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Seroprevalence of leptospirosis in tertiary care hospital Solapur: A retrospective study

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Abstract
Aim/ Objective: This retrospective study is to evaluate the prevalence of leptospirosis in the year 2015 in Solapur Govt Medical College.
Material & Methods: A total of 455 sample were collected from patient with suspected leptospirosis and subjected to serological testing by immunocheck rapid immunoassay.
Results: six cases of leptospirosis detected. Cases were common in the month of January for the year. Mean age of patient was 36years.Male patients out numbered female.
Conclusion: This study highlights the importance of serological procedure in diagnosis of leptospirosis

Keywords: Seroprevalence, leptospirosis, retrospective study

1. Introduction
Leptospirosis is a spirochetal disease caused by the pathogenic members of the genus leptospira. It is a wide-spread zoonosis that affect humans worldwide, in both urban and rural areas and in temperate and tropical climates [1, 2]. Humans are accidental host and are infected by contact with an environment contaminated by urine of shedder hosts such as rodent cattle and dog [3]. Human leptospirosis is prevalent in several states in India sporadically or as outbreak, especially during rainy season [4-10]. Despite the morbidity and unnecessary mortality as witnessed in the recent floods in Mumbai, there is no systematic prevention and control programme for leptospirosis in the country, as it has not been identified as priority under the national health policy [3]. With the exception of report by Dalal [11] and Joseph and kalra [12] very few reports on leptospirosis originated from India till the 1980 [7]. This is inspite of the fact that the isolation of the causative organism was first reported as early as 1931, from the Andaman and Nicobar islands [13]. Sero prevalence rate of more than 55% was observed in the general population of North Andamans [14].
In general, the two contributing factors for under-reporting of leptospirosis include difficulty in clinical diagnosis due to its clinical manifestation and lack of simple diagnostic procedure for early detection. The disease symptoms range from mild flu like illness to a variety of clinical syndrome including hepatorenal involvement with jaundice, severe pulmonary hemorrhage, myocarditis and meningitis [2]. Direct detection of the organism from clinical material by culture and /or dark field microscopy, though providing definite proof of the diagnosis is a time-consuming procedure requiring expensive laboratory facilities and success rate is very low [15]. Molecular methods like polymerase chain reaction assay, despite their sensitivity suffer from false positivity and cannot be used as diagnostic test on their own and further require expensive equipment and expertise [1]. Serological test based on the detection of antibodies remain the most practical method of diagnosis of leptospirosis. In this study we performed rapid visual test for detection of IgG and IgM antibodies to leptospira in human serum/plasma or whole blood. Thus aim of this retrospective study is to evaluate the prevalence of leptospirosis in Govt Medical College, Solapur Maharashtra.

2. Material and Methods- Present study is a retrospective review of records of leptospirosis cases diagnosed at our institute during the last one year Jan 2015- Dec 2015.

During this period, the microbiology laboratory received 455 blood samples. Of which six were positive from suspected cases with pyrexia of unknown origin for leptospira serology. Serum sample were tested for leptospira antibody. Immunocheck leptospira kit was used for detection of leptospira IgG /IgM.

Immunocheck Leptospira IgG /IgM Rapid test fill the pipette dropper with specimen. Holding the dropper vertically, dispense one drop of specimen in to sample well making sure that there are no air bubbles. Then add one drop of sample diluents immediately. In addition to the presence of (c) band if only (T1) band is developed the test indicates or the presence of anti-leptospira interrogans IgM in the specimen. The result is reactive. This indicates that it is a current infection. In addition to the presence of (c) band if only (T2) band is developed the test indicates or the presence of anti-leptospira interrogans IgG in the specimen. The result is positive. The result is reactive. This indicates of previous exposure. In addition to the presence of c band, bothT1and T2 bands are developed, the test indicates for the presence of anti-Linterrogans IgG and IgM in the specimen. The result is also positive. This indicates the middle stage of infection.

3. Results: During this study period Jan2015 - Dec 2015, we detected six cases of leptospirosis. Cases were common in the month of January for the year. Mean age of patient was 32 years with the range from 2.5 to 78 year. Male patients outnumbered female. Most of the patients were young adult. Most of the patients by occupation were farmers. Fever was seen in six leptospirosis patients and associated with chills and rigor. Icterus, abdominal pain, hepatomegaly, muscle pain, tenderness, headache, vomiting, breathlessness, splenomegaly, subconjunctival effusion, oliguria and altered sensorium were the common manifestation of the disease.

4. Discussion

The prevalence of leptospirosis reported from different region show a wide variation. The diagnosis of leptospirosis is often unconfirmed because of the lack of clinical suspicion, inappropriate collection and unavailability of testing facilities or a combination of these factors [1]. Serological test is the test most commonly used to diagnose leptospirosis due to difficulty in its isolation, lack of sensitivity and specificity in dark field microscopy [16]. The laboratory investigations in our study were consistent with mild disease, the hematological profile was normal in most patients. The present study was conducted among 455 patients in Solapur city with clinical features suggestive of leptospirosis, six cases were positive by Immunocheck leptospira. Among the six patients four were male and two were female which indicate that leptospirosis is the disease of occupationally active age group i.e. young to middle age adults with male preponderance. The male preponderance in leptospirosis is due to their outdoor activities and occupation. This correlates with Pappachan *et al*. study in which 58.9% patient were males [17] in a study by Maskey *et al*. there was eight fold rise in the number of cases of leptospirosis in Mumbai during august 2005 after heavy rainfall and water logging [18]

In a study conducted by Margarita R *et al.* [18] the mean age of the patient affected with leptospirosis was 36 yrs which correlate with the present study. All six positive patients were positive for IgM leptospira antibody during the month of January. The maximum spread of leptospirosis occurs during the monsoon period, this may be due to polluted environment Sharma K.K *et al.* [20]. Most of the patients affected by leptospirosis were agricultural workers. This establishes the fact that person who are more exposed to contaminated environment are at a higher risk of contracting the disease. In a study conducted by Sharma *et al*. [21] in Andaman during 2006 the percentage of people affected was 59.6%. The most predominant symptom was fever which was seen in 100% of the patients in our study. In De A *et al.* study fever was present in 100% of cases this finding was similar to our study. The sero prevalence of leptospirosis in the study is 1.31.The prevalence of leptospirosis reported from studies from different region show a wide variations [22-23]. There is decrease in the prevalence of leptospirosis and its severity because of increase awareness among public. The persistence of leptospirosis suggests that the environmental risk factor (infected rodents, and domestic animal contaminated environment and rainfall) play an important role in the continuous occurrence and spread of disease.

5. Conclusion: This study highlights the importance of serological procedure in diagnosis of leptospirosis

6. References

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