

ORIGINAL RESEARCH

CLINICAL PROFILE IN PATIENTS OF SNAKE BITE AND THEIR OUTCOME

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ABSTRACT

Background: Snake bite is a well-known occupational hazard amongst farmers, plantation workers, and other outdoor workers and results in much morbidity and mortality throughout the world. This occupational hazard is no more an issue restricted to a particular part of the world; it has become a global issue.

Aim: To study the clinical profile and outcome of patients of snake bite admitted JA group of hospital Gwalior (GRMC Gwalior)

Method: This study was conducted in JA group of hospital Gwalior (GRMC Gwalior) in 75 patients admitted with history of definite snake bite in ICU, Department of Medicine, G.R. Medical College, Gwalior, Madhya Pradesh, India over a period of one and a half year from July 2019 to December 2021. All the patients were subjected to history taking, complete physical examination and relevant blood investigations including complete blood count and renal function test with appropriate inclusion and exclusion criteria

Results: Most of the cases of snake bite were from age group 21-30 years (28%) and second most common age group was 41-50 years (24%). Ptosis (74.6%) was found to be most common symptom followed by ophthalmoplegia (62.6%) in snake bite patients. Almost all (94.6%) patients of snake bite recovered and only 4 (5.4%) died in hospital due to cardiac arrest while on ventilator.

Conclusion: Snakebite is most often an occupational, domestic or environmental hazard affecting mostly males and from age group 21-30 years. Mostly patients appeared with neurotoxicity. Majority of patients of snake bite recovered if they received right treatment

Key Words: snake bite, cardiac arrest, neurotoxicity

INTRODUCTION

Snake bite is a well-known occupational hazard amongst farmers, plantation workers, and other outdoor workers and results in much morbidity and mortality throughout the world. This occupational hazard is no more an issue restricted to a particular part of the world; it has become a global issue¹.

It is documented that there are 54,00,000 snake bites with 2,50,000 envenomations and around 1,25,000 fatalities annually in the world. Most snake bites and fatalities occur in Asia, Southeast, and sub-Saharan Africa, with India reporting the highest mortality due to snake bites. However, there is no accurate statistics of morbidity and mortality, which could certainly be higher, because most of the victims initially approach traditional healers for treatment and are not even registered in the hospital².

India is reported to have the highest number of snake bites (81,000) and deaths (11,000) per year. However, the geographical distribution and statistics are variable in the country due to gross underreporting, resulting in massive statistical disparity. Estimates of death due to snake bite range widely from 1,300-50,000. According to Government of India data, there were 61,507 snake bites with mortality

of 1124 in 2006; 76,948 bites and 1359 deaths in 2007. A high mortality of 50,000 deaths each year has also been published. In the state of Maharashtra an average of 1,224 deaths per year (2.43 deaths per 1,00,000 per year) were reported between 1974 and 1978. Random community based surveys in some localities in West Bengal, have shown much higher annual mortality rates of 16.4 deaths per 1,00,000. A report by the hospitals of Government of India, from all states, except six documents just 1,364 deaths due to snakebites in 2008, believed to be gross under reporting, as rural victims seek traditional treatment³.

A nationally representative snake bite mortality survey in India (2001-2003) has highlighted 45,900 deaths annually, with the highest mortality rate in the state of Andhra Pradesh⁴.

The WHO has included snake bite in its list of neglected tropical conditions in 2009. Incidence of clinical features of different types of snakebite and the management methods have not been studied fully in central Indian context. Therefore in this current study we studied clinical profile, management given, role of ventilatory support and outcomes in patients admitted due to snake bite⁵.

MATERIAL AND METHODS

This study was conducted in JA group of hospital Gwalior (GRMC Gwalior) in 75 patients admitted with history of definite snake bite in ICU, Department of Medicine, G.R. Medical College, Gwalior, Madhya Pradesh, India over a period of one and a half year from July 2019 to December 2021. All the patients were subjected to history taking, complete physical examination and relevant blood investigations including complete blood count and renal function test with appropriate inclusion and exclusion criteria. Informed and written consent was obtained from eligible patients prior to enrollment in the present study. A questionnaire was prepared to interview patients and bystanders containing detailed information regarding the snake bite.

Twenty Minutes whole blood clotting test (20 MWBCT) was done in all the patients. All those presenting with toxicity were given ASVS and supportive management.

OBSERVATIONS AND RESULTS

Table No. 1
Distribution of patients according to gender

Gender	No.	%
Male	52	69.3
Female	23	30.7
Total	75	100

Total 75 patients were studied. Out of which 52 were males and 23 were females.

Table No. 2
Distribution of patients according to age

Age group (yrs)	No.	%
11-20	11	14.7
21-30	21	28.0
31-40	13	17.3
41-50	18	24.0
51-60	9	12.0
> 60	3	4.0
Total	100	100

Most of the cases of snake bite were from age group 21-30 years (28%) and second most common age group was 41-50 years (24%).

Table No. 3
Distribution of patients according to type of toxicity due to snake bite

Type of toxicity*	No. (n=75)	%
Neurotoxicity	67	89.3
Heamatotoxicity	8	10.7
Local toxicity	34	45.3

*Multiple responses

Majority of (89.3%) patients appeared with neurotoxicity. Local Toxicity symptoms also appeared in 45.3% of patients.

Table No. 4
Distribution of patients according to clinical symptoms due to Snake bite

Symptoms*	No. (n=75)	%
Vomiting	41	54.6
Ptosis	56	74.6
Ophthalmoplegia	47	62.6
Drowsiness	26	34.6
Slurred speech	22	29.3
Difficulty in swallowing	41	54.6
Unconsciousness	2	2.6
Breathlessness	27	36.0
Deranged renal function	16	21.3

*Multiple responses

Ptosis (74.6%) was found to be most common symptom followed by ophthalmoplegia (62.6%) in snake bite patients.

Table No. 5
Distribution of patients according to outcome of snake bite

Outcome	No.	%
Recovered	71	94.6
Death	4	5.4
Total	75	100

Almost all (94.6%) patients of snake bite recovered and only 4 (5.4%) died in hospital due to cardiac arrest while on ventilator.

DISCUSSION

In India there are more than 200 species of land snakes. Amongst, only five of them are poisonous to humans. They are king cobra, cobra, common krait, russell viper and saw scaled viper. The most common poisonous snake is common krait. Venom is the saliva of the snake. The concentration of venom shows diurnal and seasonal variation. Bites inflicted at nights and immediately after hibernation are the most severe. Venom travels in the body through lymphatics and superficial veins. These are complex mixture of 20 – 50 different chemical compounds, mainly proteins, including a large variety of enzymes and non-enzymatic polypeptide toxins, amino acids, biogenic amines, carbohydrates, lipids, nucleosides, nucleotides and metals.

Out of all patients admission due to definitive snake bite, 52 (69.3%) were males and 23(30.7%) were females. Most of the cases of snake bite were from age group 21-30 years (28%) and second most common age group was 41-50 years (24%). These results are similar to **Sharma N et al** and **Koirala DP et al**⁶.

Almost all (89.3%) patients appeared with neurotoxicity. Local Toxicity symptoms also appeared in 45.3% of patients. **Sharma SK et al**⁷ also found that most envenomed patients had sign of neurotoxicity a

usual consequence of cobra and krait bite. Though these results were different from **Sharma N et al**⁶, in which they found that 60% (86 of 142) had neurotoxicity and 40% had vasculotoxicity. It may be due to high availability of Cobra snake in central India region.

Ptosis (74.6%) was found to be most common symptom followed by ophthalmoplegia (62.6%) in snake bite patients. Vomiting (54.6%), drowsiness (34.6%), slurred speech (29.3%), difficulty in swallowing (54.6%), unconsciousness (2.6%) and breathlessness (36%) were other symptoms found in snake bite patients. These results are in accordance with **Emam SJ et al**⁸⁻¹¹.

Almost all (94.6%) patients recovered and only 4 (5.4%) died in hospital due to snake bite. These results are similar to **Punde DP et al (4.7%) and Koirala DP et al (2.5%), Zafar J et al (5%) and Sharma N et al (3.5%)**¹²⁻¹⁵.

CONCLUSIONS

Snakebite is most often an occupational, domestic or environmental hazard affecting mostly males and from age group 21-30 years (26%) and second most common age group was 41-50 years (21%). The socio-economic fallout of this is immense, in the case of death of the only earning male member of the house as is not uncommon. Majority of (89.3%) patients appeared with neurotoxicity. Local Toxicity symptoms also appeared in 45.3% of patients. Ptosis (74.6%) was found to be most common symptom followed by ophthalmoplegia (62.6%) in snake bite patients. Vomiting (54.6%), drowsiness (34.6%), slurred speech (29.3%), difficulty in swallowing (54.6%), unconsciousness (2.6%) and breathlessness (36%) were other symptoms found in snake bite patients. We conclude that snakebite deaths in India are concentrated largely within limited geographical areas, and involve particular communities during specific seasons. Approximately all (94.6%) patients recovered and only 4 (5.4%) died in hospital due to snake bite.

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