer than 6 days were considered to have a prolonged hospital stay.

Regression analysis was performed conducted using Excel to identify the predictors to and build the a model for outcome using variables which werethat showed significantly differentdifference at Pp values of <0.1, <0.05 and <0.01 for during the iteration process. The best model was found determined by analyzsing the R-square and F statistics. aAt P <0.05 and a whose Adjusted R-square was of 0.39 with an F of 0.00001. Similarly, regression analysis was performed for ICU requirement, resulting in an adjusted R-square of 0.45 and an F statistic of 0.000001 for P <0.05. was done where adjusted R was 0.45 and F was 0.000001 for a p value of <0.05 Validation was done performed using ANOVA and R-square. The regression was performed using excel.

RESULTS

A total Out of 79 cases tested positive for Leptospira IgM by ELISA during the recruitment period, of which 63 were admitted to the hospital and met the inclusion criteria. 2 Two patients were excluded, as they were discharged against medical advice and their outcome was unknown.

The mean age of the study population was 36.79 yrs. 34 were male and 27 female. with a male-to-female-ratio 1: 0.79. OOut off the 61 patients, 53 survived , 8 succumbed to the illness and 19 patients required ICU.

Table 1 Demographic And Clinical Characteristics In Study Population

Variables (n=61)	Total Patient (N=61)Results
Age (in years)	36.79±16.17(18-80)
Gender M(F)	34 (27)
Outcome	
DeathDeceased	8(13.11%)
Recovered	53(86.88%)
Hospitals Stay	
Short stay	12(19.67%)
Prolonged stay	49(80.32%)
ICU	
Required	19(31.14%)
Not required	42(68.85%)
Pallor present	9(14.75%)
Icterus present	12(19.67%)
Cough	6(9.83%)
Breathlessness	13(21.31%)
Fever	53(86.88%)
Hypertension	2(3.27%)
Thyroid	1(1.64%)
Diabetes mMellitus	14(23.0%)
Cardiovascular sSystem examination aAbnormal	1(1.64%)
Respiratory Ssystem examination aAbnormal	13(21.31%)
Abdominal examination aAbnormal	2(3.27%)
Nervous system examination aAbnormal	9(14.75%)
ECG aAbnormal	3(4.91%)
CXR aAbnormal	24(39.34%)
Hemoglobin (gm%)	10.83±2.12(5.3-15.8)
Total count (T/mm^3)	8.19±7.40(2.7-40)
Platelets (T/ mm^3)	70.05±95.40(16-395)
Haematocrit (%)	32.16±6.03(16.5-44)
Total Billirubinbilirubin (mg/dl)	0.57±3.01(0.1-14.2)
Direct Billirubinbilirubin (mg/dl)	0.12±2.81(0.01-13.6)
Aspartate transaminase AST(U/L)	53.10±141.0(21-750)
Alanine transaminase ALT (U/L)	34.30±63.35(8-311)
Alkaline phosphataseALP (U/L)	130.7±105.6(60-475)
Aalbumin (g/dl)	2.87±0.54(1.9-4.4)
Gglobulin (g/dl)	2.94±0.51(1-4.4)
A/G	0.87±0.38(0.3-3)
Gamma- Gglutamyl tTransferase (GGT) (U/L)	57.75±106.4(13-460)
UREA Urea (mg/dl)	32.09±47.67(7-226)
Ccreatinine (mg/dl)	0.83±1.95(0.3-11.6)
Sodium (mEq/L)	133.71±5.02(122-149)
Potassium (mEq/L)	4.46±0.85(3.3-7.3)

Data are presented as Mean±SD (rRange) or number (%).
SOFA= Sequential Organ Failure Assessment

Among the patients who died thThe mean age of the disease patients was 37 and it was those who survived was 36 among those who survived. There was no significant difference between the genders. Fever was the most common presentation and was seen observed in 90.56 % of the individuals who survived but only inand 62% of the the patients that dieddeceased subjects. Patients requiring ICUThose patients requiring ICU had a significantly higher mortality rate compared to those who did not. Comorbidities such as diabetes , hypertension or hypothyroidism had no significant impact on the outcome. 5 Five patients had a coinfection with scrub typhus , 4 four had a coinfection of dengue, and 2 two patients had a coinfection of COVID-19. Complete recovery was noted for Aall 11 patients with coinfection in our study recovered. 3 Three patients underwent haemodialysis. The detailed demographic and clinical characteristics are displayed depicted in table 1.

Comparison between patients who dieddeceased and those that recovered patients

Total counts were significantly higher in deceased patients who died (14.43 +/- 7.35) than those who recovered (7.69 +/- 7.08). However, Tthrombocytopenia had nodid not show a relationship with to the outcome, as the and mean platelet count in recovered patients who recovered was 64.74 thousand/cumm^3 compared to 153.42 thousand/mm^3 in those that dieddeceased subjects. There was no significant difference in their lLiver function test and Rrenal function tests between the groupss. The SOFA score within the first 24 hours of arrival to the hospital arrival was significantly different between those that died anddeceased and recovered subjects, of whichwith the respiratory component showinged the greatest difference. Comparison of The detailed laboratory and clinical characteristics comparison between the death deceased and recovered groups is are listed in table 2.

Table 2: Comparison Of Laboratory And Clinical

Characteristics Between Death Deceased And Recovered Groups

Variables	Deceased eath (N=8)	Recovered (N=53)	P-value
Age (years)	37.57±22.53 (18-75)	36.68±15.07 (18-80)	0.27[a]
Gender (M/F)	3/5	31/22	0.45[b]
Prolonged Hospital Stay	5(62.5%)	44(83.01%)	0.34[b]
ICU (Requiredrequired)	8(100%)	11(20.75%)	<.0001[c]
Icterus	3(37.5%)	9(16.98%)	0.18[b]
Cough	2(25%)	4(7.54%)	0.17[b]
Breathlessness	3(37.5%)	10(18.86%)	0.35[b]
Fever	5(62.5%)	48(90.56%)	0.06[b]
Hypertension	1(12.5%)	1(1.88%)	0.25[b]
Diabetes Mellitusmellitus	1(12.5%)	13(24.52%)	0.66[b]
Respiratory system examination αAbnormal	5(62.5%)	8(15.09%)	0.008[b]
Chest X-x ray Abnormalabnormal	6(75%)	18(33.96%)	0.048[b]
Hemoglobin (g%)	11.07±1.85 (8.4-13.6)	10.80±2.17 (5.3-15.8)	1[a]
Total WBC count (tThousand / mm^3)	14.43±7.35 (7.37-27.96)	7.69±7.08 (2.7-40)	0.0185[a]
Neutrophils (%)	79.24±16.35 (58-93)	67.71±17.25 (26-96)	0.793[a]
Lymphocytes (%)	5.03±3.5 (3-10)	9.69±14.70 (3-62)	0.33[a]
Platelets (thousandd / mm^3)	153.45±98.6 0 (94-367)	64.74±92.30 (16-395)	0.05
SOFA Scorescore	6.08±4.30 (4-17)	2.89±2.65 (1-10)	0.004[a]
SOFA score components			
MAP	3.3±0.54 (3-4)	2.4±1.30 (1-4)	0.06[a]
Respiratory	1.93±1.14 (1-4)	1.13±0.67 (1-3)	0.021[a]
Liver	1.76±0.70 (1-3)	1.62±0.91 (1-4)	0.313[a]
Renal	1.5±0.51 (1-2)	1.77±1.24 (1-4)	0.235[a]
Coagulation	1.2±0.57 (1-2)	1.97±0.74 (1-4)	0.05[a]
GCS	3.42±0.70 (3-4)	1±0 (1-1)	0.06[a]

Data are presented as Mean±SD (rRange) or number (%). SOFA: = Sequential Organ Failure Assessment; MAP: – mean arterial pressure ; GCS: – GrasgowGlasgow cComa scale [a]Anova; [b]Fisher exact test; [c]Chi-square test

Age and gender did not significantly differ between the groups requiring ICU and those who did not requiring ICU. Patients with abnormal respiratory findings in their clinical examination were more likely to require ICU. Total counts were significantly different between the 2 two groups and the SOFA score was also significantly higher among the patients requiring ICU as detailed in t(Table 3).

Table 3: Comparison Of Laboratory And Clinical Characteristics Between ICU Required Required And ICU Not Required Groups

Variables	ICU Required (N=19)	ICU Not Required (N=42)	P-value
Age	35.84±19.71 (18-75)	37.24±14.49 (19-80)	0.57[a]
Gender M/F	10/9	24/18	1.00[b]
Outcome (Deathdeath)	8(42.10%)	0	<.000[b]
Pprolonged hospital stay	16(84.21%)	33(78.57%)	0.73[c]
Pallor	3(15.78%)	6(14.28%)	1.00[c]
Icterus	6(31.57%)	6(14.28%)	0.220[b]
Cough	3(15.78%)	3(7.14%)	0.364[c]
Breathlessness	3(15.78%)	7(16.66%)	1.00[c]
Fever	14(73.68%)	39(92.85%)	0.054[c]
Hemoglobin (g%)	11.0±1.91 (8.4-15.5)	10.76±2.22 (5.3-15.8)	1.00[a]
Total WBC count (thousand / mm^3)	12.46±7.19 (4.79-27.96)	7.09±6.81 (2.7-40)	0.003[a]
Neutrophil (%)	81.53±11.66 (58-96)	64.45±18.09 (26-94)	0.375[a]
Lymphocyte (%)	5.90±7.19 (3-27)	11.05±15.48 (3-62)	0.07[a]
Platelets ((thousand / mm^3)	87.45±90.59 (21-367)	64.27±96.67 (16-395)	0.20[a]
Haematocrit (%)	33.10±5.82 (23.4-43.7)	31.75±6.17 (16.5-44)	0.562[a]
Components of SOFA score			
MAP sScore	3.42±0.53(3-4)	1.6±2.12(1-4)	0.248[a]
Respiratory	1.55±1.05(1-4)	1±0(1-1)	0.096[a]
Liver	1.56±0.71(1-3)	1.69±0.96 (1-4)	0.516[a]
Renal	1.67±0.89(1-4)	1.68±1.39 (1-4)	0.119[a]
Coagulation	1.42±0.91(1-3)	2.11±0.66 (1-4)	0.008[a]
GCS	1.30±1.32(1-4)	1±0(1-1)	0.241[a]
SOFA Score	5.82±3.17 (4-17)	2.53±2.68 (1-10)	0.001[a]

Data are presented as Mean±SD (rRange) or number (%). SOFA:= Sequential Organ Failure Assessment; MAP: – mean arterial pressure ;pressure; GCS: – GrasgowGlasgow cComa scale[a]Anova; [b]Chi-square test[c]Fisher exact test.

Regression Analysis Of Outcome

To identify the factors influencing the outcome and the need for ICU regression was run for all variable which were different by <0.1, < 0.05 and less than 0.01. The best model was found by analysing the varible differing by < 0.05 with reference to outcome. R-square and F statistics. At <0.05 whose Adjusted R-square was 0.39 with an F of 0.00001. Similarly regression analysis for ICU requirement was done where adjusted R was 0.45 and F was 0.000001 for α p value of <0.05 Validation of regression findings was done using ANOVA and R-square . C clinical findings in the during system respiratory system examination, findings in the cChest X-x ray findings, Total total counts, Platelet platelet counts, Coagulation coagulation component of the SOFA score, SOFA Scorescore, and ICU requirement were all found to beidentified as significant factors. Considering the high significance and correlation between respiratory findings and abnormal chest X-rays, abnormal findings during respiratory examination were chosen as the preferred indicator. This choice allows for easy assessment upon the patient's arrival at the emergency department, even in centers with limited resources.Since Respiratory system finding and abnormal chest xrays were highly significant and correlate abnormal findings in the respiratory system examination was chosen over the chest x ray, since it is the best indicator as soon as patient arrives to emergency, and it is possible to easily assess even in a centre with less resources. The Ccoagulation component of the SOFA score and platelet counts had a similar correlation. SOFA score, abnormal RS respiratory findings in theduring clinical examination, and Coagulation coagulation component of the SOFA score were significant predictors of mortality. Additionally, Presence the presence of Respiratory respiratory System abnormalities , altered sensorium , Total total WBC Counts counts, Outcome outcome (death or recovery), Coagulation coagulation component of the SOFA score, and the SOFA Score score were all found to be predictors of ICU requirement.

Table 4: Prediction Model Of Mortality In Leptospirosis

Variables	Coefficients	Standard Error error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	0.193234406	0.12190423 2	1.585 13286 9	0.118 56755 5	-0.050 96911 6	0.43 7437 928	-0.050 96911 6	0.4374 37928
Abnormal Rrespiratorry System findings	-0.18 4586 964	0.092 12934 3	-2.003 56321 5	0.049 96437 4	-0.369 14421 6	-2.97 114E -05	-0.369 14421 6	-2.971 14E-05
Total Countcount	0.00 5329 229	0.005 05551 7	1.054 14130 1	0.296 34526 9	-0.004 79818 8	0.01 5456 647	-0.004 79818 8	0.0154 56647
Coagulation component of SOFA score	-0.11 9857 71	0.031 28671 8	-3.830 94547 3	0.000 32495 8	-0.182 53253 7	-0.05 7182 883	-0.182 53253 7	-0.057 18288 3
SOFA SCOR Escore	0.04 3206 031	0.012 33064 5	3.503 95556 3	0.000 90918 6	0.018 50478 1	0.06 7907 28	0.0185 04781	0.0679 0728

SOFA: = Sequential Organ Failure Assessment.

DISCUSSION

In thisThe current retrospective single-centre study of Leptospirosis leptospirosis we found that the SOFA scorehas identified significant factors for predicting mortality namely SOFA score calculated within 24 hours following admission , the presence of abnormal respiratory findings on clinical examination, and platelets counts (i.e. the coagulation component of the SOFA score). were significant factors for predicting mortality.

In In aa case control study by Ppetakh et al. conducted in Ukraine, logistic regression analysis indicated revealed that a combination of creatinine levels and direct bilirubin levels were serves as the best predictors of patient outcome. The The model demonstrated a specificity of the model was 90.9% and the area under the receiver operator characteristic (ROC) function as curve of 93.6% [10].

In a systematic review of mortality in untreated leptospirosis, the median series mortality was 2.2% (rRange 0.0 – -39.7%). However,, but mortality was higher in jaundiced patients with jaundice (19.1%,) (Range range 0.0 –- 39.7%), those with renal failure (12.1%, r (Range 0-25.0%) and in patients aged over >60 years(60%,) (rRange 33.3-60%), but low in anicteric patients (0%, r) (Range 0-1.7%) [11]. In our study aA significantly higher percentage of patients who patients who diedsuccumbed to death were icteric.

Lee et al. reported an l in their study found the overall mortality rate to beof 6.84% in among hospitalisedhospitalized patients with acute leptospirosis. Multivariable logistic regression revealed that neutrophil counts ([OR 1.38, 95% CI 1.15–-1.67)] and platelet counts ([OR 0.99, 95% CI 0.97–-0.99)] were predictive for risksignificant predictors of mortality. Multivariable logistic regression revealed that male sex (OR 3.29, 95% CI 1.22–-12.57) and number of days between symptom onset and antibiotic use (OR 1.28, 95% CI 1.08–-1.53) were found to be predictive for of risk of progression to severe disease [12].

Dupont et al. using multivariate logistic regression demonstrated that five factors were independently associated with mortality. These factors were: dyspnea (odds ratio [OR],OR 11.7; 95% confidence interval [CI], 2.8–-48.5; P <0 .05), oliguria (OR, 9; CI, 2.1–-37.9; P < 0.05),; white blood cellWBC count, >12,900/mm^3 (OR, 2.5; CI, 1.8–3.5; P ≤ 0.01), repolarization abnormalities on electrocardiograms (OR, 5.9; CI, 1.4–-24.8; P ≤0 .01), and alveolar infiltrates on chest radiographs (OR, 7.3; CI, 1.7– -31.7; P ≤0 .01). The Iidentification of these factors upon admission might may provide serve as useful selection criteria for identifying patients who requireho need early transfer to the intensive care unit ICU [13]. Similar factors were considered in our the present study.

Liver and kidney involvement were theare most commonly involved organs inobserved in patients with severe leptospirosis. Pulmonary involvement, though uncommon, has been found to lead to is associated with high mortality [14]. In a study by Smith et al. observed that, the presence of oliguria (urine output <5 500 mL/24 hours, odds ratio (OR):OR 16.4, 95% confidence interval (CI):CI 6.9–-38.8, P p<0.001), abnormal auscultatory findings on respiratory examination (OR 11.2, (95% CI: 4.7–-26.5, P p<0.001), and hypotension (systolic blood pressure <<100 mmHg, OR 4.3, (95% CI 1.7–-10.7, Pp = 0.002) at presentation independently predicted severe disease. A three-point score (thecalled 'SPiRO score') was devised developed using these three clinical variables [7]. These factors were found to be useful predictors for mortality and ICU requirement in our sthe current study as well.

Gancheva G et al. identified seven variables that were independently associated with a severe course of leptospirosis: age ≥60 years (OR 15.45 (95% CI):15.45 (12.21-–19.7), hospital admission >4 days after the clinical onset (OR 4.18,(95% CI):4.18 (2.23-–7.86); oligo/anuria (OR 10.95, (95% CI):10.95 (3.2–-19.8); hypotension (OR 13.936, (95% CI):13.936 (6.5–-19.9); pulmonary findings (OR 25.45, (95% CI):25.45 (17.5–-32.4); arrhythmia (OR 15.5, (95% CI):15.5 (10.2–-19.6), and hemorrhages (OR 21.6, (95% CI):21.6 (18.3– -29.7). These variables were assigned one point each and used to generate a seven-point prognostic score The mentioned variables (awarded one point each) were used to generate a seven-point prognostic score [15].

In a study by Daher et al., acute kidney injuryAKI, hypotension, and tachypnea were found to be identified as independent predictors of ICU requirement in lLeptospirosis. [16]. Consistent with these findings, Our study the current study also found altered sensorium , abnormal respiratory system findings on examination , total counts and the SOFA score to beas the significant predictors of ICU requirement.

This study the current study has several limitations. Being a retrospective study, not all data required was were available for inclusion. Those patients who did not test positive for Leptospira IgM were not included in the study.The study included only patients who tested positive for Leptospira IgM, potentially excluding cases with negative results. Furthermore, the study was focused on hospitalized patients, excluding milder cases that did not require admission. Moreover, the study was conducted solely on an Indian population, and therefore the results may not be generalizable to other races.Patients who did not get admitted were excluded from the study and so some milder cases were excluded. It was conducted only on an Indian population and results may not be extrapolated to all races.

CONCLUSIONS

The study concluded that leptospirosis patients admitted to the hospital had a higher likelihood of requiring ICU care if they exhibited altered sensorium, abnormal respiratory findings during clinical examination, increased total WBC counts, and higher SOFA scores, particularly the coagulation

component. Total WBC count at admission and SOFA score, specifically the coagulation component, were significant predictors of mortality.In our study patients with Leptospirosis admitted to the hospital were more likely to require ICU care if they had altered sensorium , abnormal examination findings of the Respiratory system , total WBC counts and higher SOFA scores , particularly the coagulation component of the SOFA score. Total WBC count at admission and SOFA score , particularly the coagulation component were found to be significant predictors of mortality.

Statements And Declarations: None

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