Urinary excretion of intermediate pathogenic leptospires among "renal patients" of Girandurukotte, Sri Lanka: Interim results

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Introduction and Objectives: Chronic kidney disease (CKD) and CKD of uncertain aetiology (CKDu) pose a major public health threat in Sri Lanka. Untreated asymptomatic leptospirosiscould progress to a chronic infection, whereby leptospires colonize the renal tubulesand are shed in urine concomitantly. This leads to decreased renal functionality which could progress to CKD/CKDu. The farmers of Sri Lanka who are a high-risk group for leptospirosis,are affected by CKD/CKDu. Thus we hypothesize that leptospirosis could be a confounding factor between CKD/CKDu and farming. The aim of this study was to detect urinary excretion of leptospires among renal patients living in Girandurukotte, Sri Lanka.

Methods: Urine (50 mL) and demographic data were collected from clinically diagnosed CKD/CKDu patients (n=30) from the Girandurukotte District Hospital, Badulla. Urine samples were filtered on site, using a 0.22µm filter unit. The filter paper was deposited in tubes containing 1.5ml water and placed on a shaker overnight, to enable detachment of *Leptospira* cells from the filter paper. The tubes were vortexed at high speed for 30 seconds the next day, following which DNA extraction was performed as per the manufacturer's protocol (Qiagen®DNAeasyblood and tissue kit). PCR was carried out to detect pathogenic and intermediate pathogenic *flaB*genes. PCR positive samples were sent to National Institute of Infectious Diseases, Japan for sequencing and phylogenetic analysis was done using *flaB* sequences obtained.

Results: Of the 30 renal patient samples that were subjected to PCR, none of the samples were positive for pathogenic *flaB* PCR, while one sample was positive for intermediate pathogenic *flaB* PCR. Positive amplicon sequence showed98% identity to *L. licerasiae.*

Conclusions: Asymptomatic renal colonization by pathogenic and intermediate pathogenic *Leptospira*spp. has been observed in endemic regions. However, this is the first report in Sri Lanka where an intermediate pathogenic *Leptospira* spp. was found to colonize the kidneys asymptomatically, despite leptospirosis being a notifiable disease since 1991. These results do not show any association between leptospirosis and CKD/CKDu.

Keywords: Leptospirosis, CKDu, PCR, phylogenetic analysis

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