

Abstract

Introduction

Leptospirosis is a zoonotic disease endemic in Sri Lanka. Early diagnosis of leptospirosis can be a challenge with its non-specific clinical presentation. However, rapid detection is crucial in the management as sinister complications can be minimized with early and appropriate antimicrobial therapy. Timely laboratory diagnosis of leptospirosis still remains a challenge because of different limitations in the currently available tests.

Methodology

Adult patients from three hospitals in Colombo district, Sri Lanka with clinically suspected leptospirosis during the first seven days of fever were recruited. A blood and a urine sample were collected simultaneously from patients. DNA was extracted from samples and real time PCR (rtPCR) was performed using *lipL* 32 primers. MAT results were traced. Analytical sensitivity and specificity of the PCR assay was calculated using known positive and negative controls.

Results

Total of 125 patients were included into the study and their mean age was 47 years. Real time PCR in urine samples had a diagnostic sensitivity of 52.08%, diagnostic specificity of 86.21%, positive predictive value of 92.59% and negative predictive value of 35.21 %. There was a significant reduction of urine rtPCR sensitivity in patients with jaundice. The overall diagnostic sensitivity of blood rtPCR was 82% and its sensitivity was reduced from the 5th day of fever. A significant association was not seen with antibiotic use and rtPCR results of blood and urine in this study.

Discussion

The diagnostic sensitivity and specificity of rtPCR in urine samples was similar to some previous studies with high sample numbers. The lower sensitivity of urine rtPCR may have been due to PCR inhibitors like bilirubin present in urine. The reduction in

sensitivity of blood rtPCR from 5th day of illness was noted in previous literature as well. The diagnostic sensitivity of blood rtPCR was higher than the findings of previous Sri Lankan studies.

Conclusion

Urine rtPCR may become useful for early diagnosis of leptospirosis during the first week especially from the 5th day of fever when the blood PCR sensitivity is known to fall.