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Renal outcomes in snake envenomed acute kidney injury in southern India

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Objective: Acute kidney injury (AKI) is a common complication of snake envenomation. However, long term renal outcomes are not well defined. Previous studies have shown that between 37 and 41% of patients progress to chronic kidney disease (CKD), however regional variability of snake species may change this profile. The objective of this study is to determine the proportion of patients who developed AKI, characterise the presenting syndromes and ascertain the long term resolution of the AKI.

Methods: This is a bidirectional descriptive cohort study of patients with snake envenomation induced AKI in Department of Medicine from 2 teaching hospitals in South India. All cases of snake envenomation in patients over 10 years of age with serum creatinine ≥ 1.5 mg/dL were identified through online discharge summaries. From the telephone numbers provided these patients were contacted and interviewed. They were requested to come for a hospital review where clinical and lab data were collected.

Results: A total of 866 patients were screened (Centre I = 746 + Centre II = 120). Of these 184 (21.2%) patients had developed an AKI with creatinine >1.5 mg/dL. They were predominantly males (76%) with a mean age of 41 years and majority were manual labourers. In these patients 53% had combined renal, coagulopathy and neurological manifestations; 33.6% required ICU admission and 38% were dialysed. The average duration of hospitalisation was 10.3 days. At discharge only 8% were on dialysis and 16 % achieved a normal renal function (≤ 1.3 mg/dL). Over the follow up of hospital records the creatinine of 49% of patients had normalised. From the telephone interview 62 patients (36%) were contacted and none had any known renal disease or were on dialysis. Of the 16 patients who were reviewed at the hospital only two had elevated creatinine. Eleven patients died in hospital, and three patients died post-discharge.

Conclusion: AKI is an important cause of morbidity from snake envenomation in South India with a significant proportion requiring dialysis. The syndrome of snake envenomation associated AKI is suggestive of Russell's viper envenomation. The mortality in this study was low and long term renal outcomes were relatively good when compared to previous studies.