

**A STUDY TO CORRELATE ELEVATED CREATININE PHOSPHOKINASE  
WITH SNAKE BITE AND ACUTE KIDNEY INJURY**

**ABSTRACT :** There are significant indicators in snake bite to detect early changes in AKI, one of them would be CPK. And that alkalinization of urine would lower the incidence of AKI and the subsequent need for dialysis support.

**AIMS AND OBJECTIVE :** To establish the correlation between creatinine phosphokinase elevation with incidence of acute kidney injury in hemotoxic snake bite patients and to prove that soda bicarbonate infusion can reduce the need for hemodialysis in those patients

**MATERIALS AND METHODS**

**STUDY POPULATION :** Patients with history of snake bite who fulfill the inclusion and exclusion criteria getting admitted in General Medicine wards of GOVT RAJAJI HOSPITAL, MADURAI, during the period of JANUARY 2016 TO JUNE 2016.

**INCLUSION CRITERIA :** All patients with history of snake bite with signs of envenomation aged 15 to 60 years of both sexes admitted in general medicine wards of Government Rajaji Hospital, Madurai.

**EXCLUSION CRITERIA :** Patients with pre existing renal diseases and ischemic heart diseases with present history of snake bite.

Patients with the risk of developing renal diseases due to underlying diseases like hypertension, diabetes, connective tissue diseases and chronic infection. Patients with history of medications (steroids, nephrotoxic drugs) within last 10 days, before the snake bite. Neurotoxic snake bites were not included

Patients referred after 3 days of snake bite.

**DATA COLLECTION :**

Data will be collected using a pretested proforma meeting the objectives of the study. Detailed history, physical examination, and necessary investigations will be undertaken.

The purpose of the study will be explained to the patient and informed consent obtained.

Using noninvasive methods acute kidney injury in snake bite patients who fulfill the inclusion criteria is assessed.

The analysis of the data will be done using appropriate statistical methods.

LABORATORY INVESTIGATIONS : Complete haemogram, Whole blood clotting time, Bleeding time, Blood urea and serum creatinine, CREATINE PHOSPHO KINASE (CPK), USG abdomen and pelvis, Prothrombin time.

DESIGN OF STUDY : Randomized control study

PARTICIPANTS :

Patients admitted with history of snake bite with signs of envenomation in General Medicine wards of Government Rajaji Hospital, Madurai from January 2016 to May 2016.

METHOD :

Around 250 patients admitted to medicine department with history of snake bite with features of hemotoxicity was tested for serum CPK levels, routine blood investigations and USG abdomen and pelvis was also done to rule out chronic kidney disease.

First and third day creatinine values were measured and the patients were divided into cases and controls for intervention with sodium bicarbonate (1 ampoule in 500 ml NS over 1 hour) with serial monitoring for hypokalemia

The patients were later followed up with repeat renal function tests to assess the need for hemodialysis.

**OBSERVATION AND RESULTS :** Around 250 patients 85% were males and 15% were females with most of the males within 35-45 working population. Around 15% are less than or equal to 25 years, 27% are between 25-35 years of age, 31% between 35-45 years and 27% are 45 and above years.

More than 90% patients with cellulitis or with history of hemotoxicity developed CPK elevations of more than 150 which was significant. First day creatinine values were higher in the non intervention group than in the intervention groups by around 45%. Third day creatinine values were also greater in the non intervention than post soda bicarbonate infusion group. And 28% were requiring hemodialysis in the non-intervention group. But around 12% in the intervention group were requiring hemodialysis.

## **CONCLUSION**

This study correlates one of the factors in the prevention of AKI, but there are more than 10 mechanisms attributed to the cause of renal failure in snake bite patients. So this intervention may be in addition to the other treatment with IVF, anti-venom, antibiotics and prevention of dehydration. The CPK values tend to correlate with the incidence of renal failure and it can be prevented with soda bicarbonate infusion. Other factors like NGAL levels were not measured to assess

for the incidence of renal failure. So all these is to be considered in treating a patient with hemotoxic snake bite with elevated CPK values.

**LIST OF ABBREVIATIONS :**

CPK creatinine phospho kinase

NGAL neutrophil gelatinase associated lipocalin

BUN blood urea nitrogen

AKI acute kidney injury

CKD chronic kidney disease

**KEYWORDS :**

Snake Bite

CPK

Alkalinization

Acute kidney injury