Section: General Medicine

Original Research Article

STUDY OF CLINICAL PROFILE AND MANAGEMENT OF OUTCOMES OF SNAKE BITE PATIENTS OF MAHARASHTRA

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ABSTRACT

Background: Although snake bites can be fatal to humans, an early approach to medical aid can prevent morbidity and mortality because a delayed approach can cause neurotoxicity, hemotoxicity, and respiratory failure. **Materials and Methods:** 50 (fifty) patients of snake bites were treated with ASV. Every patient admitted to the ICU was assessed for signs and symptoms of envenomation. Blood examination included BT and CT. Neurotoxicity and hematotoxicity were ruled out. **Result:** Immediate approach and delay in approach to hospital were compared with their complications and with symptoms like ophthalmoplegia, ptosis, local edema, vomiting, drowsiness, and prothrombin time acute renal failure. Out of fifty 29 (58%) snakebite patients approached within 3 hours and 21 (42%) after 3 hours of snakebite. 1 patient died due to severe respiratory failure. **Conclusion:** Early approach to medical aid, availability Anti-snake venom (ASV) and trained medical staff can reduce the mortality and morbidity.

INTRODUCTION

Snake bites are a significant public health concern, often fatal and a major cause of mortality and morbidity worldwide, particularly among farmers, children, and women, especially in low and subtropical climates where access to medical services and antivenom is limited middle income countries.[1] Envenomation can cause extreme suffering, hinder one's ability to perform day-to-day tasks, and have long-term physical implications.

Each year globally, around 5.4 million snake bites occur, of which 1.8-2.7 million cases are envenoming, with an estimated 81,410-137,880 fatalities.[2] Between 2001 and 2014, almost 70% of snakebites were reported, particularly in monsoon seasons in various Indian states.[3]

In contrast to other diseases, snakebite has been largely overlooked and underfunded throughout the years despite its profound consequences.[4] Hence, an attempt is made to evaluate the management and consequences of snake bites in various age groups and both genders.

MATERIALS AND METHODS

50 (fifty) patients admitted at Prakash Institute of Medical Sciences and Research Centre Hospital, Urun Islampur, Maharashtra 415409, were studied.

Inclusion Criteria: Patients with a history of snakebite and signs of envenomation. Patients or attendants who gave their consent in writing for the study were selected for the study.

Exclusion Criteria

Patients with pre-existing renal disease, liver dysfunction, and bleeding disorders were excluded from the study.

Method: Detailed information regarding epidemiological parameters such as age, sex, place of bite, time of bite, and type of snake if identified by the patient or bystanders or identified by a dead snake brought by the victim or relatives. Time interval to reach the health facility after the snake bite and first aid received.

Evidence of a bite by a poisonous snake included fang marks, swelling, ecchymosis, blister formation, and/or bleeding from the local site. Disturbances in the coagulation mechanism with or without systemic bleeding. Neurotoxicity was defined as documented ptosis, external ophthalmoplegia, weakness of neck or bulbar muscles, or use of neostigmine or ventilatory support (endotracheal intubation, Ambu bag, or mechanical ventilator).

Patients who reached the hospital within 3 hours of the snake bite were kept in the immediate treatment group, while those who reached it after 3 hours were kept in the delayed treatment group. Subsequent information, like complications and outcome, was collected on the day of discharge or death of the

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patient from the case paper of the patient and entered in a computer.

Two patients who developed anaphylactic reactions to ASV (anti-snake venom) were treated conservatively and recovered completely.

The mean hospital stay in the early group was 3.32 (± 0.76) days, while the mean hospital stay for patients who presented late was 5.8 (± 2.12). The mean dose of ASV required for vasculotoxic snake bites was (16.32 ± 2.5 vials), and for neuroparalytic snake bites, it was 8.00 (± 1.5 vials). Only one patient died due to respiratory paralysis and a delayed approach to the hospital.

The duration of the study was from February 2025 to August 2025.

Statistical Analysis: Various clinical profiles presenting complaints and symptoms of snake bites were classified with percentages. The statistical analysis was carried out using SPSS software. The ratio of male and female neonates was 2:1.

RESULTS

[Table 1] Clinical profile the snake bite patients

- Time of bite: 17 (34%) day, 33 (66%) night
- site of bite: 22 (44%) hand, 25 (50%) foot, 3 (6%) other body parts
- snake distribution: 19 (38%) viper, 15 (30%) unidentified, 16 (32%) krait
- type of first aid: 16 (32%) none, 34 (68%0 torniquet
- Age of the patient: 26 (52%) were more than 30 years, 24 (48%) less than 30 years.
- Presentation time: 29 (58%) immediate (less than 3 hours), 21 (42%) delayed (more than 3 hours)

[Table 2] Complaints and symptom of snake bite patients

- Local bleeding: 9 (18%) in immediate, 8 (16%) in delayed.
- Local edema: 16 (32%) in immediate, 9 (18%) in delayed.
- Blister: 5 (10%) only in delayed.
- Cellulitis: 1 (2%) in immediate, 8 (16%) in delayed.
- Necrosis: 4 (8%) only in delayed cases.
- Fasciotomy: 3 (6%) only in delayed cases.
- Vomiting: 18 (36%) in immediate, 14 (28%) in delayed cases.
- Drowsiness: 4 (8%) in immediate, 9 (18%) in delayed cases.
- Opthalmoplegia: 8 (16%) in immediate, 12 (24%) in delayed cases.
- Ptosis: 12 (24%) in immediate, 11 (22%) in delayed cases.
- Mechanical ventilation required: 7 (14%) in immediate, 8 (16%) in delayed cases.
- Bleeding time: 24 (48%) in immediate, 14 (28%) in delayed cases.
- Clotting time: 16 (32%) in immediate, 12 (24%) in delayed cases.
- Prothrombin time: 6 (12%) in immediate cases, 7 (14%) in delayed cases.
- Gum bleeding: 1 (2%) in immediate cases, 3 (6%) in delayed cases.
- Oliguria: 5 (10%) only in delayed cases.
- Haematuria: 1 (2%) in immediate cases, 4 (8%) in delayed cases.
- Acute renal failure: 6 (12%) in delayed cases.

Table 1: Clinical profile of the snake bite patients

Details	Profile	No's	Percentage (%)
Time of bite	Day	17	34
	Night	33	66
Site of bite	Hand	22	44
	Foot	25	50
	Other body parts	3	6
Snake distribution	Viper	19	38
	Unidentified	15	30
	Krait	16	32
Typeof First aid	None	16	32
	Tourniquet	34	68
Age	More than 30 years	26	52
	Less than 30 years	24	48
Presentation time	Immediate (less than 3 hours)	29	58
	Delayed (more than 3 hours)	21	42

Table 2: Complaints and symptoms of snake bite patients

Parameters	Immediate		Delayed	
	No	%	No	%
Local bleeding	9	18	8	16
Local Edema	16	32	9	18
Blister	0	0	5	10
Cellulitis	1	2	8	16
Necrosis	0	0	4	8
Fasciotomy	0	0	3	6
Vomiting	18	36	14	28
Drowsiness	4	8	9	18
Opthalmoplegia	8	16	12	24

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Ptosis	12	24	11	22
Mechanical ventilation required	7	14	8	16
Bleeding time	24	48	14	28
Clotting time	16	32	12	24
Prothrombin time	6	12	7	14
Gum bleeding	1	2	3	6
Oliguria	0	0	5	10
Haematuria	1	2	4	8
Acute renal failure	0	0	6	12
Dialysis	0	0	1	2

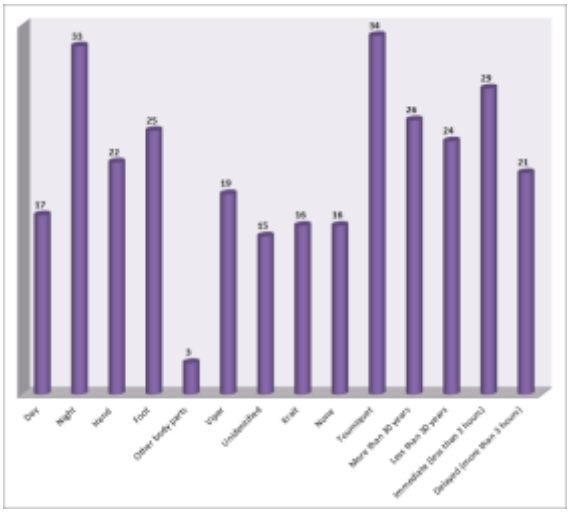

Figure 1: Clinical profile of the snake bite patients

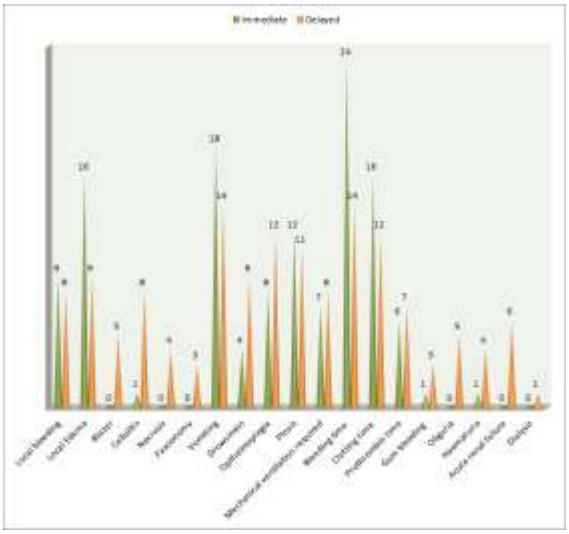

Figure 2: Complaints and symptoms of snake bite patients

DISCUSSION

Present study of clinical profile and management of outcomes of snake bites in patients of Maharashtra. The snake bite was more in the duration of night. 33 (66%) rather than the day site of the bite was more common in the foot than the hand. 25 (50%) mainly identified the snake as 19 (38%) viper, followed by krait 16 (32%). The upper age, i.e., more than 30 years, had more victims, 26 (52%). The patients of snake bites who immediately approached medical aid were 29 (58%) [Table 1]. The main complaints and symptoms were 24 (48%) had bleeding time, 18 (36%) had vomiting, and 16 (32%) had local edema in the patients who immediately approached medical aid. Bleeding time was 14 (28%), clotting time was 12 (24%), ophthalmoplegia was 12 (24%), vomiting was 14 (28%), 9 (18%) had local edema, and 9 (18%) had drowsiness. These were observed in the patients who were late to approach medical aid [Table 2]. These findings are more or less in agreement with previous studies.[5-7]

The major snakebite cases in India are due to the four poisonous snakes, which include D-russeiiN. Naja, B. caeruleus and Echis carinatus.[8] But within India the predominance of snake species varies geographically with E. carinatus being almost absent in the South Indian region.

The treatment regimen followed in the setting involved automatic shifting to the intensive care unit if presented with an alleged snakebite irrespective of the presence or absence of symptoms.[9] Then the patient is assessed for the signs and symptoms of envenomation. In case a snake species was brought along, the species was identified on the basis of various morphological features.[10] A blood sample was obtained immediately and assessed for bleeding and clotting time to assess for hematological abnormality since viper can cause both neurotoxicity and hemotoxicity.

Delays in seeking care at health facilities followed by practicing incorrect first aid methods were common influencing factors among snakebite patients.[11] It is also observed that snakebite patients are looking for traditional healers, including belief in traditional methods, the distance to the hospital, and the cost of transportation and hospitalization. These factors are the reasons for the late admission to the health facilities.

CONCLUSION

It is inferred that, with a delay in approach to medical aim, a patient of snakebite may develop systemic and local complications and need surgical intervention. Neurotoxicity and hematotoxicity may lead to renal failure and respiratory failure too.

Apart from creating awareness and availability of ASV. The availability of trained health care professionals at health facilities is crucial for early detection and timely management of snake bites to improve the prognosis.

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Limitation of study: Owing to remote location of research centre, small number of patients and lack of latest techniques, we have limited finding and results.

REFERENCES

1. Harrison RA, Hargreaves A: Snake eye naming: a disease of poverty. PLOS, Negl. Trop. Dis. 2009, 3 (12); 56-9.
2. Mohapatra B, Warrell DA: Snake bite mortality in India. PLOS Negl. Trop. Dis. 2011, 5 (5); 10-13.
3. Bharodwaj A, Sokhey J: Snake bites in the hills of north India. Natl. Med. J. 1998, 11 (6); 38-42.
4. Sharma N, Chauhan S: Snake envenomation in a north Indian hospital. Emerg. Med. J. 2005, 22 (2); 118-120.
5. Srimannarayana J, Dutta T: Rational use of anti-snake venom (ASV) trial of various regimens in hemotoxic snake envenomation JAPI 2004, 52; 789-793.
6. Singh J, Bjoi S, Gupta V: Clinical profile of venomous snake bites in a North Indian military hospital J. Emerg. Trauma. Shack 2008, 1 (2); 78-82.
7. Gupta BD, Shah VN: Clinical profiles, treatment, and complications of snake bites: a one-year retrospective study. JIAFM 2006, 28 (3); 102-104.
8. Naik RS, Tirpude BH, Khajuria BK: Mortality and morbidity pattern in snake bite at MGIMS, Sergaram, Wardha, Indian Pract. 1997, 50; 31-35.
9. Saini RK, Sharma S: Snake bite poisoning: A preliminary report. J. Assoc. Physician Indian 1984, 32: 195-97.
10. Warelli DA, Green Wood BM: Necrosis, hemorrhage, and complement depletion following bites by spitting cobra. J. Med. 1976, 55; 1-22.
11. Haiti HA, Mandal M, Mukerjee H: Epidemiology of snake bites in the district. Ind. Med. Assoc. 1992, 145-7.

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