



A STUDY OF CLINICAL PROFILE AND OUTCOME OF PATIENTS WITH SNAKE BITE INDUCED ACUTE RENAL FAILURE AT RIMS, RANCHI, JHARKHAND

Medicine

Dr. Ram Sewak Sahu	M.B.B.S., M.D. (Med.), Associate Professor, Department of Medicine, Rajendra Institute of Medical Sciences, Ranchi, Jharkhand.
Dr. Priyanka Sahu*	M.B.B.S., M.D. (Student), Junior Resident, Department of Pediatrics, Lokmanya Tilak Municipal General Hospital and Lokmanya Tilak Municipal Medical College, Sion, Mumbai. *Corresponding Author
Dr. Debarshi Jana	Young Scientist (DST), Institute of Post-Graduate Medical Education and Research, A.J.C. Bose Road, Kolkata-700020, West Bengal, India

ABSTRACT

BACKGROUND: Snake bite poisoning is known to man since antiquity. It is a well-known occupational hazard amongst farmers, plantation workers, and other outdoor workers and results in much morbidity and mortality throughout the world.

The acute renal failure in snake bite patients largely a preventable complication. So the patients with snake bite should be hospitalized and monitored for early detection of renal complications. This study is an attempt to analyze the clinical profile of snake bite patients and evaluation of acute renal failure in them.

OBJECTIVES: To study the renal involvement in patients with snake bite with reference to clinical features and the time of onset of acute renal failure. To study the course, need for renal replacement therapy including dialysis and outcome.

METHODS: A prospective clinical study of 100 patients of snake bite was done to know the clinical profile and outcome in Rajendra Institute of Medical Sciences (RIMS), Ranchi, Jharkhand, and particularly looked for development of acute renal failure. Later each case is studied and investigated with respect to clinical features, course in the hospital, onset of ARF, need for renal replacement therapy including dialysis and mortality due to ARF. Patients were followed till discharge or death. They were treated as per protocol. Clinical data was tabulated. Statistical analysis (SPSS) was done.

RESULTS: The incidence of ARF was (20%), majority of patients were between 31 to 50 years of age. Male patients were predominant with (68%) and (32%) were female. Most of the patients reported within 4 hours of bite. Common signs and symptoms were pain (99%), swelling (81%), cellulitis (26%), hematuria (26%) and oliguria (20%). Hypotension was present in (15%) of cases which is an important cause of ARF. All the ARF patients showed coagulation abnormalities (WBCT >20 minutes). Hemodialysis was done in 5 patients. Among 100 patients mortality was (2%) and the remaining (98%) recovered completely.

CONCLUSION: Causes of ARF in snakebite was multifactorial in origin. Bleeding and hypotension are among the important causes of ARF. Type of snakebite is another important factor in the development of ARF and Russell's viper bite is more commonly associated with ARF. Lapse of time in presenting to the hospital and abnormal coagulation profile are the predictors of poor outcome. ARF is usually associated with oliguria and generally occurs within 24 hours. Most of the ARF patients had recovered completely with effective management.

KEYWORDS

ARF, Oliguria, Coagulation Profile, Viper bite, Lapse of time.

INTRODUCTION

SNAKE BITE POISONING is known to man since antiquity. Bite rates are highest in temperate and tropical areas where populations subsist by manual agriculture. In INDIA, a large proportion of snake bites occur when people are working barefoot in the fields or while walking at night. Recent studies estimates somewhere between 1.2 million and 5.5 million snakebites worldwide each year, with 421,000-1,841,000 envenomation and 20,000-94,000 deaths.

The principal systemic effects of the envenomation are on the nervous system, kidneys, cardio vascular and blood coagulation and locally at the site of bite. Renal failure complicates 5.5% to 26.0% of all poisoning from snakes. Most cases are due to the Viperidae species of snakes, which includes pit viper, Russell's viper, saw scaled viper, rattlesnake.

The complications related to kidneys are observed in majority of patients with snake bite admitted in the hospital and is an important cause of morbidity and mortality. The onset of renal failure in these patients is signaled by the development of oliguria or anuria. This acute renal failure is largely a preventable complication. So the patients with snake bite should be hospitalized and monitored for early detection of renal complications. Early treatment improves survival in snake bite victims.

This study is an attempt to analyze the clinical profile of snake bite patients and evaluation of outcome in Acute Renal failure in them.

OBJECTIVE OF THE STUDY

1. To study the renal involvement in patients with snake bite with reference to clinical features and the time onset of renal failure.
2. To aid in the prompt diagnosis and effective management of acute renal failure cases in snake bite.

MATERIALS AND METHODS

Study Group: 100 Snake bite patients admitted in Medical ward, Rajendra Institute of Medical Sciences, Ranchi, Jharkhand.

Study Design: Clinical, prospective and observational study

Study Population: This study was conducted among 100 patients who were admitted in medical ward RIMS, Ranchi, Jharkhand.

Duration of Study:

1 year (from May 2018 to April 2019).

Inclusion Criteria:

1. Features suggestive of snake bite with or without local and systemic envenomation.
2. Definite fang marks noted.
3. Patients or attenders have seen the offending snake.
4. Progressive increase in serum creatinine more than "0.3mg/dl" from baseline, a percentage increase in the serum creatinine concentration of more than 50% (or) oliguria of less than 0.5ml per kg per hour for more than 6 hours.

Exclusion Criteria:

Patients with history of suspected snake bite, where in

1. Patient or attenders have not seen the snake.
2. Patient with pre-existing renal disease.
3. Patient with risk factors for developing renal diseases with history of snake bite (Diabetes mellitus, systemic hypertension, connective tissue diseases)

Data Collection:

All patients confirmed of snake bite will be selected and subjected to detailed history, physical examination and biochemical test with

special reference to renal involvement. Special tests like bleeding time, clotting time, serum electrolytes and USG abdomen was done whenever necessary. Systolic Blood pressure <90mmHg is considered as hypotension.

Patients were followed up till discharge or death. They were treated accordingly. Clinical data was tabulated. Statistical analysis was done.

Statistical Analysis:

All statistical analysis were performed using the SPSS (Software package used for statistical analysis) package. A "P" value of less than 0.05 was considered to be statistically significant.

RESULTS

A prospective clinical study of 100 patients of snake bite was done to know the clinical profile and outcome in RIMS, Ranchi, Jharkhand.

Maximum incidence of snake bite occurred in the age group between 31 and 40 years (28%) followed by 41-50 years (23%). Males are more commonly affected (68%) than females (32%).

Most of the bites occurred in outdoor (89%).

Lower limb (64%) is the most common site for snake bite followed by Upper limb (30%) and other sites (6%). Majority of the victims had applied tourniquet. (78%).

Among 37 cases in which snake was identified, bites due to Viper (29) were most common followed by Cobra(7) and Krait(1). 63 patients could not identify the snake.

Majority of patients reported within 4 hours of the bite (45). 18 patients presented within 4-6 hours while 32 patients presented within 6-24 hours. 5 patients presented after 24 hours of the bite. 54 patients received about 11-20 vials and 27 patients received 21-30 vials rest of 19 patient received 1-10 vials. Majority of patients stayed in the hospital for 3 to 4 days (45%) and only 3% stayed in the ward more than 10 days.

Among local manifestation (99%) of patient experienced pain followed by swelling (81%) and cellulitis (26%).

Among 100 patients of snake bite, 81 patients developed neurotoxicity, 31 patients developed ptosis, 31 patients developed of ophthalmoplegia and 6 patients developed respiratory paralysis.

60 patients developed bleeding from bite site, followed by 34 patients developed mucosal bleeding. 26 patients presented with hematuria.

Among 100 cases 15 cases developed hypotension.

Among 100 patients 7 needed fasciotomy.

Out of 100 patients 5 needed hemodialysis.

Out of 100 patients only 2 patients were went to mortality and remaining 98 patients recovered completely.

We have tested creatinine with respect to oliguria and found that 85% sensitivity, 100% specificity and diagnostic accuracy 97%. We also seen kappa measure of agreement between creatinine based renal failure and oliguria based renal failure and value is 0.901, which is almost agreement between two.

There is no statistical significant between renal failure and normal outcome patients with respect to gender. Among renal failure patients 75% were male. If a patient is a male, there is 1.528 times an odds than female to get oliguria.

There exists a statistical significance between renal failure and normal patient with respect to time lag between > 5 Hrs (delayed) and ≤ 5 Hrs.

Patients who were brought to hospital > 5 hours for treatment have an odds of 7.852 times than others for getting renal failure.

There exists a statistical significance between renal failure and normal patients with respect to WBCT > 20 and WBCT ≤ 20 Minutes.

The patients those who are having WBCT > 20 Minutes are having 10.8 odds than WBCT ≤ 20 Minutes for getting renal failure.

There exists a statistical significance between renal failure and normal patients with respect to hypotension/Normal.

The patients those who are hypotensive are having 184.3 odds than normotensive to get renal failure.

There exists a statistical significance between renal failure and normal patients with respect to cellulitis.

The patients with cellulitis are having 198.1 odds than non – cellulitis patients to get renal failure.

There exists a statistical significance between renal failure and normal patients with respect to hematuria Present/Absent.

The patients with hematuria are having 81 odds than non-hematuria patients for getting renal failure.

CONCLUSION

- Snake bites are common in and around Ranchi district of Jharkhand.
- Majority of the patients had signs of envenomation and a small number had snake bite without systemic envenomation.
- Snake bite is an important and preventable cause of ARF.
- Causes for ARF in snake bite are "multifactorial" in origin. Bleeding and hypotension are the important causative factors.
- Type of snake bite is one of the important factors in the development of Acute Renal Failure. ARF is commonly associated with Viperidae species.
- Delay in time in presenting to the hospital is one of the valid predictors of poor outcome in snake bite induced Acute Renal Failure.
- Snake bite patients developing coagulopathy are more prone to develop ARF. Snake bite patients presented with cellulitis as local manifestation are at increased risk to develop ARF.
- In ARF complicated cases, Dialysis & supporting therapy appears to be the mainstay of treatment.
- Anuria of more than 48 hours, severe hyperkalemia resistant to Medical therapy, pulmonary oedema, and progressive rise in Blood urea and serum creatinine are the main indications for dialysis in ARF.
- Clinical outcome depends on optimum ASV dosage which is variable, depending on the type of snake, type of envenomation, organ system involved & supportive care offered.

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